Chapter	Page	Section	Line/Table/ Figure #	Comment	
3	54	3.4.5.1	1885-1889	"Some consumptive uses of groundwater may have a more immediate impact on streamflow than others; for example, a well that begins pumping groundwater 66 ft (20 m) from the river bank may cause stream depletion hours or days later, while a well that begins pumping two miles (3 km) west of the river bank may not influence streamflow for months or even a year." This is an important point. Unfortunately, the SVIHM is not capable of simulating the short-term impacts. Prudic et al. (2004) provide the following statement on the associated limitations on MODFLOW's streamflow routing package: *"The mass-balance or continuity approach for routing flow and solutes through a stream network may not be applicable for all interactions between streams and aquifers. The SFR1 Package is best suited for modeling long-term changes (months to hundreds of years) in ground-water flow and solute concentrations using averaged flows in streams. The Package is not recommended for modeling the transient exchange of water between streams and aquifers when the objective is to examine short-term (minutes to days) effects caused by rapidly changing streamflows."*	TC-062
3	58	3.4.5.1	2032-2034	"The reasonableness of groundwater use that may contribute to stream depletion could depend on a number of circumstances, including the benefits of pumping groundwater and the resource benefits of pumping groundwater" This statement distracts from the issue as it addresses the beneficial uses of groundwater consumers, not the beneficial uses of surface waters.	TC-063
3	58	3.4.5.1	2044-2047	"In the context of assessing MTs for the ISW SMC, it is reasonable to only hold groundwater users~~producers~~ outside the adjudicated zone to a modest percentage of stream depletion reversal because any greater responsibility would unreasonably constrain groundwater users in the basin." We agree that groundwater users outside the adjudicated zone are not responsible for solving all the water issues in the Scott River. However, the approach taken here is backwards. Rather than first defining an arbitrary endpoint based on what groundwater users can relatively easily tolerate, the first step should be to determine the instream flows needed by fish, then calculate the difference between those needed flows and current flows, and then assign the same percent reductions needed by all water users (surface, adjudicated groundwater, and unadjudicated groundwater) to meet that difference. To use a hypothetical example, if overall water use needs to be reduced by 40% to meet instream flow targets, then surface water users, adjudicated groundwater users, and unadjudicated groundwater users should each be responsible for reducing their water use (or coming up with projects that produce an equivalent amount of seasonal supply) by that same 40%.	TC-064

Chapter	Page	Section	Line/Table/ Figure #	Comment	
3	58	3.4.5.1	2044-2047	What is "modest" and how is it quantified in terms of groundwater use?	TC-065
3	59	3.4.5.1	2089-2090	"…that is, what is an "unreasonable" amount of stream depletion, which could 2089 be reframed as: what is a "reasonable" amount of avoided groundwater use?". This statement is not how SGMA defines an unreasonable impact for ISW. The GSA can't replace "unreasonable impacts on beneficial uses of surface water" with reasonable use of groundwater.	TC-066
3	60+	3.4.5.1	2108-2209	ISW MT should not be defined based on a proportion or partial contribution to an undesirable result. SGMA requires that an MT define the minimum threshold for a full undesirable result. The whole concept of defining the ISW MT on what the PMA can achieve is putting the cart before the horse. The MT is a numeric value used to define an undesirable result (this may be why the GSP spends so much time confusing and twisting the definition of undesirable result). The MT, if exceeded, may cause an undesirable result. PMAs are a means to avoid exceeding an MT, not a mechanism to define an MT.	TC-067
3	63	3.4.5.1	Table 7	The caption here says that streamflow depletion is summarized across the "Sep 1 to Nov 1" period. Is that correct, or should it be "Sep 1 to Nov 30", as is stated on the Slide 8 of Appendix 4-a? Given that the model's primary time scale is monthly, the correct time period is probably Sept. 1 – Nov. 30, right?	TC-068
4	3	4.1	107-110	"In developing PMAs, priorities for consideration include effectiveness toward maintaining the sustainability of the Basin, minimizing impacts to the Basin's economy, seeking cost-effective solutions…" Based on the description here, it seems like increasing the efficiency of fall/winter stockwater diversion and delivery systems (so these diversions could be dramatically reduced with little economic impact) would be low-hanging fruit that should have been included as a PMA. This would not improve groundwater conditions, but could (we do not know, in part because the SVIHM is not currently set up to be able to provide answers to this important question) mitigate some of the fall streamflow depletion caused by groundwater pumping. While ditches currently used for stockwater could be very useful for managed aquifer recharge (MAR), this activity should only occur during times when there is abundant surface water, such as late winter and spring of normal and wet years, and should utilize a MAR-specific water right so it can be appropriately managed to benefit, rather than harm, instream flows. See our comments on Chapter 2, page 116, section 2.2.3.2 for additional information on this topic.	TC-069

Chapter	Page	Section	Line/Table/ Figure #	Comment	
4	5	4.1	205	Which "Existing reports, proposals" were used to develop the PMAs for recharge? Please provide specific citations.	TC-070
4	5	4.1	206	Shouldn't the Scott River Watershed Council be listed as an entity that is engaged in planning and implementing habitat improvement projects? Table 1 on page 7 lists several PMAs being implemented by the Council.	TC-071
4	7	4.1	Table 1	Increasing the efficiency of fall/winter stockwater diversion and delivery systems (so these diversions could be dramatically reduced with little economic impact) should be included as a PMA. See our comments on Chapter 2, page 116, section 2.2.3.2 for additional information on this topic.	TC-072
4	8	4.1	Table 1	Beaver Dam Analogues (BDAs) are listed solely in the "Habitat Improvement" category. Aren't they also designed to increase groundwater storage and recharge? Why weren't model runs conducted on the effects of BDAs? Is the model not capable of simulating BDAs? If not, what modifications to the model would be needed to simulate BDAs?	TC-073
4	8	4.1	Table 1	Prescribed fire should be added to the list of activities described in the Scott River Watershed Council's "Upslope Water Yield Projects" PMA.	TC-074
4	9	4.1	Table 1	In the "Voluntary Managed Land Repurposing" PMA, we recommend adding groundwater recharge. See our comments on Chapter 4, Section 4.3, pages 24-28, lines 640-809 for additional discussion of this topic.	TC-075
4	13	4.3	316	The "Avoiding Significant Increase of Total Net Groundwater Use from the Basin" PMA does not provide a definition of what "significant" means, so we suggest removing that word. Without a definition, isn't this PMA meaningless? It should probably either be percent (e.g., 1%) or volume? See related comment regarding Chapter 4, page 17, section 4.3, lines 454-456.	TC-076

Chapter	Page	Section	Line/Table/ Figure #	Comment	
4	13	4.3	340-344	We are unable to understand exactly what the "Avoiding Significant Increase of Total Net Groundwater Use from the Basin" PMA means, especially, this excerpt: "Due to the direct relationship between net groundwater use and ET, implementation of the MA is measured by comparing the most recent five- and ten-year running averages of agricultural and urban ET over both the Basin and watershed, to the maximum value of Basin ET measured in the 2010-2020 period, within the limits of measurement uncertainty." Can it be re-stated more clearly, such as, "The goal of this MA is for X not to exceed Y by Z percent?" Can you provide information on the limits of measurement uncertainty? What is the rationale for using the maximum as the basis for the comparison? Is the purpose of the running averages to smooth out climatic variation (i.e., is ET higher in wet years than dry years)? If there is substantial variation between water year types, then should the goal be different in different water year types? What about the contribution of surface water irrigation to ET? We anticipate that climate change will cause increased reliance on groundwater because surface water flows are going to recede earlier in the irrigation season (due less snowmelt), which could result in ET staying the same but groundwater extraction will increase and flows be lower, all without violating this MA.	TC-077
4	13	4.3	348-352	"To provide an efficient, effective, and transparent planning tool that allows for new urban, domestic, and agricultural groundwater extraction without increase of total net groundwater use. This can be achieved through exchanges, conservation easements, and other voluntary market mechanisms while also meeting current zoning restrictions for open space, agricultural conservation, etc. (see Chapter 2)." Exchanges and markets need real, verifiable information if they to operate properly. Without widespread metering, it would be far too easy to game the system.	TC-078
4	14	4.3	354-356	"To be flexible in adjusting the limit on total net groundwater extraction if and where additional groundwater resources become available due to additional recharge dedicated to later extraction." Groundwater is already over-extracted. Additional recharge should be used to reverse streamflow depletion, not enable more extraction.	TC-079

Chapter	Page	Section	Line/Table/ Figure #	Comment	
4	15	4.3	414-415	"The Basin has negligible groundwater inflow and outflow across its aquifer boundaries. As a result, pumping and recharge outside the Basin do not affect groundwater levels." Negligible is probably too strong a word, probably should be "relatively little" instead? Mountain Front Recharge ("the phenomenon of diffuse water flow through mountain soil or fractured bedrock into the alluvial sediments of an aquifer along a valley margin") is estimated constant at <18 thousand acre-feet (TAF), compared to total inflow which ranges from 149 TAF in the driest year to 788 TAF in the wettest year (i.e., see Chapter 2, page 17, Section 2.2.3.2)? Mountain Front Recharge is estimated to be 12% (18/149) of total inflow in the driest year, which isn't really "negligible," is it?	TC-080
4	17	4.3	454-456	"The permitting program would ensure that construction of new extraction wells does not significantly expand current total net groundwater use in the Basin (to the degree that such expansion may cause the occurrence of undesirable results)." How are "undesirable results" defined? Please add a definition or citation here. See related comment regarding Chapter 4, page 13, section 4.3, line 316.	TC-081
4	17	4.2	460	"Here are two illustrative examples of an appropriate use of well replacement…" … "Example 2: Replacement of a 1,000-gpm agricultural well that will be properly decommissioned with a new 2,000-gpm capacity agricultural well is permissible with the explicit condition that the 10-year average total net groundwater extraction within the combined area serviced by the old and the new well does not exceed the average groundwater extraction over the most recent 10-years." Since groundwater use is mostly unmetered (much less publicly accessible), how would this be tracked or enforced?	TC-082
4	21	4.2	543	The discussion of Beaver Dam Analogues (BDAs) discusses habitat, but aren't BDA's also designed to increase groundwater storage and recharge? See comments on Chapter 4, Section 4.1, page 21, Table 1 for additional information.	TC-083
4	22	4.2	574	Prescribed fire should be added to the list of activities described in the Scott River Watershed Council's "Upslope Water Yield Projects" PMA.	TC-084

Chapter	Page	Section	Line/Table/ Figure #	Comment	
4	23	4.2	609-639	For the Irrigation Efficiency Improvements, "Potential benefits were quantified through modelled scenarios of a 10% increase, 20% increase, and 10% decrease in irrigation efficiency. Relative stream depletion reversals resulting from these scenarios were 4%, 12% and -2%, respectively (Appendix 4-A)." Can you add a sentence or two here describing how improved efficiency affects the monthly/annual water budgets and reduces streamflow depletion in the September-November period? There's a widespread misconception among the public and agencies that increasing irrigation efficiency magically creates water, so it would be helpful if the text here provided specific estimates of how it changes the water budget. Increased efficiency would have zero impact on ET, but would decrease pumping and diversions and would decrease recharge, right? Does efficiency reduce some of the streamflow depletion because the reductions in pumping and diversions outweigh the decreases in recharge?	TC-085
4	23	4.2	631-639	The proposed monitoring of irrigation efficiency omits a key tool– metering of water use. Without metering, how can we know if the efficiency projects are actually working?	TC-086
4	23	4.2	631-639	The proposed monitoring of irrigation efficiency lists "Assessment of the increase in irrigation efficiency, with particular emphasis on assessing the reduction or changes in consumptive water use (evaporation, evapotranspiration) based on equipment specification, scientific literature, or field experiments." Doesn't efficiency usually not affect consumptive water use but instead just change recharge (that's how it is represented in the SVIHM, right?). What is the physical basis for thinking efficiency would affect consumptive use for crops like pasture and alfalfa that have low-lying continuous canopy cover (i.e., in contrast to orchards or row crops like tomatoes where efficient delivery systems like drip irrigation could reduce evaporation from bare soil)?	TC-087
4	27	4.3	764	The Permitting and Regulatory Process section explains the legal basis for how water could be diverted for managed aquifer recharge (MAR) though a SWRCB temporary permit, but we are unclear how the water rights would work for in lieu recharge (ILR). Is switching from groundwater to surface water really legal under California water law? If so, please explain in this section. Would the ILR utilize existing surface water rights (but don't farmers generally already exhaust their surface water rights each year before switching to groundwater)? Or would ILR require a separate temporary permit than MAR? Or would ILR require new permanent surface water rights? It seems very unlikely that SWRCB would grant new surface water rights for irrigation after the start of the April 1 irrigation season, but there might be new rights available in March.	TC-088

4	24-28	4.3	640-809	We support the concept of managed aquifer recharge (MAR) in winter and in lieu recharge (ILR) during the irrigation season, but have some concerns. The largest concern is that we do not think that MAR/ILR alone are sufficient to reverse enough of the streamflow depletion to make meaningful improvements to river flows. We are also concerned that there has not been sufficient analysis of the effects of MAR and ILR on river flows (and resulting biological effects) during the period of increased diversions (i.e., winter and spring). As shown in the figures in the "Percentile Flows and Flow Regime Comparison" section of Appendix 4-a, the CDFW (2017) flows are very low compared to the historic range of observed flows during March through May (i.e., always <25th percentile and sometimes approach or even drop below the lowest flows ever recorded). For example, CDFW's recommended April flows are 134 cfs, which if that volume remained instream after a full ILR diversion of 43 cfs would mean that 20% of the 168 cfs river flow would being diverted during a severe drought which seems like quite an aggressive rate of diversion. It probably would make more sense to increase the rate of diversion above 43 cfs when flows are higher, but drop to rate far below 43 cfs (or even to zero) when flows are low. Increased diversions after May 1 could have detrimental effects on water temperatures (Asarian and Robinson 2021). The documentation provided in the GSP leaves many unanswered questions. Given the prominence of MAR/ILR in the GSP, we would have expected to see a more detailed level of analysis and discussion. For example: - What MAR/ILR diversion volumes are feasible in individual dry and severe drought years (e.g., 1977, 2001, 2020, 2021), and what effects does this have on river flow during the spring diversion period and the summer/fall period? We see Table 7 in Chapter 3, and the figures in Appendix 4-a, but we would like to see daily hydrographs (comparing the in-river flow and diversions with/without MAR/ILR) for individual severely dry years. - How were the parcels selected for the primary MAR/ILR scenario? Why not also use Farmer's Ditch in addition to Scott Valley Irrigation District (SVID)? - How was 43 cfs selected? Is that capacity of SVID? - What are the "CDFW requirements"? If that the same as CDFW (2017) Interim Instream Flow Criteria, then that document should be cited. - It might also be appropriate to use tributary ditches for MAR during winter high flows? We are hesitant to open this can of worms, but if done carefully (limiting the diversions to limited high-flow periods and only diverting a small percentage of flow [i.e., 5-10%] it could have benefits. - The GSP does not explicitly define the time period for ILR. For example, Appendix 4-a says "in the early growing season, as long as surface water is available." Does this mean

Chapter	Page	Section	Line/Table/ Figure #	Comment	
				a set start date of March 1, or April 1, or a custom date that changes each year depending on the weather? Does it end when there is no water at all, or when flows drop below CDFW requirements? How about voluntary (i.e., paid) permanent conversion of land in key areas (i.e., where that water would not flow the river for many months) for MAR during the spring to extend the season for groundwater recharge into the active growing season? On agricultural lands, MAR would normally have to cease once pasture or crops emerge from dormancy, but if lands were solely dedicated to MAR then the recharge season could be extended. Also, during period (i.e., summer) when there is not sufficient water for MAR, if these areas were not irrigated then they could also contribute to demand reduction. Would doing this require new ditches (because all ditch capacity is already used during irrigation season?), or is there sufficient capacity?	TC-089
4	28	4.3	810	In the "Voluntary Managed Land Repurposing" PMA, we recommend adding groundwater recharge. See our comments on Chapter 4, Section 4.3, pages 24-28, lines 640-809 for additional discussion of this topic.	TC-090
4	29	4.3	841	The "Voluntary Managed Land Repurposing" PMA discusses "For example, a corner of a field may be well suited for wildlife habitat or solar panel". This is an interesting idea. Would it be possible to convert some agricultural land to solar photovoltaic (i.e., electricity-producing) farms and still use those lands for groundwater recharge? Such a project could accomplish four things: reduce irrigation demand, increase groundwater recharge, generate electricity, and provide a new income stream to the landowner through lease payments.	TC-091
4	32	4.4	984	We strongly support the Floodplain Reconnection/Expansion PMA due to its benefits to instream habitat, and potentially its effects on hydrology as well; however, we are confused by the statement that the "Floodplain Reconnection/Expansion" PMA "…will be evaluated and assessed with SVIHM using the methodology described in Section 3.3 and using monitoring data that describes the implementation of the floodplain reconnection/expansion program." We do not see any discussion in Section 3.3 about how changes to floodplains could be modeled by SVIHM. In its current form, SVIHM seems ill-equipped to model floodplain recharge scenarios, because: 1) the monthly timestep for inflows likely does not have a good representation of overbank flows because presumably those occur at shorter time scales (i.e., primarily hours and days, but possibly also weeks), 2) most tributary inflows gages are not rated for high flows, so the model inputs for high flows periods may not be very accurate. Are we mis-understanding something? Another comment we have on this section is that it should specifically	TC-092

Chapter	Page	Section	Line/Table/ Figure #	Comment	
4	31	4.4	953-957	"The floodplain reconnection/expansion program will reverse some of these historical effects on groundwater dynamics by reconnecting the river to the floodplain and thus, avoiding further channel incision and leading to stable or even increased water level elevations from flooding." Overall, we like this sentence, but it is an incomplete list of potential benefits. We recommend adding the following sentence: "It is possible that reversing channel incision through aggradation (i.e., raising the channel bed) would not only increase recharge by increasing the frequency of overbank flows, but would also reclaim (increase) aquifer storage by reducing the depth to which the water table is lowered by drainage to the channel during the spring recession."	TC-093
4	32	4.4	1009	Discussion of the "High Mountain Lakes" PMA neglects to mention many factors which make this idea not feasible. This PMA should also mention the Wilderness Act which is likely to substantially restrict what can be built in designated Wilderness Areas and the construction methods that would be allowed. Given these legal constraints, in addition to other factors like the aesthetic concerns and a lack of road access, we think that high mountain lakes are unlikely to be a feasible means of meaningfully increasing surface supply and therefore recommend that effort be places into other PMAs. We recommend adding the following sentence: "DWR (1991) recommended against developing mountain lakes as water sources to augment Scott River flows because there were not enough benefits to offset all the negative aspects which include aesthetic concerns in addition to access, logistical, and legal constraints." The exact quote from DWR (1991) was: "Under present law no development inside a wilderness area is permitted. Special legislation may be required to implement this alternative. Second, access and construction methods may make many of these enlargements impractical. Third, while these enlargements may benefit the individual creeks, their cumulative impact on the Scott River is difficult to judge. Water would enter the river from seven different tributaries distributed over the entire Scott Valley. It would not be a concentrated water source. Fourth, it would be difficult, or impossible, to coordinate releases from the 29 lakes to maximize the benefit to the Scott River fishery. Fifth, enlarging the lakes may disturb their natural aesthetic value. DWR does not recommend developing these lakes for water sources to augment the streamflow of the Scott River. There are not enough benefits to offset all the negative aspects of this alternative. "	TC-094

Chapter	Page	Section	Line/Table/ Figure #	Comment	
4	33	4.4	1012	We support evaluation of surface reservoirs as means to augment water supply and river flows, if such reservoirs can be constructed in a way that minimizes impacts to fish habitat and would result in meaningful increases in river flows. An off-stream reservoir is particularly appealing. In watersheds like the Scott River that currently have little surface storage, the changes in runoff timing expected to occur with climate change will make surface storage even more important in the future than it is now.	TC-095
4	33	4.4	1043	The "Sediment Removal and River Restoration" PMA is summarized as: "A river restoration project to remove significant sediment from the main stem Scott River from Fort Jones to the mouth of the canyon is envisioned to improve in-stream flow, channel geomorphology, and habitat for fish." We are extremely skeptical of this PMA. Please either provide additional information including a more detailed rationale, citation, and project proponent, or delete this PMA. What is the physical mechanism by which removing sediment could improve instream flow (wouldn't removing sediment cause further incision which would further reduce aquifer storage capacity)? Wouldn't removing sediment decrease floodplain connectivity and be counter to the "Floodplain Reconnection/Expansion" PMA? What specifically is meant by "improve channel geomorphology" (that is vague and could be interpreted many different ways)?	TC-096
4	33	4.4	1052	We support the Strategic Groundwater Pumping Curtailment PMA. This would be particularly valuable in drought years when there is limited water available for MAR/ILR.	TC-097
4	34	4.4	1069	We strongly support a properly designed and implemented Watermaster Program; whoever, we have serious concerns with the lack of transparency with the current Scott Valley and Shasta Valley Watermaster District program. Watermastering should be returned to the State of California, implemented basinwide, with well-organized publicly accessible records of diversions.	TC-098
4	35	4.4	1126	The "Well Inventory Program" section does not mention anything about data management. The results of this inventory should be made publicly accessible.	TC-099
4	35	4.4	1135	Regarding "Voluntary Well Metering," we understand the political sensitivity of well metering, but it seems like the first step is good management is measurement and transparency. At least some subset of the wells should be mandated to be metered. Examples could include the largest wells, or new wells drilled after the passage of the SGMA legislation or after adoption of the Scott Valley GSP. How can existing ordinances, such as the prohibition on the use of groundwater for cannabis production or the requirement for permits being needed for inter-basin transfers of groundwater, be enforced without the well metering? The lack of metering requirements suggests a lack of transparency, which further suggests a lack of will to actually manage groundwater extraction.	TC-100

Chapter	Page	Section	Line/Table/ Figure #	Comment	
5	4	5.1.1	128	The Annual Reporting section does not clarify if the data presented will be figures or actual tables with numbers. The report should include electronic appendices with easily accessible data, so others could run their own analyses on the data.	TC-101
5	9	5.1.2	Figure 1	The Figure 1 flow chart says "Model update and calibration using new data (annually for the first five years)". Is it really feasible and desirable to re-calibrate the model every year? That seems like a lot of work for an unclear benefit. Wouldn't it be better to re-calibrate every two to five years rather than every year? There are certainly improvements we'd like to see in the model, and we'd rather have the GSA focus on incorporating these refinements rather than just re-calibrating the model with additional years. These model refinements are described in more detail in a separate comment document (not in this comment form), but are briefly summarized here: 1) use a better method for filling the large gaps in tributary inflows (e.g., considering other model types beyond linear regression, and using Salmon River gage as an alternative to the Scott River gage for filling tributary data gaps at least for some months and/or sites), 2) incorporate fall/winter stockwater diversions, 3) shorten the MODFLOW model timestep to something shorter than a month, 4) do a sensitivity analysis to quantify how sensitive modeled outflows are to tributary inputs (especially during September and October).	TC-102
App 2-a	7-10			This section refers to comparing SVIHM modeled outflow from the river flow observed at the USGS for the 2012-2018 period as "validation" because the model was not recalibrated for this period. However, this section fails to note that this is not a truly independent validation because the largest input to the model is tributary flow, which for the 2012-2018 was 100% estimated (i.e., no tributary gages) based on regression with measured flows at the USGS gage at the outlet of the valley. That same USGS gage is then used to "validate" the model's predicted outflows. To be clear, it is not the act of comparing the model predicted outflows to the gaged flows that we object to (indeed, those are the only flow data that are available); however, we assert that when these comparisons are presented it should be clearly noted that these comparisons are somewhat circular and not truly independent.	TC-103
App 4-a				This appendix presents a lot of great information in an accessible format. We appreciate the maps and graphs showing effects by month.	TC-104
App 4-a				It would be good to also include the Summary Table somewhere in the main text of the GSP rather than solely having it be in the appendix. In addition, the column headers in summary table should be revised to clarify if Sep-Nov means Sep 1-Nov 30 or Sep 1-Nov 1 (i.e., see comment regarding caption of Figure 2 on page 63 of Chapter 3, Section 3.4.5.1).	TC-105

Chapter	Page	Section	Line/Table/ Figure #	Comment	
App 4-a		Slide 23		"Restrictions on tributary flow diversions for irrigation at low FJ flows" Since the SVIHM only includes diversions for irrigation, ignoring the considering fall/winter diversions for stockwater, this scenario should be renamed to clarify that it is regarding irrigation diversions only (i.e., not stockwater).	TC-106
App 4-a		Slide 25		The irrigation efficiency scenarios "…assume an unspecified change in irrigation equipment that results in either an increase or decrease in irrigation efficiency on all irrigated fields." Wouldn't it make more sense (i.e., more realistic), to instead have the efficiency increase or decrease depend on the current efficiency of the field? For example, assume all fields with flood irrigation (currently assumed in SVIHM model as 70% efficient [Foglia et al. 2013]) and wheel-line sprinkler (currently assumed in SVIHM model as 75% efficient [Foglia et al. 2013]) were upgraded to 90% efficient center pivot sprinklers? Or maybe that should be added a new scenario?	TC-107
App 4-a		Slide 8		This slide defines the Sept-Nov period as "Critical dry window, Sept. 1 – Nov. 30", which seems to contradict other places in the GSP. For example, "Sep 1 to Nov 1" in caption of Figure 2 on page 63 of Chapter 3, Section 3.4.5.1. Given that the model's primary time scale is monthly, the correct time period is probably Sept. 1 – Nov. 30, right?	TC-108
App 4-a				The slide describing the "Alfalfa irrigation schedule change" scenarios states "Would presumably involve an incentive or compensation program (a back-of-the-envelope estimate of the value of the 3rd cutting of alfalfa is approximately $7.5 million)." Can you provide any more information on the justification for that estimate? This seems somewhat high given that the Siskiyou County annual crop report (https://www.co.siskiyou.ca.us/sites/default/files/fileattachments/agriculture/page/4581/agd_20200909_2019_cropreport.pdf) reported the total value of countywide field crops (including alfalfa but also other crops such as wheat, barley, pasture, etc.) as $86 million in 2019. Scott Valley is just one (though perhaps the largest?) of the alfalfa growing regions within the county and two cuttings of alfalfa would still occur under these scenarios.	TC-109

September 26, 2021

Siskiyou County Flood Control and Water Conservation District
1312 Fairlane Road
Yreka, CA 96097

Submitted via email: lauraf@lwa.com; katie.duncan@stantec.com; sgma@co.siskiyou.ca.us

Re: Public Comment Letter for Scott River Valley Draft Groundwater Sustainability Plan

Dear Laura Foglia,

On behalf of the above-listed organizations, we appreciate the opportunity to comment on the Draft Groundwater Sustainability Plan (GSP) for the Scott River Valley Basin being prepared under the Sustainable Groundwater Management Act (SGMA). Our organizations are deeply engaged in and committed to the successful implementation of SGMA because we understand that groundwater is critical for the resilience of California's water portfolio, particularly in light of changing climate. Under the requirements of SGMA, Groundwater Sustainability Agencies (GSAs) must consider the interests of all beneficial uses and users of groundwater, such as domestic well owners, environmental users, surface water users, federal government, California Native American tribes and disadvantaged communities (Water Code 10723.2).

As stakeholder representatives for beneficial users of groundwater, our GSP review focuses on how well disadvantaged communities, drinking water users, tribes, climate change, and the environment were addressed in the GSP. While we appreciate that some basins have consulted us directly via focus groups, workshops, and working groups, we are providing public comment letters to all GSAs as a means to engage in the development of 2022 GSPs across the state. Recognizing that GSPs are complicated and resource intensive to develop, the intention of this letter is to provide constructive stakeholder feedback that can improve the GSP prior to submission to the State.

Based on our review, we have significant concerns regarding the treatment of key beneficial users in the Draft GSP and consider the GSP to be **insufficient** under SGMA. We highlight the following findings:

1. Beneficial uses and users **are not sufficiently** considered in GSP development.
    a. Human Right to Water considerations **are not sufficiently** incorporated.
    b. Public trust resources **are not sufficiently** considered.
    c. Impacts of Minimum Thresholds, Measurable Objectives and Undesirable Results on beneficial uses and users **are not sufficiently** analyzed.

2. Climate change **is not sufficiently** considered.
3. Data gaps **are not sufficiently** identified and the GSP **does not have a plan** to eliminate them.
4. Projects and Management Actions **do not sufficiently consider** potential impacts or benefits to beneficial uses and users.

Our specific comments related to the deficiencies of the Scott River Valley Draft GSP along with recommendations on how to reconcile them, are provided in detail in **Attachment A.**

Please refer to the enclosed list of attachments for additional technical recommendations:

Attachment A	GSP Specific Comments
Attachment B	SGMA Tools to address DAC, drinking water, and environmental beneficial uses and users
Attachment C	Freshwater species located in the basin
Attachment D	The Nature Conservancy's "Identifying GDEs under SGMA: Best Practices for using the NC Dataset"

Thank you for fully considering our comments as you finalize your GSP.

Best Regards,

Ngodoo Atume
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Attachment A

Specific Comments on the Scott River Valley Draft Groundwater Sustainability Plan

1. Consideration of Beneficial Uses and Users in GSP development

Consideration of beneficial uses and users in GSP development is contingent upon adequate identification and engagement of the appropriate stakeholders. The (A) identification, (B) engagement, and (C) consideration of disadvantaged communities, drinking water users, tribes, groundwater dependent ecosystems, streams, wetlands, and freshwater species are essential for ensuring the GSP integrates existing state policies on the Human Right to Water and the Public Trust Doctrine.

A. Identification of Key Beneficial Uses and Users

Disadvantaged Communities, Drinking Water Users, and Tribes

The identification of Disadvantaged Communities (DACs), drinking water users, and tribes is **insufficient**. We note the following deficiencies with the identification of these key beneficial users.

- The GSP states that there are three DACs in the basin, but these areas are not mapped. — NGO-001
- The GSP provides a map of domestic well density in Figure 5, but fails to provide depth of these wells (such as minimum well depth, average well depth, or depth range) within the basin. — NGO-002
- The GSP fails to identify the population dependent on groundwater as their source of drinking water in the basin. Specifics are not provided on how much each DAC community relies on a particular water supply (e.g., what percentage is supplied by groundwater). — NGO-003

These missing elements are required for the GSA to fully understand the specific interests and water demands of these beneficial users, and to support the development of sustainable management criteria and projects and management actions that are protective of these users.

RECOMMENDATIONS

- Provide a map of the DACs in the basin. The DWR DAC mapping tool[1] can be used for this purpose. — NGO-001 cont.
- Include a map showing domestic well locations and average well depth across the basin. — NGO-002 cont.
- Identify the sources of drinking water for DAC members, including an estimate of how many people rely on groundwater (e.g., domestic wells, state small water systems, and public water systems). — NGO-003 cont.

[1] The DWR DAC mapping tool is available online at: https://gis.water.ca.gov/app/dacs/

Interconnected Surface Waters

The identification of Interconnected Surface Waters (ISWs) is **insufficient**, due to lack of supporting information provided for the ISW analysis. Based on the ISW section of the GSP (Section 2.2.1.7), it appears that a comprehensive analysis of ISWs in the basin was performed using the Scott Valley Integrated Hydrologic Model. However, little information is provided in the GSP to support the conclusions presented. The GSP states that data from 1990-2018 was used for the analysis, but there is no description of the location of groundwater wells or stream gauges used in analysis, or description of temporal (seasonal and interannual) variability of the data.

The GSP concludes (p. 2-74): "Across the stream system in Scott Valley (Fig. 18), there are no known stream reaches that are flowing and also entirely and permanently disconnected from surface water, separated from the water table by thick unsaturated zones. For purposes of this plan, the Scott River and its major tributaries (Mill, Shackleford, Oro Fino, Moffett, Kidder, Patterson, Crystal, Johnson, Etna, French, Miners, Sugar, and Wildcat Creeks, South Fork and East Fork Scott River, Figure 15) are therefore all considered part of a single interconnected surface water system in the basin." The map of stream reaches (Figure 18), however, is not consistent with description in the text, and the legend labels (dry, wet, uncertain - no, uncertain - yes) are not explained. NGO-004

RECOMMENDATIONS

- Describe the legend labels (i.e., dry, wet, uncertain - no, uncertain - yes) used on Figure 18, and contextualize with losing and gaining terminology
- Further describe the groundwater elevation data and stream flow data used in the analysis. Ensure depth-to-groundwater data from multiple seasons and water year types (e.g., wet, dry, average, drought) are used to determine the range of depth and capture the variability in environmental conditions inherent in California's climate. NGO-005
- Overlay the stream reaches shown on Figure 18 with depth-to-groundwater contour maps to illustrate groundwater depths and the groundwater gradient near the stream reaches. Show the location of groundwater wells used in the analysis. NGO-006
- For the depth-to-groundwater contour maps, use the best practices presented in Attachment D. Specifically, ensure that the first step is contouring groundwater elevations, and then subtracting this layer from land surface elevations from a Digital Elevation Model (DEM) to estimate depth-to-groundwater contours across the landscape. This will provide accurate contours of depth to groundwater along streams and other land surface depressions where GDEs are commonly found. NGO-007
- Describe data gaps for the ISW analysis in the ISW section, in addition to the discussion in Appendix 3-A (Data Gap Assessment). Discuss and reconcile these data gaps with specific measures (shallow monitoring wells, stream gauges, and nested/clustered wells) along surface water features in the Monitoring Network section of the GSP. NGO-008

Groundwater Dependent Ecosystems

The identification of Groundwater Dependent Ecosystems (GDEs) is **insufficient**, due to a lack of comprehensive, systematic analysis of the basin's GDEs. NGO-009

The GSP states (p. 2-76) that the Natural Communities Commonly Associated with Groundwater dataset (NC dataset) was used as a starting point. "These datasets were evaluated against groundwater depth data, local expertise, and satellite imagery and categorized to produce the maps in Figure 19." We commend the GSA for starting with the NC dataset and using additional sources to identify GDEs in the basin.

Further description in the GSP, however, of the GDE analysis process is very sparse, except to state that the presence and geographic extent of groundwater dependent vegetation were verified through an evaluation by the ad hoc committee. The GSP does not discuss how the NC dataset was verified with the use of groundwater data from the shallow aquifer. Without an analysis of groundwater data to verify the NC dataset polygons, it will be difficult or impossible to adequately monitor and manage the basin's GDEs throughout GSP implementation. NGO-009 cont'd

We commend the GSA for its comprehensive discussion of groundwater dependent species in the basin, including special status species. The GSP provides detailed description of freshwater species in the Scott River Valley basin and describes their habit and life cycle.

RECOMMENDATIONS

- Develop and describe a systematic approach for analyzing the basin's GDEs. For example, provide a map of the NC Dataset. On the map, label polygons retained, removed, or added to/from the NC dataset (include the removal reason if polygons are not considered potential GDEs, or include the data source if polygons are added). Discuss how local groundwater data was used to verify whether polygons in the NC Dataset are supported by groundwater in an aquifer. Refer to Attachment D of this letter for best practices for using local groundwater data to verify whether polygons in the NC Dataset are supported by groundwater in an aquifer. NGO-009 cont'd
- Use depth-to-groundwater data from multiple seasons and water year types (e.g., wet, dry, average, drought) to determine the range of depth to groundwater around NC dataset polygons. We recommend that a baseline period (10 years from 2005 to 2015) be established to characterize groundwater conditions over multiple water year types. Refer to Attachment D of this letter for best practices for using local groundwater data to verify whether polygons in the NC Dataset are supported by groundwater in an aquifer. NGO-010
- Provide depth-to-groundwater contour maps, noting the best practices presented in Attachment D. Specifically, ensure that the first step is contouring groundwater elevations, and then subtracting this layer from land surface elevations from a DEM to estimate depth-to-groundwater contours across the landscape. NGO-011
- Refer to Attachment B for more information on TNC's plant rooting depth database. Deeper thresholds are necessary for plants that have reported maximum root depths that exceed the averaged 30 feet threshold, such as valley oak (*Quercus lobata*). We recommend that the reported max rooting depth for these deeper-rooted plants be used. For example, a depth-to-groundwater threshold of 80 feet should be used instead of the 30 feet threshold, when verifying whether valley oak polygons from the NC Dataset are connected to groundwater. It is important to re-emphasize that actual NGO-012

rooting depth data are limited and will depend on the plant species and site-specific conditions such as soil and aquifer types, and availability to other water sources.

- If insufficient data are available to describe groundwater conditions within or near polygons from the NC dataset, include those polygons as "Potential GDEs" in the GSP until data gaps are reconciled in the monitoring network.

NGO-012, Cont'd

NGO-013

Native Vegetation and Managed Wetlands

Native vegetation and managed wetlands are water use sectors that are required[2,3] to be included into the water budget. The integration of native vegetation into the water budget is **insufficient**. The GSP describes the soil water budget model (SWBM) which computes groundwater needs and evapotranspiration of crops and native vegetation. The water budget did not explicitly include the current, historical, and projected demands of native vegetation, but instead lumped all evapotranspiration together. Only the current water budget was presented in the GSP.

NGO-014

The omission of explicit water demands for native vegetation is problematic because key environmental uses of groundwater are not being accounted for as water supply decisions are made using this budget, nor will they likely be considered in project and management actions. Managed wetlands are not mentioned in the GSP, so it is not known whether or not they are present in the basin.

NGO-015

RECOMMENDATIONS

- Quantify and present all water use sector demands in the historical, current, and projected water budgets with individual line items for each water use sector, including native vegetation.

NGO-014, Cont'd

- State whether or not there are managed wetlands in the basin. If there are, ensure that their groundwater demands are included as separate line items in the historical, current, and projected water budgets.

NGO-015, Cont'd

B. Engaging Stakeholders

Stakeholder Engagement during GSP development

Stakeholder engagement during GSP development is **insufficient**. SGMA's requirement for public notice and engagement of stakeholders[4] is not fully met by the description in the Stakeholder Communication and Engagement Plan included in the GSP (Appendix 1-A).

[2] "'Water use sector' refers to categories of water demand based on the general land uses to which the water is applied, including urban, industrial, agricultural, managed wetlands, managed recharge, and native vegetation." [23 CCR §351(al)]

[3] "The water budget shall quantify the following, either through direct measurements or estimates based on data: (3) Outflows from the groundwater system by water use sector, including evapotranspiration, groundwater extraction, groundwater discharge to surface water sources, and subsurface groundwater outflow." [23 CCR §354.18]

[4] "A communication section of the Plan shall include a requirement that the GSP identify how it encourages the active involvement of diverse social, cultural, and economic elements of the population within the basin." [23 CCR §354.10(d)(3)]

The GSP describes outreach to tribal and environmental stakeholders in the basin and states that members of these groups are on the Stakeholder Advisory Committee. However, we note the following deficiencies with other aspects of the stakeholder engagement process:

- The opportunities for public involvement and engagement are described in very general terms. They include attendance at public meetings, stakeholder email list, and updates to the GSP website. There is no specific outreach described for members of the DAC communities or domestic well owners. NGO-016
- The Stakeholder Communication and Engagement Plan does not include a plan for continual opportunities for engagement through the *implementation* phase of the GSP for DACs and domestic well owners. NGO-017

RECOMMENDATION

- In the Stakeholder Communication and Engagement Plan, describe active and targeted outreach to engage DAC members and domestic well owners throughout the GSP development and implementation phases. Refer to Attachment B for specific recommendations on how to actively engage stakeholders during all phases of the GSP process. NGO-016, Cont'd

C. Considering Beneficial Uses and Users When Establishing Sustainable Management Criteria and Analyzing Impacts on Beneficial Uses and Users

The consideration of beneficial uses and users when establishing sustainable management criteria (SMC) is **insufficient**. The consideration of potential impacts on all beneficial users of groundwater in the basin are required when defining undesirable results[5] and establishing minimum thresholds.[6,7]

Disadvantaged Communities and Drinking Water Users

For chronic lowering of groundwater levels, the GSP does not sufficiently describe or analyze direct or indirect impacts on domestic drinking water wells, DACs, or tribes when defining undesirable results. The GSP does not sufficiently describe how the existing minimum threshold groundwater levels are consistent with avoiding undesirable results in the basin. NGO-018 NGO-019

For degraded water quality, SMC were developed for two of the constituents of concern (COCs) in the basin, nitrate and specific conductivity. Minimum thresholds were set at the primary and secondary maximum contaminant levels (MCLs), respectively, for these COCs. The GSP states (p. 3-42): "Although benzene is identified as a potential constituent of concern in Section 2.2.3, no SMC is defined for benzene as current benzene data are associated with leaking underground storage tanks (LUST) where the source of benzene is known and monitoring and remediation are NGO-020

[5] "The description of undesirable results shall include [...] potential effects on the beneficial uses and users of groundwater, on land uses and property interests, and other potential effects that may occur or are occurring from undesirable results." [23 CCR §354.26(b)(3)]

[6] "The description of minimum thresholds shall include [...] how minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests." [23 CCR §354.28(b)(4)]

[7] "The description of minimum thresholds shall include [...] how state, federal, or local standards relate to the relevant sustainability indicator. If the minimum threshold differs from other regulatory standards, the agency shall explain the nature of and the basis for the difference." [23 CCR §354.28(b)(5)]

in progress." However, SMC should be established for all COCs in the basin, in addition to coordinating with water quality regulatory programs. NGO-020, Cont'd

The GSP only includes a very general discussion of indirect impacts to drinking water users when defining undesirable results and evaluating the cumulative or indirect impacts of proposed minimum thresholds. The GSP does not, however, mention or discuss direct and indirect impacts on DACs or tribes when defining undesirable results for degraded water quality, nor does it evaluate the cumulative or indirect impacts of proposed minimum thresholds on DACs or tribes. NGO-021

RECOMMENDATIONS

Chronic Lowering of Groundwater Levels

- Describe direct and indirect impacts on DACs, drinking water users, and tribes when describing undesirable results for chronic lowering of groundwater levels. NGO-018, Cont'd
- Consider and evaluate the impacts of selected minimum thresholds and measurable objectives on DACs, drinking water users, and tribes within the basin. Further describe the impact of passing the minimum threshold for these users. For example, provide the number of domestic wells that would be de-watered at the minimum threshold. NGO-019, Cont'd

Degraded Water Quality

- Describe direct and indirect impacts on DACs, drinking water users, and tribes when defining undesirable results for degraded water quality. For specific guidance on how to consider these users, refer to "Guide to Protecting Water Quality Under the Sustainable Groundwater Management Act."[8] NGO-021, Cont'd
- Evaluate the cumulative or indirect impacts of proposed minimum thresholds for degraded water quality on DACs, drinking water users, and tribes.
- Set minimum thresholds and measurable objectives for benzene. Ensure they align with drinking water standards[9]. NGO-020, Cont'd

Groundwater Dependent Ecosystems and Interconnected Surface Waters

The GSP sets minimum thresholds to historic groundwater lows, with a buffer that further lowers the elevations. The GSP states (p. 3-35): "The minimum threshold (MinT) is set at the historic maximum depth to water measurement (i.e., the historic low measured groundwater elevation), plus a buffer to allow for operational flexibility against the measurable objective under extreme climate conditions and to accommodate practicable triggers. The buffer is either 10% of the historic maximum depth to water measurement, or 10 feet, whichever is smaller." However, the impacts to GDEs under this scenario are not discussed in the GSP. If minimum thresholds are set to historic low groundwater levels (or lower) and the basin is allowed to operate at or close to those levels over many years, there is a risk of causing catastrophic damage to ecosystems that NGO-022

[8] Guide to Protecting Water Quality under the Sustainable Groundwater Management Act https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1559328858/Guide_to_Protecting_Drinking_Water_Quality_Under_the_Sustainable_Groundwater_Management_Act.pdf?1559328858.

[9] "Degraded Water Quality [...] collect sufficient spatial and temporal data from each applicable principal aquifer to determine groundwater quality trends for water quality indicators, as determined by the Agency, to address known water quality issues." [23 CCR §354.34(c)(4)]

are more adverse than what was occurring at the height of the 2012-2016 drought. This is because California ecosystems, which are adapted to our Mediterranean climate, have some drought strategies that they can utilize to deal with short-term water stress. However, if the drought conditions are prolonged, the ecosystem can collapse. SGMA requires that SMCs, and specifically minimum thresholds, be established in consideration of beneficial users[10-12], thus using historic maximum groundwater levels as a proxy for 'significant and unreasonable' is inadequate since it fails to take beneficial user water needs into consideration.

NGO-022, Cont'd

The GSP includes a comprehensive discussion of the depletion of interconnected surface water SMC and the challenges surrounding setting the SMC due to an adjudicated area in the basin. The GSP states (p. 3-59): "To summarize, the ISW Undesirable Result is narrower in scope than the overall low flow challenges in the Scott River stream network and is defined as "significant and unreasonable stream depletion due to groundwater extraction from wells subject to SGMA (i.e., outside of the Adjudicated Zone)." The GSP further states (p. 3-61): "The minimum threshold is any portfolio of PMAs that achieves an individual monthly stream depletion reversal similar to, but not necessarily identical to, the stream depletion reversal achieved by the specific MAR-ILR [Managed Aquifer Recharge-In Lieu Recharge] scenario presented to the Advisory Committee." Despite the complexities of managing ISW in the basin, the GSP does not attempt to evaluate the cumulative or indirect impacts of the proposed minimum thresholds for ISW on environmental beneficial users of surface water. The method of setting the SMC based on project and management actions in the basin is not correct, as the SMC should inform the design and implementation of project and management actions (i.e., project and management actions should help avoid undesirable results), not the other way around.

NGO-023

RECOMMENDATIONS

- When defining undesirable results for chronic lowering of groundwater levels, provide specifics on what biological responses (e.g., extent of habitat, growth, recruitment rates) would best characterize a significant and unreasonable impact to GDEs. Undesirable results to environmental users occur when 'significant and unreasonable' effects on beneficial users are caused by one of the sustainability indicators (i.e., chronic lowering of groundwater levels, degraded water quality, or depletion of interconnected surface water). Thus, potential impacts on environmental beneficial uses and users need to be considered when defining undesirable results[10] in the basin. Defining undesirable results is the crucial first step before the minimum thresholds[11] can be determined.

NGO-022, Cont'd

- When defining undesirable results for depletion of interconnected surface water, include a description of potential impacts on instream habitats within ISWs when defining minimum thresholds in the basin[12]. The GSP should confirm that minimum thresholds for ISWs avoid adverse impacts to environmental beneficial users of interconnected surface waters as these environmental users could be left unprotected by the GSP. These recommendations apply especially to environmental beneficial

NGO-023, Cont'd

[10] "The description of undesirable results shall include [...] potential effects on the beneficial uses and users of groundwater, on land uses and property interests, and other potential effects that may occur or are occurring from undesirable results". [23 CCR §354.26(b)(3)]

[11] The description of minimum thresholds shall include [...] how minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests." [23 CCR §354.28(b)(4)]

[12] "The minimum threshold for depletions of interconnected surface water shall be the rate or volume of surface water depletions caused by groundwater use that has adverse impacts on beneficial uses of the surface water and may lead to undesirable results." [23 CCR §354.28(c)(6)]

users that are already protected under pre-existing state or federal law[6,13]. For example, model streamflow depletion due to pumping outside adjudicated areas to determine how much streamflow depletion is permissible given the amount of depletion that has already occurred in the past. The SMC should reflect how much more depletion is likely to be permissible based on future drier climatic conditions.

NGO-023, Cont'd

2. Climate Change

The SGMA statute identifies climate change as a significant threat to groundwater resources and one that must be examined and incorporated in the GSPs. The GSP Regulations[14] require integration of climate change into the projected water budget to ensure that projects and management actions sufficiently account for the range of potential climate futures.

The integration of climate change into the projected water budget is **insufficient**. Please make available the detailed water budget, referenced as Appendix 2-C, so that the incorporation of climate change into the water budget can be fully reviewed. The following comments were prepared based on information included in the GSP main text.

The GSP does incorporate climate change into the projected water budget using DWR change factors for 2030 and 2070. The GSP also considers multiple climate scenarios (e.g., the 2070 moderately wet and extremely dry climate scenarios) in the projected water budget. The GSP includes climate change into key inputs (e.g., precipitation, evaporation, and surface water flow) of the projected water budget.

However, the GSP does not calculate a sustainable yield based on the projected water budget with climate change incorporated, but instead states that the sustainable yield will vary over time as new project and management actions are added. The GSP states (p. 2-131): "Since these reductions in groundwater pumping will vary over time and will be a function of the PMAs that will be implemented, the sustainable yield will vary over time as new PMAs are added." Furthermore, the GSP states: "For every implementation of a PMA resulting in the reduction in groundwater pumping, including some conservation easements, there is a commensurate downward adjustment in sustainable yield. The exact amount of that adjustment varies over time and will depend on the future portfolio of PMAs implemented (see chapters 3 and 4). Without the automatic adjustment of the sustainable yield to future agreed-upon reductions in groundwater pumping, other water users in the Basin may claim that the reduction in groundwater pumping, e.g., for in lieu recharge, makes groundwater available for pumping elsewhere or at other times, up to the (constant) limit of the sustainable yield. This must be avoided to successfully manage the basin." Keep in mind that sustainable yield is a legally required component of SGMA and necessary for informing what project and management actions are necessary in the basin. If sustainable yield is not calculated, then there is also increased uncertainty in virtually every subsequent calculation used to plan for projects, derive measurable objectives, and set minimum thresholds. Plans that do not explicitly calculate sustainable yield may underestimate future impacts on vulnerable beneficial users of groundwater such as ecosystems, DACs, domestic well owners, and tribes.

NGO-024

NGO-024, Cont'd

[13] Rohde MM, Seapy B, Rogers R, Castañeda X, editors. 2019. Critical Species LookBook: A compendium of California's threatened and endangered species for sustainable groundwater management. The Nature Conservancy, San Francisco, California. Available at: https://groundwaterresourcehub.org/public/uploads/pdfs/Critical_Species_LookBook_91819.pdf

[14] "Each Plan shall rely on the best available information and best available science to quantify the water budget for the basin in order to provide an understanding of historical and projected hydrology, water demand, water supply, land use, population, climate change, sea level rise, groundwater and surface water interaction, and subsurface groundwater flow." [23 CCR §354.18(e)]

RECOMMENDATIONS

- Include the water budget appendix in the GSP, so that the manner in which climate change is incorporated into the water budgets is fully explained.
- Estimate sustainable yield based on the projected water budget with climate change incorporated, to inform the basis for development of projects and management actions.
- Incorporate climate change scenarios into projects and management actions.

NGO-025

NGO-024, Cont'd

NGO-026

3. Data Gaps

The consideration of beneficial users when establishing monitoring networks is **insufficient**, due to lack of specific plans to increase the Representative Monitoring Points (RMPs) in the monitoring network that represent water quality conditions and shallow groundwater elevations around DACs, domestic wells, and GDEs. Beneficial users of groundwater may remain unprotected by the GSP without adequate monitoring and identification of data gaps in the shallow aquifer. The Plan therefore fails to meet SGMA's requirements for the monitoring network[15].

NGO-027

The GSP includes a data gap assessment (Appendix 3-A) that identifies and prioritizes data gaps in the monitoring networks. Thus while the GSP recognizes the importance of filling data gaps, it does not provide specific plans, well locations shown on a map, or a timeline to fill the data gaps. The GSP states (p. 3-7): "These additional monitoring or information requirements depend on future availability of funding and are not yet considered among the GSP Representative Monitoring Points (RMPs). They will be considered as potential RMPs and may eventually become part of the GSP network at the 5-year GSP update." However, the additional RMPs should be included in the GSP now, instead of delaying inclusion until the 5-year GSP update. Without a map of proposed new monitoring well locations, a determination cannot be made regarding the adequacy of the monitoring network for sustainability indicators going forward into the GSP implementation phase. Regarding the frequency of groundwater quality monitoring, the plan states that nitrate will be monitored annually while specific conductivity will be monitored periodically. This monitoring plan is insufficient to adequately capture groundwater quality conditions within the basin.

NGO-027, Cont'd

NGO-027, Cont'd

NGO-028

RECOMMENDATIONS

- Provide maps that overlay current and proposed monitoring well locations with the locations of DACs, domestic wells, and GDEs to clearly identify potentially impacted areas. Increase the number of representative monitoring points (RMPs) across the basin as needed to adequately monitor all groundwater condition indicators. Prioritize proximity to GDEs and drinking water users when identifying new RMPs.
- Provide specific plans to fill data gaps in the monitoring network. Evaluate how the gathered data will be used to identify and map GDEs, and identify DACs and shallow domestic well users that are vulnerable to undesirable results.

NGO-029

NGO-030

NGO-031

[15] "The monitoring network objectives shall be implemented to accomplish the following: [...] (2) Monitor impacts to the beneficial uses or users of groundwater." [23 CCR §354.34(b)(2)]

4. Addressing Beneficial Users in Projects and Management Actions

The consideration of beneficial users when developing projects and management actions is **insufficient**, due to the failure to completely identify benefits or impacts of identified projects and management actions to beneficial users of groundwater such as DACs and drinking water users. NGO-032

We commend the GSA for including projects and management actions with explicit benefits to the environment (e.g., Scott River Water Trust Leasing Program, Beaver Dam Analogues, and East Fork Scott Project). The GSP discusses how these projects will benefit ecosystems, but does not discuss the manner in which DACs, drinking water users, and tribes may be benefitted or impacted by projects and management actions identified in the GSP. Therefore, potential project and management actions may not protect these beneficial users. Groundwater sustainability under SGMA is defined not just by sustainable yield, but by the avoidance of undesirable results for *all* beneficial users. NGO-032, Cont'd

RECOMMENDATIONS

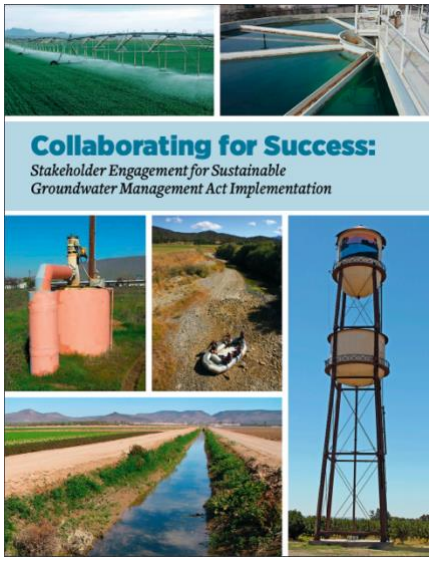
- For DACs and domestic well owners, include a drinking water well impact mitigation program to proactively monitor and protect drinking water wells through GSP implementation. Refer to Attachment B for specific recommendations on how to implement a drinking water well mitigation program. NGO-033
- For DACs, domestic well owners, and tribes, include a discussion of whether potential impacts to water quality from projects and management actions could occur and how the GSA plans to mitigate such impacts. NGO-032, Cont'd
- Recharge ponds, reservoirs, and facilities for managed stormwater recharge can be designed as multiple-benefit projects to include elements that act functionally as wetlands and provide a benefit for wildlife and aquatic species. For guidance on how to integrate multi-benefit recharge projects into your GSP, refer to the "Multi-Benefit Recharge Project Methodology Guidance Document"[16]. NGO-034
- Develop management actions that incorporate climate and water delivery uncertainties to address future water demand and prevent future undesirable results. NGO-035

[16] The Nature Conservancy. 2021. Multi-Benefit Recharge Project Methodology for Inclusion in Groundwater Sustainability Plans. Sacramento. Available at: https://groundwaterresourcehub.org/sgma-tools/multi-benefit-recharge-project-methodology-guidance/

Attachment B

SGMA Tools to address DAC, drinking water, and environmental beneficial uses and users

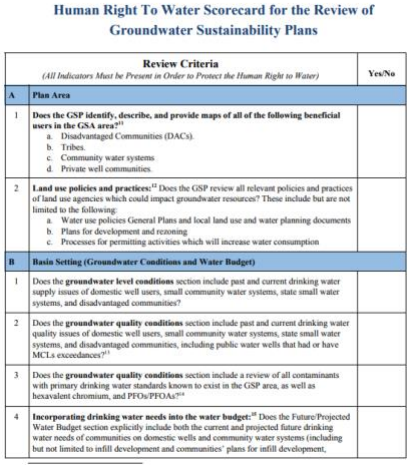
Stakeholder Engagement and Outreach



Clean Water Action, Community Water Center and Union of Concerned Scientists developed a guidance document called Collaborating for success: Stakeholder engagement for Sustainable Groundwater Management Act Implementation. It provides details on how to conduct targeted and broad outreach and engagement during Groundwater Sustainability Plan (GSP) development and implementation. Conducting a targeted outreach involves:

- Developing a robust Stakeholder Communication and Engagement plan that includes outreach at frequented locations (schools, farmers markets, religious settings, events) across the plan area to increase the involvement and participation of disadvantaged communities, drinking water users and the environmental stakeholders.
- Providing translation services during meetings and technical assistance to enable easy participation for non-English speaking stakeholders.
- GSP should adequately describe the process for requesting input from beneficial users and provide details on how input is incorporated into the GSP.

The Human Right to Water

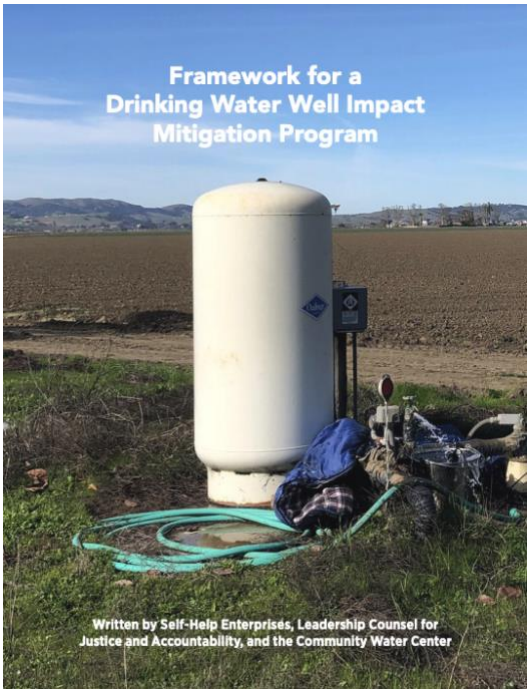


Human Right To Water Scorecard for the Review of Groundwater Sustainability Plans

	Review Criteria *(All Indicators Must be Present in Order to Protect the Human Right to Water)*	Yes/No
A	**Plan Area**	
1	**Does the GSP identify, describe, and provide maps of all of the following beneficial users in the GSA area?**[43] a. Disadvantaged Communities (DACs). b. Tribes. c. Community water systems. d. Private well communities.	
2	**Land use policies and practices:**[44] Does the GSP review all relevant policies and practices of land use agencies which could impact groundwater resources? These include but are not limited to the following: a. Water use policies General Plans and local land use and water planning documents b. Plans for development and rezoning c. Processes for permitting activities which will increase water consumption	
B	**Basin Setting (Groundwater Conditions and Water Budget)**	
1	Does the **groundwater level conditions** section include past and current drinking water supply issues of domestic well users, small community water systems, state small water systems, and disadvantaged communities?	
2	Does the **groundwater quality conditions** section include past and current drinking water quality issues of domestic well users, small community water systems, state small water systems, and disadvantaged communities, including public water wells that had or have MCLs exceedances?[45]	
3	Does the **groundwater quality conditions** section include a review of all contaminants with primary drinking water standards known to exist in the GSP area, as well as hexavalent chromium, and PFOs/PFOAs?[46]	
4	**Incorporating drinking water needs into the water budget:**[47] Does the Future/Projected Water Budget section explicitly include both the current and projected future drinking water needs of communities on domestic wells and community water systems (including but not limited to infill development and communities' plans for infill development,	

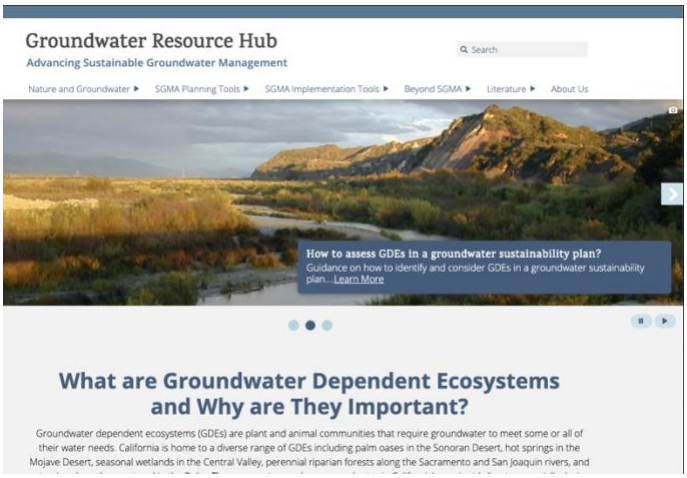
The Human Right to Water Scorecard was developed by Community Water Center, Leadership Counsel for Justice and Accountability and Self Help Enterprises to aid Groundwater Sustainability Agencies (GSAs) in prioritizing drinking water needs in SGMA. The scorecard identifies elements that must exist in GSPs to adequately protect the Human Right to Drinking water.

Drinking Water Well Impact Mitigation Framework



The Drinking Water Well Impact Mitigation Framework was developed by Community Water Center, Leadership Counsel for Justice and Accountability and Self Help Enterprises to aid GSAs in the development and implementation of their GSPs. The framework provides a clear roadmap for how a GSA can best structure its data gathering, monitoring network and management actions to proactively monitor and protect drinking water wells and mitigate impacts should they occur.

Groundwater Resource Hub



The Nature Conservancy has developed a suite of tools based on best available science to help GSAs, consultants, and stakeholders efficiently incorporate nature into GSPs. These tools and resources are available online at GroundwaterResourceHub.org. The Nature Conservancy's tools and resources are intended to reduce costs, shorten timelines, and increase benefits for both people and nature.

Rooting Depth Database

The Plant Rooting Depth Database provides information that can help assess whether groundwater-dependent vegetation are accessing groundwater. Actual rooting depths will depend on the plant species and site-specific conditions, such as soil type and

availability of other water sources. Site-specific knowledge of depth to groundwater combined with rooting depths will help provide an understanding of the potential groundwater levels are needed to sustain GDEs.

How to use the database

The maximum rooting depth information in the Plant Rooting Depth Database is useful when verifying whether vegetation in the Natural Communities Commonly Associated with Groundwater (NC Dataset) are connected to groundwater. A 30 ft depth-to-groundwater threshold, which is based on averaged global rooting depth data for phreatophytes[1], is relevant for most plants identified in the NC Dataset since most plants have a max rooting depth of less than 30 feet. However, it is important to note that deeper thresholds are necessary for other plants that have reported maximum root depths that exceed the averaged 30 feet threshold, such as valley oak (*Quercus lobata*), Euphrates poplar (*Populus euphratica*), salt cedar (*Tamarix spp.*), and shadescale (*Atriplex confertifolia*). The Nature Conservancy advises that the reported max rooting depth for these deeper-rooted plants be used. For example, a depth-to groundwater threshold of 80 feet should be used instead of the 30 ft threshold, when verifying whether valley oak polygons from the NC Dataset are connected to groundwater. It is important to re-emphasize that actual rooting depth data are limited and will depend on the plant species and site-specific conditions such as soil and aquifer types, and availability to other water sources.

The Plant Rooting Depth Database is an Excel workbook composed of four worksheets:

1. California phreatophyte rooting depth data (included in the NC Dataset)
2. Global phreatophyte rooting depth data
3. Metadata
4. References

How the database was compiled

The Plant Rooting Depth Database is a compilation of rooting depth information for the groundwater-dependent plant species identified in the NC Dataset. Rooting depth data were compiled from published scientific literature and expert opinion through a crowdsourcing campaign. As more information becomes available, the database of rooting depths will be updated. Please Contact Us if you have additional rooting depth data for California phreatophytes.

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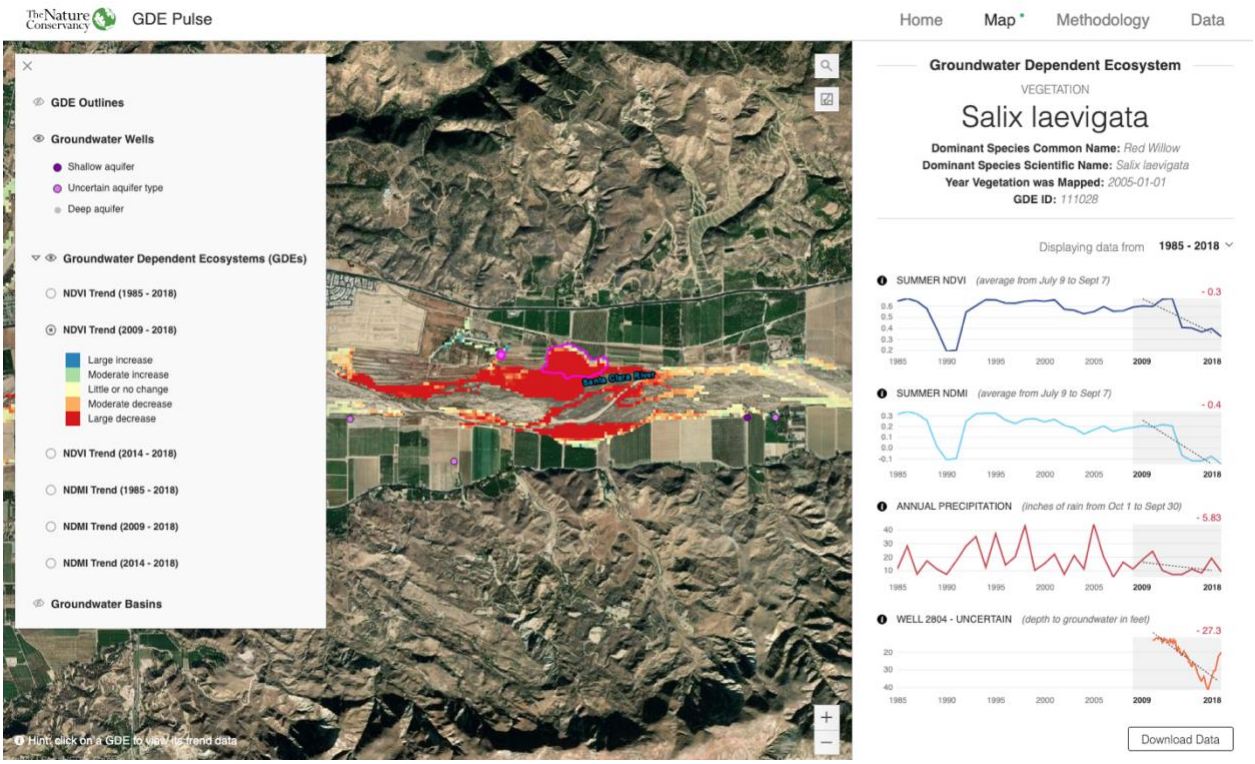
[1] Canadell, J., Jackson, R.B., Ehleringer, J.B. et al. 1996. Maximum rooting depth of vegetation types at the global scale. Oecologia 108, 583–595. https://doi.org/10.1007/BF00329030

GDE Pulse



GDE Pulse is a free online tool that allows Groundwater Sustainability Agencies to assess changes in groundwater dependent ecosystem (GDE) health using satellite, rainfall, and groundwater data. Remote sensing data from satellites has been used to monitor the health of vegetation all over the planet. GDE pulse has compiled 35 years of satellite imagery from NASA's Landsat mission for every polygon in the Natural Communities Commonly Associated with Groundwater Dataset. The following datasets are available for downloading:

Normalized Difference Vegetation Index (NDVI) is a satellite-derived index that represents the greenness of vegetation. Healthy green vegetation tends to have a higher NDVI, while dead leaves have a lower NDVI. We calculated the average NDVI during the driest part of the year (July - Sept) to estimate vegetation health when the plants are most likely dependent on groundwater.

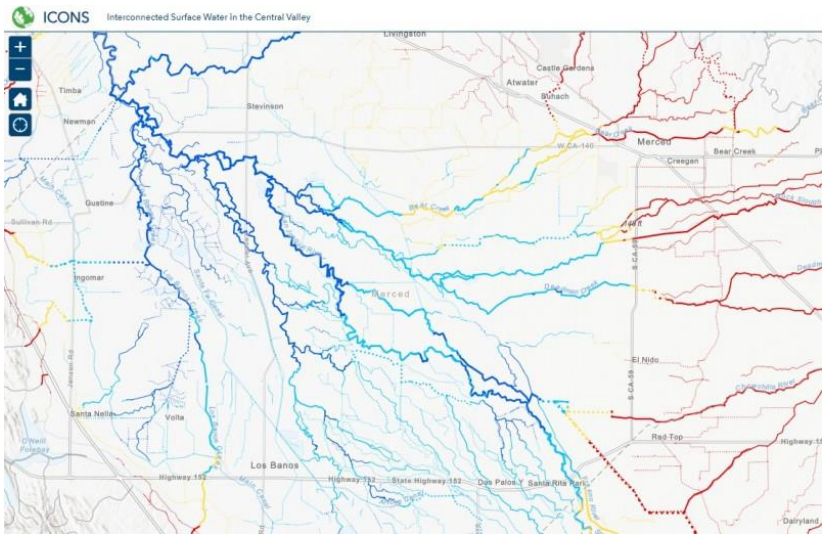
Normalized Difference Moisture Index (NDMI) is a satellite-derived index that represents water content in vegetation. NDMI is derived from the Near-Infrared (NIR) and Short-Wave Infrared (SWIR) channels. Vegetation with adequate access to water tends to have higher NDMI, while vegetation that is water stressed tends to have lower NDMI. We calculated the average NDVI during the driest part of the year (July–September) to estimate vegetation health when the plants are most likely dependent on groundwater.

Annual Precipitation is the total precipitation for the water year (October 1st – September 30th) from the PRISM dataset. The amount of local precipitation can affect vegetation with more precipitation generally leading to higher NDVI and NDMI.

Depth to Groundwater measurements provide an indication of the groundwater levels and changes over time for the surrounding area. We used groundwater well measurements from nearby (<1km) wells to estimate the depth to groundwater below the GDE based on the average elevation of the GDE (using a digital elevation model) minus the measured groundwater surface elevation.

ICONOS Mapper

Interconnected Surface Water in the Central Valley



ICONS maps the likely presence of interconnected surface water (ISW) in the Central Valley using depth to groundwater data. Using data from 2011-2018, the ISW dataset represents the likely connection between surface water and groundwater for rivers and streams in California's Central Valley. It includes information on the mean, maximum, and minimum depth to groundwater for each stream segment over the years with available data, as well as the likely presence of ISW based on the minimum depth to groundwater. The Nature Conservancy developed this database, with guidance and input from expert academics, consultants, and state agencies.

We developed this dataset using groundwater elevation data available online from the California Department of Water Resources (DWR). DWR only provides this data for the Central Valley. For GSAs outside of the valley, who have groundwater well measurements, we recommend following our methods to determine likely ISW in your region. The Nature Conservancy's ISW dataset should be used as a first step in reviewing ISW and should be supplemented with local or more recent groundwater depth data.

Attachment C

Freshwater Species Located in the Scott River Valley Basin

To assist in identifying the beneficial users of surface water necessary to assess the undesirable result "depletion of interconnected surface waters", Attachment C provides a list of freshwater species located in the Scott River Valley Basin. To produce the freshwater species list, we used ArcGIS to select features within the California Freshwater Species Database version 2.0.9 within the basin boundary. This database contains information on ~4,000 vertebrates, macroinvertebrates and vascular plants that depend on fresh water for at least one stage of their life cycle. The methods used to compile the California Freshwater Species Database can be found in Howard et al. 2015[1]. The spatial database contains locality observations and/or distribution information from ~400 data sources. The database is housed in the California Department of Fish and Wildlife's BIOS[2] as well as on The Nature Conservancy's science website[3].

Scientific Name	Common Name	Legal Protected Status		
		Federal	State	Other
BIRDS				
Actitis macularius	Spotted Sandpiper			
Agelaius tricolor	Tricolored Blackbird	Bird of Conservation Concern	Special Concern	BSSC - First priority
Aix sponsa	Wood Duck			
Anas americana	American Wigeon			
Anas clypeata	Northern Shoveler			
Anas crecca	Green-winged Teal			
Anas cyanoptera	Cinnamon Teal			
Anas platyrhynchos	Mallard			
Anser albifrons	Greater White-fronted Goose			
Ardea alba	Great Egret			
Ardea herodias	Great Blue Heron			
Botaurus lentiginosus	American Bittern			
Bucephala albeola	Bufflehead			
Butorides virescens	Green Heron			
Calidris mauri	Western Sandpiper			
Calidris minutilla	Least Sandpiper			
Cinclus mexicanus	American Dipper			
Cistothorus palustris palustris	Marsh Wren			
Cygnus columbianus	Tundra Swan			

[1] Howard, J.K. et al. 2015. Patterns of Freshwater Species Richness, Endemism, and Vulnerability in California. PLoSONE, 11(7). Available at: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0130710

[2] California Department of Fish and Wildlife BIOS: https://www.wildlife.ca.gov/data/BIOS

[3] Science for Conservation: https://www.scienceforconservation.org/products/california-freshwater-species-database

Fulica americana	American Coot			
Gallinago delicata	Wilson's Snipe			
Grus canadensis	Sandhill Crane			
Haliaeetus leucocephalus	Bald Eagle	Bird of Conservation Concern	Endangered	
Himantopus mexicanus	Black-necked Stilt			
Icteria virens	Yellow-breasted Chat		Special Concern	BSSC - Third priority
Lophodytes cucullatus	Hooded Merganser			
Megaceryle alcyon	Belted Kingfisher			
Mergus merganser	Common Merganser			
Numenius americanus	Long-billed Curlew			
Phalaropus tricolor	Wilson's Phalarope			
Pluvialis squatarola	Black-bellied Plover			
Podilymbus podiceps	Pied-billed Grebe			
Riparia riparia	Bank Swallow		Threatened	
Setophaga petechia	Yellow Warbler			BSSC - Second priority
Tachycineta bicolor	Tree Swallow			
Tringa melanoleuca	Greater Yellowlegs			
CRUSTACEANS				
Stygobromus mysticus	A Cave Obligate Amphipod		Special	
HERPS				
Actinemys marmorata marmorata	Western Pond Turtle		Special Concern	ARSSC
Anaxyrus boreas boreas	Boreal Toad			
Ascaphus truei	Coastal Tailed Frog			
Dicamptodon tenebrosus	Pacific Giant Salamander			
Rana boylii	Foothill Yellow-legged Frog	Under Review in the Candidate or Petition Process	Special Concern	ARSSC
Taricha granulosa	Rough-skinned Newt			
Thamnophis sirtalis sirtalis	Common Gartersnake			
INSECTS & OTHER INVERTS				
Leucorrhinia intacta	Dot-tailed Whiteface			
Fallceon thermophilos	A Mayfly			
Sweltsa salix	A Stonefly			Not on any status lists
MAMMALS				
Castor canadensis	American Beaver			Not on any status lists

Lontra canadensis canadensis	North American River Otter			Not on any status lists
Neovison vison	American Mink			Not on any status lists
Ondatra zibethicus	Common Muskrat			Not on any status lists
Sorex palustris	American Water Shrew			Not on any status lists
MOLLUSKS				
Anodonta californiensis	California Floater		Special	
Gonidea angulata	Western Ridged Mussel		Special	
Margaritifera falcata	Western Pearlshell		Special	
PLANTS				
Alnus rhombifolia	White Alder			
Beckmannia syzigachne	American Sloughgrass			
Bidens cernua	Nodding Beggarticks			
Callitriche heterophylla bolanderi	Large Water-starwort			
Callitriche palustris	Vernal Water-starwort			
Carex nebrascensis	Nebraska Sedge			
Carex nudata	Torrent Sedge			
Carex stipata stipata	Stalk-grain Sedge			
Castilleja miniata miniata	Greater Red Indian-paintbrush			
Cicuta douglasii	Western Water-hemlock			
Cirsium scariosum scariosum	Drummond's Thistle			Not on any status lists
Cyperus squarrosus	Awned Cyperus			
Eleocharis bella	Delicate Spikerush			
Eleocharis obtusa	Blunt Spikerush			
Helenium autumnale	Common Sneezeweed			
Lilium pardalinum pardalinum	Leopard Lily			
Lupinus polyphyllus polyphyllus	Bigleaf Lupine			
Mimulus guttatus	Common Large Monkeyflower			
Navarretia intertexta	Needleleaf Navarretia			
Perideridia howellii	Howell's False Caraway			
Persicaria lapathifolia				Not on any status lists
Potamogeton foliosus foliosus	Leafy Pondweed			
Rorippa curvisiliqua curvisiliqua	Curve-pod Yellowcress			
Rumex conglomeratus	NA			
Rumex salicifolius salicifolius	Willow Dock			
Salix exigua exigua	Narrowleaf Willow			
Salix laevigata	Polished Willow			

Salix lasiandra lasiandra				Not on any status lists
Sidalcea oregana oregana	Oregon Checker-mallow			
Solidago elongata				Not on any status lists
Veronica americana	American Speedwell			

Attachment D

The Nature Conservancy

July 2019

IDENTIFYING GDEs UNDER SGMA

Best Practices for using the NC Dataset

The Sustainable Groundwater Management Act (SGMA) requires that groundwater dependent ecosystems (GDEs) be identified in Groundwater Sustainability Plans (GSPs). As a starting point, the Department of Water Resources (DWR) is providing the Natural Communities Commonly Associated with Groundwater Dataset (NC Dataset) online[1] to help Groundwater Sustainability Agencies (GSAs), consultants, and stakeholders identify GDEs within individual groundwater basins. To apply information from the NC Dataset to local areas, GSAs should combine it with the best available science on local hydrology, geology, and groundwater levels to verify whether polygons in the NC dataset are likely supported by groundwater in an aquifer (Figure 1)[2]. This document highlights six best practices for using local groundwater data to confirm whether mapped features in the NC dataset are supported by groundwater.

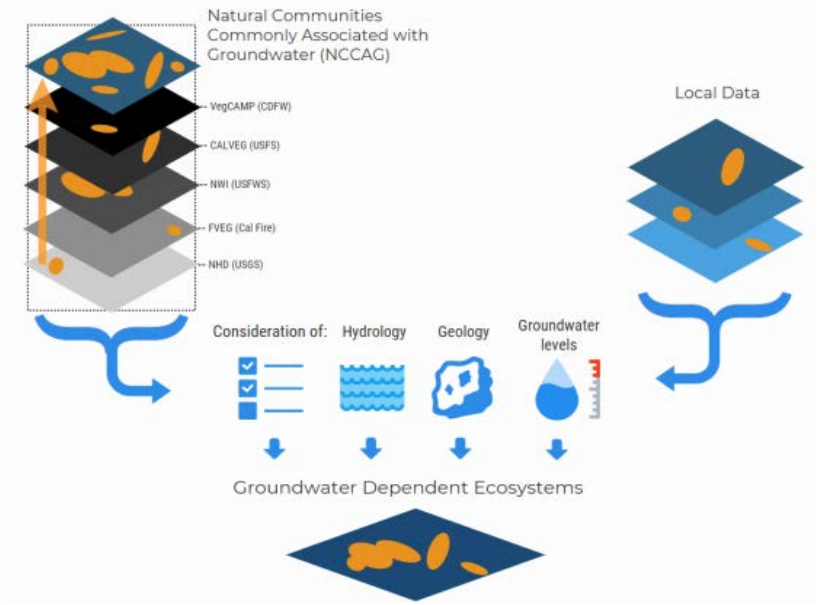


Figure 1. Considerations for GDE identification.
Source: DWR[2]

[1] NC Dataset Online Viewer: https://gis.water.ca.gov/app/NCDatasetViewer/
[2] California Department of Water Resources (DWR). 2018. Summary of the "Natural Communities Commonly Associated with Groundwater" Dataset and Online Web Viewer. Available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Data-and-Tools/Files/Statewide-Reports/Natural-Communities-Dataset-Summary-Document.pdf

The NC Dataset identifies vegetation and wetland features that are good indicators of a GDE. The dataset is comprised of 48 publicly available state and federal datasets that map vegetation, wetlands, springs, and seeps commonly associated with groundwater in California[3]. It was developed through a collaboration between DWR, the Department of Fish and Wildlife, and The Nature Conservancy (TNC). TNC has also provided detailed guidance on identifying GDEs from the NC dataset[4] on the Groundwater Resource Hub[5], a website dedicated to GDEs.

BEST PRACTICE #1. Establishing a Connection to Groundwater

Groundwater basins can be comprised of one continuous aquifer (Figure 2a) or multiple aquifers stacked on top of each other (Figure 2b). In unconfined aquifers (Figure 2a), using the depth-to-groundwater and the rooting depth of the vegetation is a reasonable method to infer groundwater dependence for GDEs. If groundwater is well below the rooting (and capillary) zone of the plants and any wetland features, the ecosystem is considered disconnected and groundwater management is not likely to affect the ecosystem (Figure 2d). However, it is important to consider local conditions (e.g., soil type, groundwater flow gradients, and aquifer parameters) and to review groundwater depth data from multiple seasons and water year types (wet and dry) because intermittent periods of high groundwater levels can replenish perched clay lenses that serve as the water source for GDEs (Figure 2c). Maintaining these natural groundwater fluctuations are important to sustaining GDE health.

Basins with a stacked series of aquifers (Figure 2b) may have varying levels of pumping across aquifers in the basin, depending on the production capacity or water quality associated with each aquifer. If pumping is concentrated in deeper aquifers, SGMA still requires GSAs to sustainably manage groundwater resources in shallow aquifers, such as perched aquifers, that support springs, surface water, domestic wells, and GDEs (Figure 2). This is because vertical groundwater gradients across aquifers may result in pumping from deeper aquifers to cause adverse impacts onto beneficial users reliant on shallow aquifers or interconnected surface water. The goal of SGMA is to sustainably manage groundwater resources for current and future social, economic, and environmental benefits. While groundwater pumping may not be currently occurring in a shallower aquifer, use of this water may become more appealing and economically viable in future years as pumping restrictions are placed on the deeper production aquifers in the basin to meet the sustainable yield and criteria. Thus, identifying GDEs in the basin should done irrespective to the amount of current pumping occurring in a particular aquifer, so that future impacts on GDEs due to new production can be avoided. A good rule of thumb to follow is: *if groundwater can be pumped from a well - it's an aquifer*.

[3] For more details on the mapping methods, refer to: Klausmeyer, K., J. Howard, T. Keeler-Wolf, K. Davis-Fadtke, R. Hull, A. Lyons. 2018. Mapping Indicators of Groundwater Dependent Ecosystems in California: Methods Report. San Francisco, California. Available at: https://groundwaterresourcehub.org/public/uploads/pdfs/iGDE_data_paper_20180423.pdf
[4] "Groundwater Dependent Ecosystems under the Sustainable Groundwater Management Act: Guidance for Preparing Groundwater Sustainability Plans" is available at: https://groundwaterresourcehub.org/gde-tools/gsp-guidance-document/
[5] The Groundwater Resource Hub: www.GroundwaterResourceHub.org

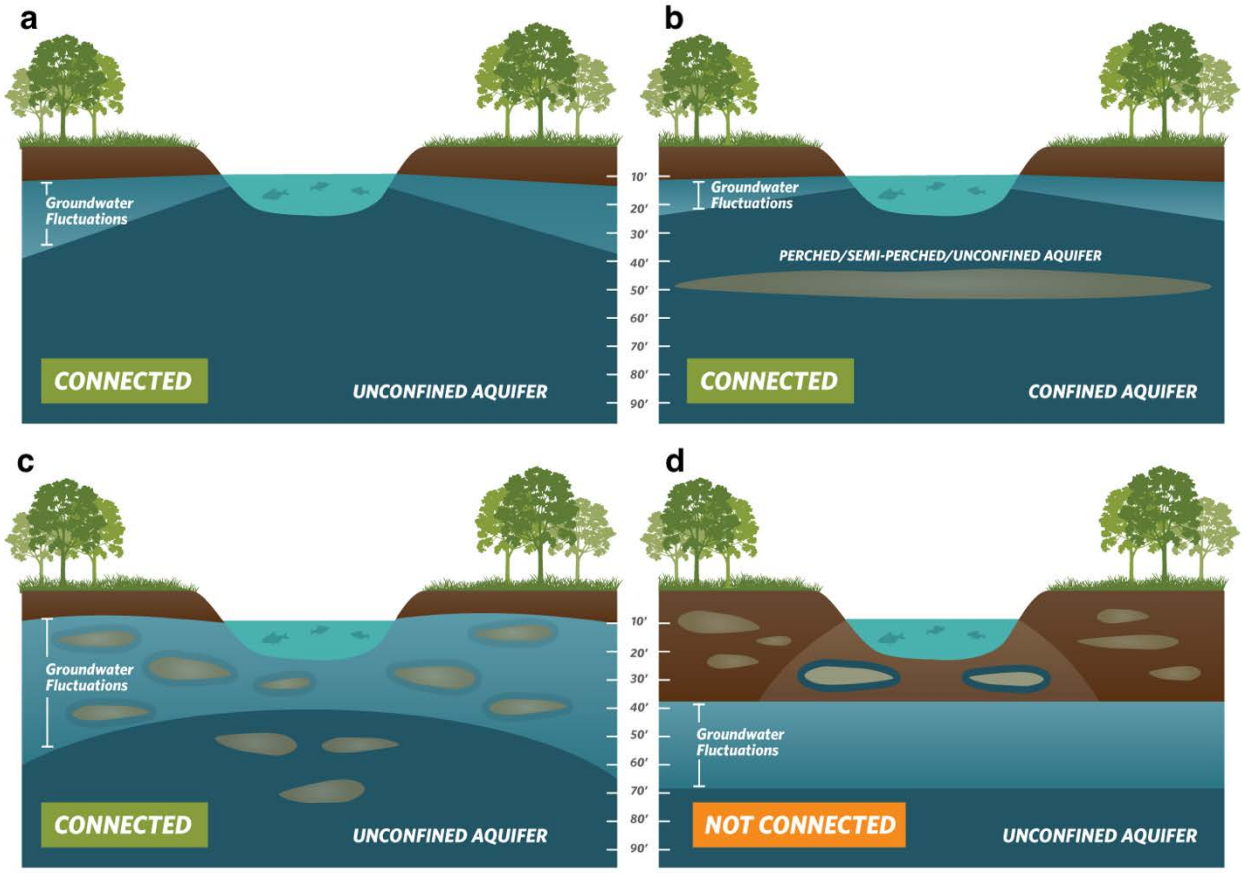


Figure 2. Confirming whether an ecosystem is connected to groundwater. Top: (a) Under the ecosystem is an unconfined aquifer with depth-to-groundwater fluctuating seasonally and interannually within 30 feet from land surface. **(b)** Depth-to-groundwater in the shallow aquifer is connected to overlying ecosystem. Pumping predominately occurs in the confined aquifer, but pumping is possible in the shallow aquifer. **Bottom: (c)** Depth-to-groundwater fluctuations are seasonally and interannually large, however, clay layers in the near surface prolong the ecosystem's connection to groundwater. **(d)** Groundwater is disconnected from surface water, and any water in the vadose (unsaturated) zone is due to direct recharge from precipitation and indirect recharge under the surface water feature. These areas are not connected to groundwater and typically support species that do not require access to groundwater to survive.

BEST PRACTICE #2. Characterize Seasonal and Interannual Groundwater Conditions

SGMA requires GSAs to describe current and historical groundwater conditions when identifying GDEs [23 CCR §354.16(g)]. Relying solely on the SGMA benchmark date (January 1, 2015) or any other single point in time to characterize groundwater conditions (e.g., depth-to-groundwater) is inadequate because managing groundwater conditions with data from one time point fails to capture the seasonal and interannual variability typical of California's climate. DWR's Best Management Practices document on water budgets[6] recommends using 10 years of water supply and water budget information to describe how historical conditions have impacted the operation of the basin within sustainable yield, implying that a baseline[7] could be determined based on data between 2005 and 2015. Using this or a similar time period, depending on data availability, is recommended for determining the depth-to-groundwater.

GDEs depend on groundwater levels being close enough to the land surface to interconnect with surface water systems or plant rooting networks. The most practical approach[8] for a GSA to assess whether polygons in the NC dataset are connected to groundwater is to rely on groundwater elevation data. As detailed in TNC's GDE guidance document[4], one of the key factors to consider when mapping GDEs is to contour depth-to-groundwater in the aquifer that is supporting the ecosystem (see Best Practice #5).

Groundwater levels fluctuate over time and space due to California's Mediterranean climate (dry summers and wet winters), climate change (flood and drought years), and subsurface heterogeneity in the subsurface (Figure 3). Many of California's GDEs have adapted to dealing with intermittent periods of water stress, however if these groundwater conditions are prolonged, adverse impacts to GDEs can result. While depth-to-groundwater levels within 30 feet[4] of the land surface are generally accepted as being a proxy for confirming that polygons in the NC dataset are supported by groundwater, it is highly advised that fluctuations in the groundwater regime be characterized to understand the seasonal and interannual groundwater variability in GDEs. Utilizing groundwater data from one point in time can misrepresent groundwater levels required by GDEs, and inadvertently result in adverse impacts to the GDEs. Time series data on groundwater elevations and depths are available on the SGMA Data Viewer[9]. However, if insufficient data are available to describe groundwater conditions within or near polygons from the NC dataset, include those polygons in the GSP until data gaps are reconciled in the monitoring network (see Best Practice #6).

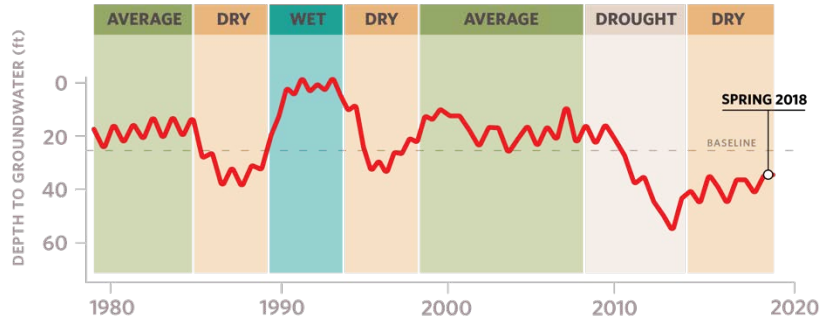


Figure 3. Example seasonality and interannual variability in depth-to-groundwater over time. Selecting one point in time, such as Spring 2018, to characterize groundwater conditions in GDEs fails to capture what groundwater conditions are necessary to maintain the ecosystem status into the future so adverse impacts are avoided.

[6] DWR. 2016. Water Budget Best Management Practice. Available at: https://water.ca.gov/LegacyFiles/groundwater/sgm/pdfs/BMP_Water_Budget_Final_2016-12-23.pdf

[7] Baseline is defined under the GSP regulations as "historic information used to project future conditions for hydrology, water demand, and availability of surface water and to evaluate potential sustainable management practices of a basin." [23 CCR §351(e)]

[8] Groundwater reliance can also be confirmed via stable isotope analysis and geophysical surveys. For more information see The GDE Assessment Toolbox (Appendix IV, GDE Guidance Document for GSPs[4]).

[9] SGMA Data Viewer: https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer

BEST PRACTICE #3. Ecosystems Often Rely on Both Groundwater and Surface Water

GDEs are plants and animals that rely on groundwater for all or some of its water needs, and thus can be supported by multiple water sources. The presence of non-groundwater sources (e.g., surface water, soil moisture in the vadose zone, applied water, treated wastewater effluent, urban stormwater, irrigated return flow) within and around a GDE does not preclude the possibility that it is supported by groundwater, too. SGMA defines GDEs as "ecological communities and species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface" [23 CCR §351(m)]. Hence, depth-to-groundwater data should be used to identify whether NC polygons are supported by groundwater and should be considered GDEs. In addition, SGMA requires that significant and undesirable adverse impacts to beneficial users of surface water be avoided. Beneficial users of surface water include environmental users such as plants or animals[10], which therefore must be considered when developing minimum thresholds for depletions of interconnected surface water.

GSAs are only responsible for impacts to GDEs resulting from groundwater conditions in the basin, so if adverse impacts to GDEs result from the diversion of applied water, treated wastewater, or irrigation return flow away from the GDE, then those impacts will be evaluated by other permitting requirements (e.g., CEQA) and may not be the responsibility of the GSA. However, if adverse impacts occur to the GDE due to changing groundwater conditions resulting from pumping or groundwater management activities, then the GSA would be responsible (Figure 4).

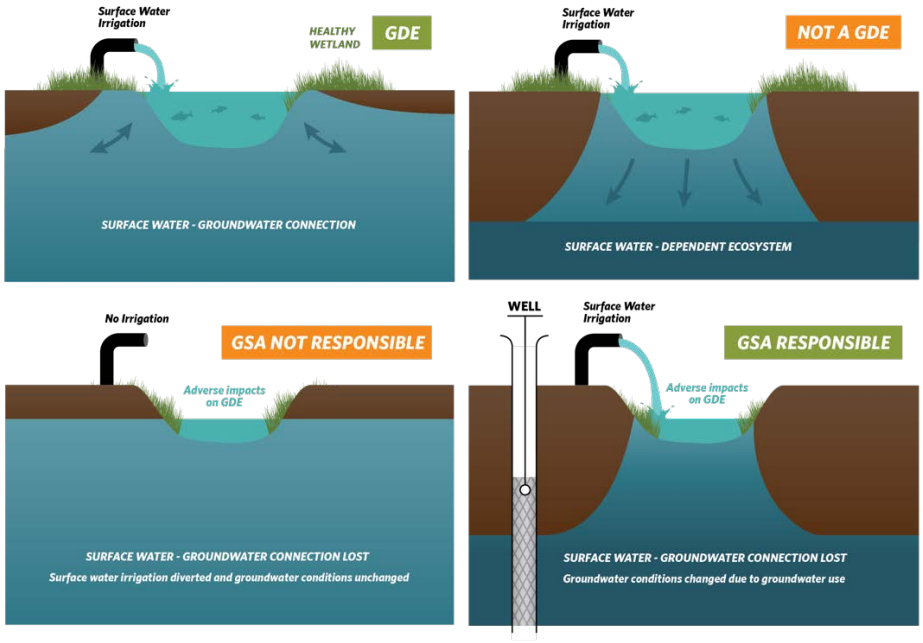


Figure 4. Ecosystems often depend on multiple sources of water. Top: (Left) Surface water and groundwater are interconnected, meaning that the GDE is supported by both groundwater and surface water. **(Right)** Ecosystems that are only reliant on non-groundwater sources are not groundwater-dependent. **Bottom: (Left)** An ecosystem that was once dependent on an interconnected surface water, but loses access to groundwater solely due to surface water diversions may not be the GSA's responsibility. **(Right)** Groundwater dependent ecosystems once dependent on an interconnected surface water system, but loses that access due to groundwater pumping is the GSA's responsibility.

[10] For a list of environmental beneficial users of surface water by basin, visit: https://groundwaterresourcehub.org/gde-tools/environmental-surface-water-beneficiaries/

BEST PRACTICE #4. Select Representative Groundwater Wells

Identifying GDEs in a basin requires that groundwater conditions are characterized to confirm whether polygons in the NC dataset are supported by the underlying aquifer. To do this, proximate groundwater wells should be identified to characterize groundwater conditions (Figure 5). When selecting representative wells, it is particularly important to consider the subsurface heterogeneity around NC polygons, especially near surface water features where groundwater and surface water interactions occur around heterogeneous stratigraphic units or aquitards formed by fluvial deposits. The following selection criteria can help ensure groundwater levels are representative of conditions within the GDE area:

- Choose wells that are within 5 kilometers (3.1 miles) of each NC Dataset polygons because they are more likely to reflect the local conditions relevant to the ecosystem. If there are no wells within 5km of the center of a NC dataset polygon, then there is insufficient information to remove the polygon based on groundwater depth. Instead, it should be retained as a potential GDE until there are sufficient data to determine whether or not the NC Dataset polygon is supported by groundwater.

- Choose wells that are screened within the surficial unconfined aquifer and capable of measuring the true water table.

- Avoid relying on wells that have insufficient information on the screened well depth interval for excluding GDEs because they could be providing data on the wrong aquifer. This type of well data should not be used to remove any NC polygons.

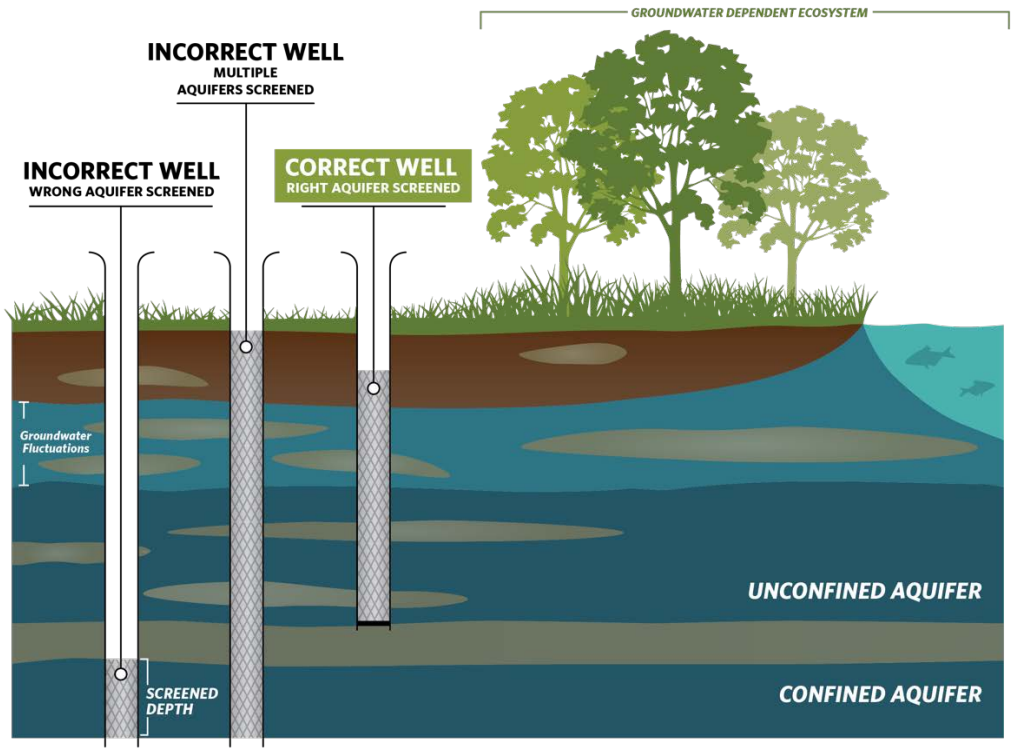


Figure 5. Selecting representative wells to characterize groundwater conditions near GDEs.

BEST PRACTICE #5. Contouring Groundwater Elevations

The common practice to contour depth-to-groundwater over a large area by interpolating measurements at monitoring wells is unsuitable for assessing whether an ecosystem is supported by groundwater. This practice causes errors when the land surface contains features like stream and wetland depressions because it assumes the land surface is constant across the landscape and depth-to-groundwater is constant below these low-lying areas (Figure 6a). A more accurate approach is to interpolate **groundwater elevations** at monitoring wells to get groundwater elevation contours across the landscape. This layer can then be subtracted from land surface elevations from a Digital Elevation Model (DEM)[11] to estimate depth-to-groundwater contours across the landscape (Figure b; Figure 7). This will provide a much more accurate contours of depth-to-groundwater along streams and other land surface depressions where GDEs are commonly found.

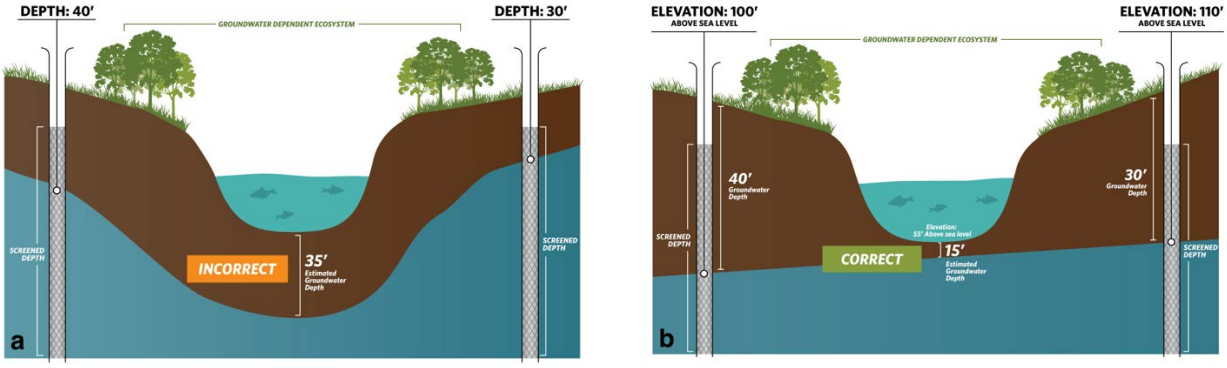


Figure 6. Contouring depth-to-groundwater around surface water features and GDEs. (a) Groundwater level interpolation using depth-to-groundwater data from monitoring wells. **(b)** Groundwater level interpolation using groundwater elevation data from monitoring wells and DEM data.

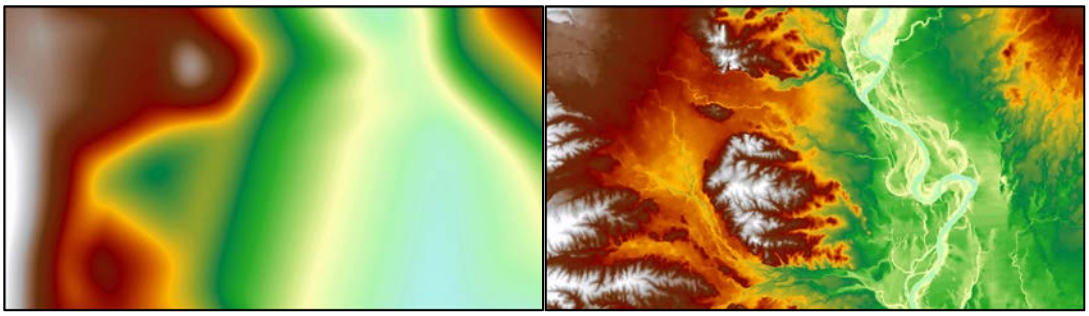


Figure 7. Depth-to-groundwater contours in Northern California. (Left) Contours were interpolated using depth-to-groundwater measurements determined at each well. **(Right)** Contours were determined by interpolating groundwater elevation measurements at each well and superimposing ground surface elevation from DEM spatial data to generate depth-to-groundwater contours. The image on the right shows a more accurate depth-to-groundwater estimate because it takes the local topography and elevation changes into account.

[11] USGS Digital Elevation Model data products are described at: https://www.usgs.gov/core-science-systems/ngp/3dep/about-3dep-products-services and can be downloaded at: https://iewer.nationalmap.gov/basic/

BEST PRACTICE #6. Best Available Science

Adaptive management is embedded within SGMA and provides a process to work toward sustainability over time by beginning with the best available information to make initial decisions, monitoring the results of those decisions, and using the data collected through monitoring programs to revise decisions in the future. In many situations, the hydrologic connection of NC dataset polygons will not initially be clearly understood if site-specific groundwater monitoring data are not available. If sufficient data are not available in time for the 2020/2022 plan, **The Nature Conservancy strongly advises that questionable polygons from the NC dataset be included in the GSP until data gaps are reconciled in the monitoring network.** Erring on the side of caution will help minimize inadvertent impacts to GDEs as a result of groundwater use and management actions during SGMA implementation.

KEY DEFINITIONS

Groundwater basin is an aquifer or stacked series of aquifers with reasonably well-defined boundaries in a lateral direction, based on features that significantly impede groundwater flow, and a definable bottom. *23 CCR §341(g)(1)*

Groundwater dependent ecosystem (GDE) are ecological communities or species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface. *23 CCR §351(m)*

Interconnected surface water (ISW) surface water that is hydraulically connected at any point by a continuous saturated zone to the underlying aquifer and the overlying surface water is not completely depleted. *23 CCR §351(o)*

Principal aquifers are aquifers or aquifer systems that store, transmit, and yield significant or economic quantities of groundwater to wells, springs, or surface water systems. *23 CCR §351(aa)*

ABOUT US

The Nature Conservancy is a science-based nonprofit organization whose mission is *to conserve the lands and waters on which all life depends*. To support successful SGMA implementation that meets the future needs of people, the economy, and the environment, TNC has developed tools and resources (www.groundwaterresourcehub.org) intended to reduce costs, shorten timelines, and increase benefits for both people and nature.

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September 23, 2021

Ray Haupt, Chair
Siskiyou County Flood Control & Water Conservation District
P.O. Box 750
1312 Fairlane Road
Yreka Ca 96097

Re: Karuk Tribe Comments on Scott and Shasta Groundwater Sustainability Plans

Ayukîi Chairman Haupt:

The careful and sustainable management of our groundwater is critically important to ensuring Siskiyou County residents have ample water supplies to meet future drinking, agricultural, and environmental needs. For the Tribe, proper management of groundwater is a critical part of ensuring that the in-stream flow needs of fisheries are met today and into the future.

The Sustainable Groundwater Management Act (SGMA) was enacted to protect and sustainably manage California's groundwater resources. The Karuk Tribe continues to be disappointed and frustrated by the Siskiyou County's implementation of SGMA. Since 2017, requests to form a Groundwater Sustainability Agency that includes tribes have been ignored. Despite efforts to craft a Memorandum of Understanding to facilitate good faith communication and exchange of information, the County has largely ignored the Tribe's requests for government-to-government meetings and our input into the SGMA process.

This most recent comment period on the draft Groundwater Sustainability Plans for the Scott and Shasta are another example of the County's refusal to act in good faith with the Karuk Tribe or other entities. The County did not share all of the technical materials that support the documents to be reviewed in a timely manner. This resulted in Tribes, agencies, and others scrambling to perform a technical review on hundreds of pages of materials, draft comments, and get comments approved by governing councils or management in two weeks.

This process has been deeply flawed and mismanaged from the outset and does a disservice to the Tribes, non-tribal constituents, agricultural operators, fishermen, and others seeking certainty and resolution of the water resource conflicts in our region. In fact, because of the deep flaws in the process and the work product, its likely to create more uncertainty for everyone.

Comments on the Scott Groundwater Sustainability Plan

1. The GSP Fails to Properly Specify Undesirable Results, Minimum Thresholds and Measurable Objectives for the Interconnected Surface Waters Sustainability Goal

Despite the known impacts of low flows on protected species, the GSP fails to properly define undesirable results, minimum thresholds, and measurable objectives for the interconnected surface waters (ISW) sustainability indicator.

SGMA sets out a three-step process for defining these terms. The undesirable result is an "effect" caused by over pumping; here, the depletion of streamflow. (Wat. Code § 10721, def (x)(6); Cal. Code Regs. tit. 23, § 354.26.) The minimum threshold is the numeric value that determines when an effect becomes "undesirable," i.e. when it becomes "significant and unreasonable." (Wat. Code § 10721, def. (x); Cal. Code Regs. tit. 23, § 354. It must

> quantify groundwater conditions for each applicable sustainability indicator at each monitoring site or representative monitoring site established pursuant to Section 354.36. The numeric value used to define minimum thresholds shall represent a point in the basin that, if exceeded, may cause undesirable results....

(Cal. Code Regs., tit. 23, § 354.28, subd. (a).) With regard to depletions of interconnected surface water, the regulations require that the minimum threshold be defined as the "rate or volume of surface water depletions caused by groundwater use that has adverse impacts on beneficial uses of the surface water and may lead to undesirable results." (*Id.* § 354.28, subd. (c)(6).) And the measurable objective represents numeric targets to achieve sustainability; that is, to avoid undesirable results by keeping the basin above the minimum threshold. (Cal. Code Regs. tit. 23, § 354.30.)

The GSP defines these terms for interconnected surface waters in a way that fails, as the statute requires, to tie the results of over pumping to concrete effects in the basin. The GSP distinguishes between a "SGMA undesirable result" and an "aspirational 'watershed goal.'" (GSP at 3.57-59.) The former is defined as "stream depletion that can be attributed to groundwater pumping outside of the adjudicated zone to the degree it leads to significant and unreasonable impacts on beneficial uses of surface water." (GSP at 3.57.) The minimum threshold is defined as the "the amount of stream depletion reversal achieved by one or an equivalent set of multiple minimum required PMAs to meet the intent of SGMA (no additional undesirable results), and Porter Cologne and the PTD (some reversal of existing undesirable results)."[1] (GSP at 3.60.) And the measurable objectives are defined by percentages of streamflow depletion reversed by PMAs. (GSP at 3.63-64.)

Karuk-001

2. The Undesirable Result Definition is Tautological and Fails to Achieve Basin-Wide Sustainability as SGMA Requires

As part of achieving a basin's "sustainability goal," a GSP must "identify" "undesirable result[s]." (Wat. Code §§ 10721 subds. (u)-(x); 10727.2, subd. (b).) An "undesirable result" means an "effect[] caused by groundwater conditions throughout the basin." (Id. § 10721, subd. (x).) Undesirable results include "[d]epletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water." (Id. § 10721, subd. (x)(6).)

The GSP must define these "significant" and "unreasonable" effects. (Cal. Code Regs. tit. 23, § 354.26(a).) But the GSP's definition of "undesirable results" is a tautology. The GSP defines it as "significant and unreasonable stream depletion due to groundwater extraction from wells subject to SGMA (i.e., outside of the Adjudicated Zone)." (GSP at 3.59.) By including the terms "significant and unreasonable" in the definition, the GSP fails to provide a workable definition: an effect is defined as unreasonable if it is unreasonable. This is nonsensical and unworkable. In *Asociacion de Gente Unida por*

Karuk-002

[1] The GSP finds that the ISW undesirable result existed prior to 2015 and thus the GSP need not address it under SGMA. (GSP at 3.55-56; Wat. Code § 10727.2.) This memo discusses this finding below.

Karuk-001, Cont'd

el Agua v. Central Valley Regional Water Quality Control Board (2012) 210 Cal.App.4th 1255, 1280, the Court of Appeal disapproved a waste discharge requirement for dairy pollution where "the basis for concluding that any degradation of groundwater will be of maximum benefit to the people of California is that the Order states that it prohibits any further degradation of groundwater." The court found that this reasoning was "circular." (*Ibid.*) The same is true here.

Karuk-002, Cont'd

What the GSP could have done, but did not do, is establish a streamflow target that is protective of beneficial uses in the Scott. It then could have determined the relative contributions of groundwater users inside and outside the adjudication along with surface users. It could then establish the needed reductions in use by all three categories of water users. Even though the GSA lacks authority over surface users and the adjudicated zone, the exercise would inform the amount that pumpers outside the zone need to reduce by to reach a satisfactory flow rate. And making these calculations would inform the County, the State Board, the Watermaster, and potentially the courts and other agencies about the scale and nature of needed actions. This approach would also comply with SGMA by quantifying the undesirable result and minimum threshold.

Karuk-003

Starting with a streamflow target and working backwards is consistent with SGMA because the statute measures compliance at the basin scale. For instance, the "sustainability goal" means ensuring that the "applicable basin is operated within its sustainable yield." (Wat. Code § 10721, def. (u).) And an "undesirable result" means "one or more of the following effects caused by groundwater conditions occurring throughout the basin." (*Id.* def. (x).) And DWR evaluates GSPs to determine whether they are "likely to achieve the sustainability goal for the basin covered by the groundwater sustainability plan." (Wat. Code § 10733, subd. (b).) The regulations reiterate that undesirable results are "significant and unreasonable effects…occurring throughout the basin." (Cal. Code Regs. tit. 23, § 354.26(a).) Again, the regulations and the statute include the language "throughout the basin." If the legislature did not want to include consideration of effects in the adjudicated areas, it could have done so but did not. By focusing solely on pumping outside the adjudicated zone, the GSP fails to ensure, or even analyze what would be necessary to ensure that the basin as a whole reaches sustainability.

Karuk-004

3. The Undesirable Result Is Not Quantified, in Violation of the SGMA Regulations

The SGMA regulations require the GSP to quantify the undesirable result:

> The criteria used to define when and where the effects of the groundwater conditions cause undesirable results for each applicable sustainability indicator. The criteria shall be based on a **quantitative description** of the combination of minimum threshold exceedances that cause significant and unreasonable effects in the basin.

(Cal. Code Regs., tit. 23, § 354.26, subd. (b)(2) (emphasis added).) The description in the GSP is inadequate because it is not a "quantitative description." The regulations are clear that the result must be in the form of numbers tying minimum threshold exceedances to the significant and unreasonable effects. The GSP's description is entirely qualitative. In addition, the description lacks "criteria" for "when and where" groundwater conditions cause significant and unreasonable depletions. Again, SGMA and the regulations make crystal clear that the undesirable results analysis must be tied to physical conditions and physical locations, not solely a model output.

Karuk-005

This violates the regulations.

4. The Reasonableness Analysis Fails to Consider Costs to Beneficial Users of Surface Waters

The GSP is required to determine whether the depletions of surface waters have "unreasonable impacts on beneficial users of surface waters." But instead of focusing its discussion on the harms to beneficial users, it focuses solely on the costs to groundwater users. This violates SGMA. Karuk-006

The GSP fails to properly consider the "unreasonableness" of stream depletions by failing to analyze not only of the costs of compliance but of the costs to the public, tribes, and commercial fisheries of the loss of fish populations—loss which may include the incalculable consequences of extinction or extirpation. For instance, courts have held that when setting water quality objectives under Water Code section 13241, the "Water Control Boards are charged with taking into account economic considerations, not merely costs of compliance with a permit. As noted, economic considerations also include, among other things, the costs of not addressing the problems of contaminated water." (*City of Duarte v. State Water Resources Control Board* (2021) 60 Cal.App.5th 258, 276.) The same is true here: determining whether an effect is reasonable requires looking at both costs to comply with any restrictions and also the costs to the public of over-extraction. Karuk-007

The GSP states: "In the context of assessing MTs for the ISW SMC, it is reasonable to only hold groundwater producers outside the adjudicated zone to a modest percentage of stream depletion reversal because any greater responsibility would unreasonably constrain groundwater users in the basin." (GSP at 3.58.) Later, the GSP purports to analyze "what is an "unreasonable" amount of stream depletion, which could be reframed as: what is a "reasonable" amount of avoided groundwater use?" (GSP at 3.59.) This is not the question the statute asks: SGMA requires the definition of significant and unreasonable effects to focus on the *results* of stream depletion, not the cost of avoiding it. (Wat. Code § 10721, def. (x); Cal. Code Regs. tit 23, § 354.26(a).) Any costs associated with any constraint on groundwater users has to be balanced against the effect of their actions on groundwater conditions. A reasonableness analysis that focuses entirely on costs to groundwater users is incomplete. Karuk-023

5. The Unreasonableness Analysis Ignores Legally Binding Streamflow Limits in the Scott River

The analysis also misses the fact that the State Board recently adopted emergency regulations setting flow levels (embodied in the CDFW drought minimum flows) below which extractions are deemed to be unreasonable. (See Wat. Code § 1058.5. (State Board authority to adopt emergency regulations to "prevent the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion, of water"); Cal. Code Regs. tit. 23, § 875 et seq.) Rather than focusing on the cost of compliance, the GSP must revisit its significant and unreasonable analysis in light of the State Board's determination of what is "reasonable." It is within the State Board's authority to determine which uses are reasonable. (*Stanford Vina Ranch Irrigation Company v. State* (2020) 50 Cal.App.5th 976, 1002–1003 ("[T]he Board is charged with acting to prevent unreasonable and wasteful uses of water, regardless of the claim of right under which the water is diverted.").) Karuk-008

Nor does the fact that extraction has been continuing at these levels for the last several decades (a fraction of the time that the Karuk Tribe has existed in the Klamath basin) make over-extraction of groundwater reasonable. (Wat. Code § 100.5 ("conformity of a use, method of use, or method of diversion of water with local custom shall not be solely determinative of its reasonableness.") The GSP must account for the fact the State Board has now declared flows below the CDFW drought minimum flows to be unreasonable. Karuk-009

6. Minimum Thresholds Inadequately Defined

The GSP defines the minimum threshold for interconnected surface waters as "the amount of stream depletion reversal achieved by one or an equivalent set of multiple minimum required PMAs to meet the intent of SGMA (no additional undesirable results), and Porter Cologne and the PTD (some reversal of Karuk-010

existing undesirable results)." (GSP at 3.60.) It goes on specify: "**average stream depletion reversal** of the implemented PMAs during September–November **must exceed 15% of the depletion caused by groundwater pumping from outside the adjudicated zone in 2042 and thereafter**..." (GSP at 3.60 (emphasis in original).) There are at least three problems with this. First, it is circular. Second, the 15% figure is arbitrary and unsupported by evidence. Last, it is not tied to a "monitoring site or representative monitoring site" as required by the regulations.

Karuk-010, Cont'd

The minimum threshold is circular because it starts from the premise that the ILR/MAR scenario is all that need be done. The GSP states that Advisory Committee determined it was "reasonable" implement the MAR/ILR scenario of PMAs. (GSP at 3.60.) This involves flooding fields using excess flows in the winter and switching from groundwater to surface water irrigation using excess water in the spring. This scenario does not involve reducing pumping by groundwater users. Having determined the costs associated with the MAR/ILR scenario are reasonable, the GSP simply states that the streamflow associated with that scenario is the minimum threshold. (GSP at 3.61.) This depletion reduction figure is 15%.

By defining the minimum threshold as the results of simulated PMAs, the GSP creates a circle. It can define the undesirable result and achieve it without demonstrating any real-world impact on flows, fish, or the people that rely on them. This violates SGMA.

Karuk-011

In addition, the 15% figure is completely lacking in evidence. An agency's action is invalid if it is "arbitrary, capricious, or without evidentiary support." (E.g. *Association of Irritated Residents v. San Joaquin Valley Unified Air Pollution Control Dist.* (2008) 168 Cal.App.4th 535, 542.)

While the GSP implies that it was discussed at the Advisory Committee meetings, there is no justification for why 15% was chosen, and not 50%, 100%, or 5%. Indeed, although the key driver of the GSP's MT analysis is the cost of the MAR/ILR scenario, the GSP *does not consider the cost of the scenario!* (GSP at 3.60-61, 4.27 ("Costs and funding for [the ILR/MAR] project have not yet been explored.") Here, the failure to consider the costs of the ILR/MAR scenario—which is the only basis for the selection of the 15% reduction figure—is arbitrary and capricious because it is not based on any evidence in the record.

Karuk-012

Moreover, there is no analysis of the impacts of the 15% depletion reduction on the stream itself. Without this analysis, there is no way to know whether this level of reduction is "significant" or "unreasonable," no matter how the terms are defined. And this illustrates the problem with defining the minimum threshold in terms of a modeled output rather than, as required by the regulations, a value at a monitored site.

Karuk-013

The "minimum thresholds" must "quantify groundwater conditions for each applicable sustainability indicator *at each monitoring site or representative monitoring site.*" (Cal. Code Regs., tit. 23, § 354.28(a), emphasis added.) Therefore, the definition of the undesirable result must be "quantitative" and must be tied to minimum threshold exceedances at *particular monitoring sites.*[2] In other words, the SGMA regulations require a GSP to express an undesirable result in terms of a real-world impact to a directly measured value, in this case, streamflow.

Karuk-014

The SVIHM model will doubtless be a useful tool and provides invaluable insights into those parameters that cannot be directly measured. But it is not a "monitoring site." The GSP must include minimum thresholds that inform the GSA and the public when physical conditions in the basin have reached the point of being "significant and unreasonable" impacts on interconnected surface waters.

Karuk-015

[2] Section 352.4 of the regulations makes clear that a monitoring site is a physical location, not a model output. (Cal. Code Regs., tit. 23, § 352.4.)

7. Measurable Objectives are not Properly Defined

The GSP attempts to avoid the requirement to define the minimum threshold and measurable objectives in terms of stream flow by referring to section 354.30, subdivision (b) of the regulations. The GSP states, "Choosing the aspirational watershed goal itself as MO would not meet the requirement that quantification/measurement of streamflow depletion that is used to establish the minimum threshold, Section 3.3.5.1, must also [be] used to quantify the MO."[3] But this is precisely backwards. As discussed above, the minimum threshold must be defined with reference to a measured value at a monitoring site. And there is no requirement that the measured value be identical, only that the metrics and monitoring sites be the same. Again, SGMA is clear that measurable objectives, like minimum thresholds and undesirable results, be defined in terms of measurable stream flow, not as a portfolio of PMAs or solely as a model output.

Karuk-016

8. The GSP Does not Consider the 2021 Emergency Regulations or the CDFW Drought Flows

On June 15. 2021, CDFW transmitted Minimum Flow Recommendations for the Scott and Shasta Rivers to the State Board.[4] The minimum flow recommendation largely tracks the USFS water right at the Fort Jones Gage, with deviations in September (33 cfs), November (60 cfs), and December (150 cfs.)

Based on these recommendations, the 2017 CDFW flow recommendations, and a Petition for Emergency Rulemaking filed by ELF and the Karuk Tribe on July 1, 2021, the State Board adopted emergency regulations setting minimum flows on the Scott and Shasta River in August 2021. (See Cal. Code Regs. Tit. 23, § 875 et seq.)

The emergency regulations establish the CDFW Minimum Flow Recommendations as the minimum permissible flows in the Scott River. (Cal. Code Regs. tit. 23, § 875(c)(1).) State Board staff is authorized to curtail diversions—both surface waters and groundwater—that reduce river flow below those levels. Curtailment orders have now gone out to diverters.

The GSP does not acknowledge either of these events. Rather, it states "However, neither the ESA, TMDL, or PTD specify mandatory targets, minimum thresholds, or specific project requirements." (GSP at 3.57) This statement is not true. The emergency regulation now sets a minimum flow for the Scott River. Thus, the goal of restoring adequate flows in the Scott is no longer "aspirational"—a minimum flow is now the law. The GSP must be revised to account for this.

Karuk-017

9. The GSP Fails to Consider Undesirable Effects that Have Occurred After 2015

Water Code section 10727.2, subdivision (b)(4) states that a GSP "may, but is not required to, address undesirable results that occurred before, and have not been corrected by, January 1, 2015. Notwithstanding paragraphs (1) to (3), inclusive, a groundwater sustainability agency has discretion as to whether to set measurable objectives and the timeframes for achieving any objectives for undesirable results that occurred before, and have not been corrected by, January 1, 2015."

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[3] GSP, Chapter 3, at p. 53. The cited regulation states: "measurable objectives shall be established for each sustainability indicator, based on quantitative values using the same metrics and monitoring sites as are used to define the minimum thresholds." (Cal. Code Regs., tit. 23, § 354.30, subd. (b).)

[4] Available at https://www.waterboards.ca.gov/drought/scott_shasta_rivers/docs/swb_2021_shasta_scott_drought_emergency_final.pdf, accessed September 15, 2021.

The GSP says, "In Scott Valley, undesirable results associated with depletion of interconnected surface water that have occurred since January 1, 2015, had already existed for over thirty years prior as of 2015. No additional undesirable results have occurred since January 1, 2015 (Section 2.2.1.6). Additional future surface water depletion due to groundwater pumping will be avoided by rigorous controls set on maintaining current water level conditions (Section 3.4.1) and by avoiding significant additional consumptive water use in Scott Valley (see chapter 4)." (GSP at 3.55.)

This misstates the facts. It is clear that there is sufficient water in the Scott River system to sustain fish populations in almost every year. This is evident from the pre-1980 record showing that the river could sustain the USFS flow right and the CDFW recommended flows prior to the adjudication and the expansion of groundwater pumping. And it is clear from the information contained in the GSP that almost every year, precipitation is sufficient to bring flows up to a level that would support those flows for most of the year, absent irrigation. (See GSP at App. 4-A, at pp. 73-75.)

Therefore, the effects of stream depletion did not "exist" prior to 2015. Indeed, on January 1, 2015, the Scott River flowed at over 500 cfs, well above the CDFW-recommended 362 cfs.[5] The "undesirable result" for the purposes of SGMA is the disconnection and low flow in the river. (Wat. Code § 10721, def. (x)(6).) In the summer of 2015, growers made a choice to withdraw water from a full aquifer. And in 2015, just as in every prior summer, the County, the State Board, and other responsible agencies allowed the depletions to occur.

This does not mean that the undesirable result "existed." Courts have "long settled that separate, recurring invasions of the same right can each trigger their own statute of limitations." (*Aryeh v. Canon Business Solutions* (2013) 55 Cal.4th 1185, 1198.) This a similar situation: the stream depletions are not a continuous problem that occurred long ago and has not been corrected, like seawater intrusion or permanent subsidence. Depletions are discrete events that recur anew each year, but the GSP treats them as permanent. Indeed, the GSP claims that there is no chronic lowering of groundwater levels in the Scott. (GSP at 3.32.) Karuk-018

The GSP should be revised to make clear that the stream depletions did not "exist" prior to 2015 because each year they are caused again.

10. The GSA's Baseline Analysis Must Include Consideration of Other Laws

SGMA also does not absolve the County or the GSA of its duty to comply with other environmental laws. SGMA contains at least four explicit savings clauses making explicit that SGMA's requirements are in addition to, and do not replace, the requirements of other laws, including the Clean Water Act, the public trust doctrine, the state and federal Endangered Species Acts, or Fish and Game Code 5937, to name just a few.

SGMA's savings clauses include:

- "Nothing in this part, or in any groundwater management plan adopted pursuant to this part, determines or alters surface water rights or groundwater rights under common law or any provision of law that determines or grants surface water rights." (§ 10720.5, subd. (b).)
- "A groundwater sustainability agency may exercise any of the powers described in this chapter in implementing this part, in addition to, and not as a limitation on, any existing authority . . . ." (§ 10725, subd. (a).)

[5] USGS Flow Meter Data available at https://nwis.waterdata.usgs.gov/ca/nwis/uv/?ts_id=16566&format=img_default&site_no=11519500&begin_date=20150101&end_date=20150101

- "This part is in addition to, and not a limitation on, the authority granted to a local agency under any other law." (§ 10726.8, subd. (a).)
- "Nothing in this part is a limitation on the authority of the [State Water Board], the [Department of Water Resources], or the State Department of Public Health." (§ 10726.8, subd. (c).)[6]

The GSP purports to consider other laws. But it does so in the context of doing as little as possible to comply with those laws. The GSP states that SGMA requires it to only not cause more undesirable results than "existed" in 2015 (e.g. GSP at 3.60). But it characterizes any "additional" reduction in pumping as in response to the public trust doctrine the Clean Water Act, not SGMA. As discussed above, the conclusion that SGMA does not require further reductions below the 2015 baseline is incorrect. The analysis of undesirable results and minimum thresholds needs to be revised to take into account the requirements of all other relevant laws. Karuk-019

For instance, the analysis of temperature impacts is insufficient. Groundwater extractions reduce cold-water inflows. (GSP at 2.25.) And this occurs not just in the August-November period, but throughout the year. And some of these cold pools may exist in tributaries that are not part of the adjudicated area, such as the East Fork.[7] These areas would thus be fully under the jurisdiction of SGMA. But the GSP does not model or account for cold water refugia, which are crucial for salmonid over-summering and rearing, especially for Coho. (GSP at 2.73.) The TMDL Action Plan reinforces that these thermal refugia are necessary for species recovery: "Where reaches of the Scott River and its tributaries are providing suitable freshwater salmonid habitat, including cold water refugia for coho and other salmonids, protection of these areas should be a priority for restoration efforts."[8] Karuk-020

The GSP's failure to model and consider impacts of groundwater extraction on this crucial habitat implicates the Clean Water Act, by failing to comply with the TMDL for temperature, and the Endangered Species Act, for failing to protect critical habitat. Moreover, temperature impacts are an "effect" that the GSP wholly fails to evaluate the significance and reasonableness of when defining the undesirable result and minimum thresholds for either water quality or interconnected surface waters.

The GSP should, at the very least, incorporate a plan to identify and protect these cold water refugia where they occur.

11. The GSP Fails to Consider Surface Water Quality

The GSP's identification of undesirable results for water quality is insufficient because it fails to consider groundwater extraction's impacts to surface water quality. SGMA provides that "[s]ignificant and unreasonable degraded water quality" is an undesirable effect required to be avoided (Wat. Code § 10721, subd. (x)(4), and SGMA does not limit this definition to degraded *groundwater* quality. But the GSP limits its discussion of the water quality undesirable result to groundwater quality. (GSP at 3.42) This limitation violates SGMA because it does not consider the significant effects that groundwater conditions have on surface water quality, namely, temperature—including cold water refugia. The GSP acknowledges that the Scott is listed as impaired for temperature under section 303(d) of the Clean Water Act. (GSP at 2.23) And extractions of groundwater affect flows and therefore temperature in the Scott. (GSP at 2.25.) Karuk-021

[6] The "part" mentioned in each provision refers to Part 2.74 of the Water Code—that is, the entire Sustainable Groundwater Management Act. (§ 10720.)

[7] North Coast Regional Water Quality Control Board, Staff Report for the Action Plan for the Scott River Watershed Sediment and Temperature Total Maximum Daily Loads (2005) at p. 4-35.

[8] North Coast Regional Water Quality Control Board, Staff Report for the Action Plan for the Scott River Watershed Sediment and Temperature Total Maximum Daily Loads (2005) at p. 5-4. Karuk-020, Cont'd

The GSP must be revised to describe impacts to surface water temperature as an undesirable result and to develop minimum thresholds, measurable objectives, and projects and management actions to remedy the undesirable result. Karuk-022

12. Additional technical comments to be incorporated by reference

The Karuk Tribe supports and incorporates by reference the technical comments prepared by Riverbend Sciences on behalf of the Klamath Tribal Water Quality Consortium dated September 21, 2021 regarding review and comments on *Public Draft Scott Valley Groundwater Sustainability Plan.* These comments are attached.

Comments on the Shasta Groundwater Sustainability Plan

The Karuk Tribe supports and incorporates by reference the technical comments prepared by Riverbend Sciences on behalf of the Klamath Tribal Water Quality Consortium dated September 21, 2021 regarding review and comments on *Public Draft Shasta Valley Groundwater Sustainability Plan.* These comments are attached.

The Karuk Tribe hopes that the Groundwater Sustainability Agency/ Siskiyou County Flood Control & Water Conservation District will work to amend the draft plans based on the extensive feedback based on the legal and technical merits of the draft plans. The Karuk Tribes remains interested forging a collaborative relationship with the County despite the apparent lack of such interest by the County.

Yôotva,

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Scott Groundwater Sustainability Plan Comments QVIC

A) COMMENT OVERVIEW

The Quartz Valley Indian Community, with help of our consultants Kier Associates, have reviewed the public draft of the Scott Valley Groundwater Sustainability Plan (GSP) and wish to provide the following comments. Our comments are arranged into four sections: A) Comment overview in which we provide a summary of our most important big-picture comments, B) Suggestions for improving the Scott Valley Integrated Hydrologic Model (SVIHM), C) Comments on specific sections of the GSP chapters using the comment form provided, and D) Legal comments prepared by a consultant to the Karuk Tribe

A summary of our big-picture comments is provided in the following bullets, which are then discussed in the paragraphs below:

- The GSP falls far short of what is needed to avoid adverse impacts to interconnected surface water
- The GSP ignores adverse impacts caused by streamflow depletion outside the September–November period
- The GSP's primary management actions (managed aquifer recharge and in lieu recharge) do not work well in critical drought years
- The GSP lacks transparency
- Many GSP actions and goals sound great but are loosely defined so do not actually achieve much
- The GSP does not deal appropriately with climate change
- The Scott Valley Integrated Hydrologic Model (SVIHM) is a valuable tool but has some shortcomings that need to be addressed in future model updates

The GSP falls far short of what is needed to avoid adverse impacts to interconnected surface water

The GSP proposed to set the Minimum Threshold (MT) for the Interconnected Surface Water (ISW) Sustainable Management Criterion (SMC) based on a percent of the streamflow depletion caused by groundwater pumping from the area not covered by the Scott River adjudication. We agree that groundwater users outside the adjudicated zone are not responsible for solving all the water issues in the Scott River (i.e., they are not responsible for impacts caused by surface water users or groundwater users inside the adjudicated zone).

ISW MT should not be defined based on a proportion or partial contribution to an undesirable result. SGMA requires that an MT define the minimum threshold for a full undesirable result. The whole concept of defining the ISW MT on what the PMA can achieve is putting the cart before the horse. The MT is a numeric value used to define an undesirable result (this may be why the GSP spends so much time confusing and twisting the definition of undesirable result). The MT, if exceeded, may cause an undesirable result. PMAs are a means to avoid exceeding an MT, not a mechanism to define an MT. QVIC-001

The approach taken in the GSP is backwards. Rather than first defining an arbitrary endpoint based on what groundwater users can relatively easily tolerate (i.e., the approach outlined the GSP), the first step should be to determine the instream flows needed by fish, then calculate the difference between those needed flows and current flows, and then assign the same percent reductions needed by all water users (surface, adjudicated groundwater, and unadjudicated groundwater) to meet that difference. This approach should be applied to all parts of the year that have flows that are not meeting fish needs, not just September through November. To use a hypothetical example (we have not actually done the QVIC-002

calculations), if overall water use needs to be reduced by 40% to meet instream flow targets, then surface water users, adjudicated groundwater users, and unadjudicated groundwater users should each be responsible for reducing their water use (or coming up with projects that produce an equivalent amount of seasonal supply) by that same 40%.

The paltry 15% streamflow reversal proposed is far short of the non-adjudicated groundwater users' responsibility meeting existing laws and regulations such as the Public Trust Doctrine, Total Maximum Daily Loads (TMDLs), and the Endangered Species Act. QVIC-003

The GSP ignores adverse impacts caused by streamflow depletion outside the September–November period

The GSP proposes an MT for streamflow depletion only for the September–November period. The September–November this period is the time of year with the lowest flows and is very important for migration and spawning of adult salmon, but streamflow depletion also has adverse impacts at other times of year, such as during winter when salmon eggs are incubating, during spring when fish are rearing and outmigrating, and during summer when low flows can exacerbate high water temperatures. QVIC-004

The GSP's primary management actions (managed aquifer recharge and in lieu recharge) do not work well in critical drought years

The primary management actions proposed by the GSP to partially remedy streamflow depletion are managed aquifer recharge (MAR), in which extra surface water is diverted during January through March and infiltrated into the ground to recharge groundwater, and in lieu recharge (ILR), in which surface water is used for early season irrigation so that groundwater can be preserved (rather than solely relying on pumped groundwater to fulfill all irrigation needs). Both of MAR and IRL only work if there is "excess" surface water available. In critical drought years, there is very little excess water and thus MAR and IRL do not provide much benefit to instream flows. This is unfortunate because reversing streamflow depletion is arguably more important in critical drought years that in normal and wet years. The GSP should have proposed management strategies that are tailored to water year type, so that streamflow depletion could be substantially reversed in all water year types. QVIC-005

The GSP lacks transparency

Collaborative management and transparency and core tenants of SGMA. How will transparency and public access to data be incorporated into reporting and data sharing agreements? All data that is paid for with public money should be accessible to the public. All GSP reporting (i.e., annual and five-year review reports) should include electronic appendices with easily accessible data, so others could run their own analyses on the data. QVIC-006

We understand the political sensitivity of well metering, but how can groundwater be managed at a basinwide scale without metering? At least some subset of the wells should be mandated to be metered. Examples could include the largest wells, or new wells drilled after the passage of the SGMA legislation or after adoption of the Scott Valley GSP. How can existing ordinances, such as the prohibition on the use of groundwater for cannabis production or the requirement for permits being needed for inter-basin transfers of groundwater, be enforced without the well metering? How can the effects of efficiency projects be verified without metering? The lack of metering requirements suggests a lack of transparency, which further suggests a lack of will to actually manage groundwater extraction. QVIC-007

We also have serious concerns with the lack of transparency with the current Scott Valley and Shasta Valley Watermaster District program. Watermastering should be returned to the State of California, implemented basinwide, with well-organized publicly accessible records of diversions. QVIC-008

Many GSP actions and goals sound great but are loosely defined so do not actually achieve much

The GSP is full of things that sound great like the "Avoiding Significant Increase of Total Net Groundwater Use from the Basin" project and management action (PMA), but when we look closely at the details we see that the wording is loosely defined so that it does not actually guarantee anything. Since all well metering is voluntary, how is it possible to verify this?

If the GSP is to actually achieve the stated objectives, it needs more things that can actually be readily verified. Examples that we recommend include: QVIC-009

- No additional wells for new land use or additional cropping will be permitted in the basin. Only new wells intended to replace old wells, at their existing pumping capacity, and existing crops will be permitted, and these replacement wells will be metered. The intent here is to avoid net increase in groundwater use.
- Wells intended to replace stream diversions will not be permitted, even if there will be no additional net water usage (i.e., pumped groundwater will be used to replace surface water irrigation of existing crops). The intent here is to allow the SWRCB to ascertain and regulate surface water rights and stream and spring flows. The use of groundwater wells in place of stream or spring diversions simply moves the point of diversion and lessens the ability of the SWRCB to carry out its mission.

The GSP does not deal appropriately with climate change

The GSP appears to treat climate change as a check-the-box exercise rather than seriously grappling with what it will mean for groundwater management. The GSP does include model runs for future climate change, these results are not presented in a coherent way that highlights the major challenges that climate change will pose to water management. A warming climate will cause a shift in precipitation form (less snow, more rain) that will in turn shift the seasonal timing of tributary surface flows into the valley. Regardless of what happens to total precipitation or total runoff, this change in precipitation form and runoff timing is a huge issue that water management is going to need to recon with. Perhaps we missed it (and if so, we apologize), but we did not see evidence that the GSP recognizes the severity of the coming changes to climate, nor presents a coherent plan to adapt to it. QVIC-010

The Scott Valley Integrated Hydrologic Model (SVIHM) is a valuable tool but has some shortcomings that need to be addressed in future model updates

We agree with the SVIHM's overall approach and appreciate the many years of work that the modeling team has invested in developing and refining the model. While the model has been peer-reviewed, we have some concerns that we think should be addressed in future updates (i.e., the five-year review). Details regarding the following suggestions are provided in the modeling section of comments: 1) need for a sensitivity analysis to quantify how sensitive SVIHM modeled outflows are to tributary inputs (especially during September and October); 2) need to incorporate fall/winter stockwater diversions into SVIHM; 3) need to reduce the MODFLOW model timestep to something shorter than a month; and, 4) need to use a better method for filling the large gaps in tributary inflows (e.g., considering other model types beyond linear regression, and using Salmon River gage as an alternative to the Scott River gage for

filling tributary data gaps at least for some months and/or sites). While data are generally lacking for the fall/winter stockwater diversions, in our comments below we use data from the State of California's eWRIMS database to calculate that during the October 2020 drought when mainstem Scott River flows averaged 7.2 cfs and salmon could not reach their spawning grounds, the Scott Valley Irrigation District (SVID) reported diverting 4.2 cfs (2.7 million gallons/day) for stockwater, which is equivalent is 100 times more water than the 2,700 gallons/day that the livestock were actually consuming (assuming an estimate of 15 gallons/day).

B) SUGGESTIONS FOR IMPROVING THE SCOTT VALLEY INTEGRATED HYDROLOGIC MODEL

As part of our review of the Scott GSP, we reviewed the documentation for the Scott Valley Integrated Hydrologic Model (SVIHM) including the Scott GPS appendices 2-C and 2-D. We agree with the SVIHM's overall approach and appreciate the many years of work that the modeling team has invested in developing and refining the model. It is important to understand the limitations of the data and methods. While the model has been peer-reviewed (Foglia et al. 2013, Tolley et al. 2019), we have some concerns that we think should be addressed. We recommend some specific suggestions that would likely increase the accuracy of SVIHM's predicted late summer and fall flows, but we recognize that implementing these suggestions would take time and may trigger a cascade of additional work including re-calibration and re-running of all model scenarios. Given that this level of effort is likely not feasible at present given the SGMA timelines, we recommend that these improvements be evaluated and incorporated whenever the next time the model will be re-calibrated (five-year evaluation?).

QVIC-011

Details on our suggestions are provided in the remainder of these comments, but we begin here with a brief summarized list:

- Need for a sensitivity analysis to quantify how sensitive SVIHM modeled outflows are to tributary inputs (especially during September and October)
- Need to incorporate fall/winter stockwater diversions into SVIHM;
- Need to reduce the MODFLOW model stress period to something shorter than a month; and
- Need to use a better method for filling the large gaps in tributary inflows (e.g., considering other model types beyond linear regression, and using Salmon River gage as an alternative to the Scott River gage for filling tributary data gaps at least for some months and/or sites).

Some of the following comments are repeated from the comment form.

Need for a sensitivity analysis to quantify how sensitive SVIHM modeled outflows are to tributary inputs (especially during September and October)

Given that tributary inputs are largely estimated rather than measured, we would like to see a sensitivity analysis to quantify how sensitive modeled outflows are to tributary inputs, especially during September and October when the correlation between measured outflows and measured inflows is extremely weak (i.e., explains less than 25% of the variability). Modeled streamflow depletion during September and October is a key management endpoint upon which the GSP evaluated management actions (PMAs), yet we currently have no idea how well the model actually predicts flow differences between scenarios in these months. The modeled outflows for the base case scenario match the observed outflows decently well in these months (i.e., see Figure 2 in Appendix 2-D). However, without a sensitivity analysis we

cannot know how much of this apparent success is an artifact of setting the inflows based on observed outflows (i.e., is the model a circular self-fulfilling prophecy?).

Need to incorporate fall and winter stockwater diversions into SVIHM

If we understand correctly, the SVIHM assumes that no surface water diversions occur outside of the irrigation season (i.e., after September 30? or is it weather driven?). In reality, there are substantial diversions for stockwater, with many diversions remaining in place after the end of irrigation season. In years when there is not much fall rain (i.e., 2009, 2020), these stockwater diversions can divert the flow of entire creeks and leave downstream reaches dry during salmon spawning season. Not including these diversions is a considerable deficiency of the SVIHM. The effect of these winter stockwater diversions on fall/winter flows is an important management question that we need tools like the SVIHM to answer. Incorporating these stockwater diversions into the model would be difficult because these diversions are unreported and unmetered. One approach would be to bookend the estimates in a sensitivity analysis with low and high scenarios. The low scenario could assume that the diversions match demand including transmission losses (i.e., recent State Water Boards emergency regulations set maximum diversion rates based on the number of animals and assumed 90% conveyance losses, see https://www.waterboards.ca.gov/drought/scott_shasta_rivers/docs/surface_water_stockwater_diverters_090121.pdf). The high scenario could assume that the diversions match the irrigation season right (i.e., from the adjudication), since the stockwater diversions utilize the same ditches as the irrigation diversions. We are not very familiar with the day-to-day operation of these stockwater diversions and thus are unclear if they are pulsed (i.e., on for a few days, off for a few days, etc.) or continuous, but hopefully local farmers and ranchers could provide information on that as well as advise on the volume of the diversions.

One exception to the data gaps on winter stockwater diversions is that the Scott Valley Irrigation District (SVID) diversions are reported monthly for the years 2010–2020 in the State of California's eWRIMS database. For example, SVID diversions for the October 2019 for "1000-1800 cattle-sheep-horses" were reported as 260.4 AF (https://rms.waterboards.ca.gov/LicensePrint_2019.aspx?FORM_ID=476977). This equates to 4.2 cfs during a month when flows at the USGS gaged average 7.1 cfs. Assuming that each head of livestock needs 15 gallons per day (cattle value from https://www.waterboards.ca.gov/drought/scott_shasta_rivers/docs/surface_water_stockwater_diverters_090121.pdf), then 1800 cattle would need 27,000 gallons/day. In comparison the 260.4 AF diversion equates to 8.4 AF/day, or 2.7 million gallons/day, which is 100x greater than the amount of water actually needed to sustain the livestock. Is this a "reasonable" use of water at a time when mainstem river flows were so low that salmon could not access their spawning grounds?

Conversion of winter stockwater diversions to stock tanks fed by small wells could be the lowest-hanging fruit for achieving meaningful increases in fall river flows while having little or no economic cost to agriculture (assuming the conversions are paid for with public money). We recognize that the GSP cannot dictate management of surface flows; however, the analyses and models used in the GSP should consider the real-world water budget and not ignore important drivers of key groundwater management endpoints (i.e., fall flows).

Need to reduce the MODFLOW model stress period to something shorter than a month

The MODFLOW model, the groundwater simulation component of the SVIHM, the "stress period" over which fluxes such as pumping and recharge change is monthly, although the model runs at a daily "time step" within each period. This seems like an un-necessary coarsening of the data, given that the most computationally intensive part is the daily time step of the daily model, right? Why do that? The surface water budget is calculated on a daily basis. Flow data could be estimated on a daily basis. The model is

used for purposes such as predicting the date when flows in the fall first increase to above 20 cfs, so a monthly model seems less than desirable for those purposes. Foglia et al. 2013 wrote: "However, if warranted, the budget model described here can also be applied to an integrated hydrologic modeling scenario with weekly or bi-weekly varying stress periods or to stress periods of varying period length." This issue is particularly pertinent in the fall, when the model does not do well at representing the timing and magnitude of flow increases (i.e., as discussed in Appendix 2-D). We recommend exploring the use of a shorter stress period such as a week or two weeks to see if that improves performance in the fall period.

Need to use a better method for filling the large gaps in tributary inflows

Overview

The primary boundary conditions for the Scott Valley Integrated Hydrologic Model (SVIHM) are monthly inflows from 12 tributaries. The SVIHM uses a linear regression model to fill the substantial gaps in the flow records for these tributaries (Figure 1a). To assess the quality of the gap-filling method and potential effects on SVIHM results, we have reviewed the available documentation including Foglia et al.'s (2013) supplementary material and Tolley et al.'s (2019) compiled data for water years (WY) 1942–2016 and data processing code written in the R language and available at https://github.com/UCDavisHydro/SVIHM. During this evaluation, we modified the R code to explore the data and test alternative approaches. We are happy to share our R code if that would facilitate refinements.

The SVIHM method consists of compiling the available daily flow data for the USGS Scott River at Fort Jones gage (11519500) and ten tributaries, summarizing data to a monthly time step, converting data to normalized log-transformed units (i.e., taking base 10 logarithm, subtracting the mean, and dividing by the standard deviation), developing a linear regression model to predict the tributary flow from the USGS gage data (Figure 2a). Two additional small tributaries (Johnson and Crystal creeks) are assigned flows based on a percentage of estimated Patterson Creek flows.

Scott River summer flows appear to have decreased significantly since the 1977 drought, so the data were split and separate regressions were developed for the WY 1957–1972 and WY 1973–2016 study periods (Figure 1a). For those tributaries that do not have any measured data during the WY 1973–2016 period, the WY 1957–1972 regression is used. Given that there is extremely strong evidence that the relationship between tributary flows and Scott River flows changed between the WY 1957–1972 and WY 1973–2016 periods (i.e., Figure 1a), it does not make sense to apply the WY 1957–1972 regressions without adjusting for that difference. Rather than doing two separate regression models (i.e., one for each period), it would make more sense to just have a single regression model covering all years, but include "Period" as a categorical variable (to account for the difference in intercept between the periods), and an interaction of "Period" and Fort Jones (to account for the difference in slope between the periods). In contrast, the current approach does not take maximum use of the available data, ignoring factors that are known to be important (i.e., the difference between the periods).

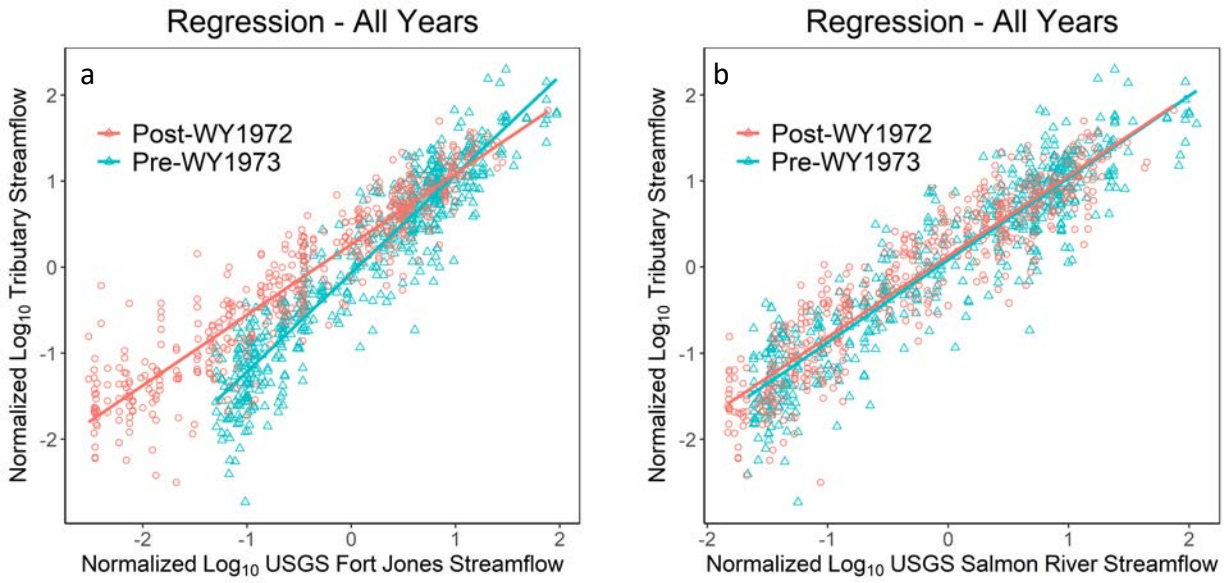

Figure 1. Scatterplot with linear regressions between gaged monthly flows in Scott River tributaries and gaged monthly flows in (a) Scott River USGS gage currently used in SVIHM, and (b) Salmon River at Somes Bar USGS gage which we recommend using for some sites and months. Colors differentiates the older WY 1957–1972 period from the more recent WY 1973–2016 period.

Using an *outlet* gage to define tributary *inflows* is problematic, especially with so many data gaps

The first thing to recognize about the gap-filling is that gaps are substantial (Figure 2a), so the methods for filling them matters. For the current SGMA GSP, the SVIHM was run for WY1991–2018. Prior to WY 2002, all (100%) of tributaries were estimated using regression against the USGS gage. Since WY 2002, additional gages have been installed but most were operated in only a subset of recent years and now only Sugar Creek and French Creek are still operational (Figure 2). The version of SVIHM used for SGMA did not use any tributary data for 2017-2018. The percent of total estimated inflows in a month that are based on measurements (i.e., gages) only sporadically exceeds 50% (Figure 2b, 2c). The USGS 11519500 gage that is the source for all the regression-based estimates is located at the outlet of Scott Valley. It is problematic to use a gage that is the surface water output of a groundwater basin to estimate the surface water inputs to the same basin, because that groundwater basin exerts profound natural and human influences on hydrology, including water diversions, groundwater pumping, evapotranspiration, groundwater recharge, and leakage of groundwater to streams. In reality, these influences vary not only seasonally (e.g., spring vs. fall) but also inter-annually (i.e., wet years vs. dry years), but using linear regression assumes a constant relationship between the input and output. For example, long-term management changes can affect the relationship between inflows and outflows (i.e., see Figure 1a showing effects of increased groundwater extraction). This gage is also used for calibration and verification of the SVIHM. Given that inflows are an important driver of groundwater dynamics, using the outflow to estimate inflows may artificially inflate the apparent accuracy of the SVIHM (because estimated inflows are automatically scaled based on measured outflows).

Salmon River gage as an alternative to the Scott River gage (at least for some months and/or sites)

We explored using the USGS gage in the Salmon River at Somes Bar as an alternative to the USGS Scott River at Fort Jones. The Salmon River has several characteristics that make it worth of evaluation for filling gaps in Scott River tributary flows, including: long-term data records, close proximity (i.e.,

immediately to west) to the Scott River sub-basin, lack of dam regulation, lack of major diversions, and does not contain a large alluvial groundwater basin with intensive groundwater extraction. The Salmon River's relative lack of diversions and groundwater extraction may make it a better choice than the Scott River during the low-flow season. While overall fit for the WY 1973–2016 period is similar for Scott River gage model ($R^2 = 0.87$) and Salmon River gage model ($R^2 = 0.86$), fit varies by month with the Scott River performing better (i.e., higher R^2, Figure 3b) in January–August and the Salmon River model performing better in September–November (i.e., $R^2 = 0.20$, 0.70, and 0.71 compared to $R^2 = 0.14$, 0.25, and 0.56)(Figure 3). Differences are especially strong in October, with $R^2 = 0.70$ for the Salmon River model compared to $R^2 = 0.25$ for Scott River model (Figure 3). Based on this evaluation, we recommend using the Salmon River model to fill tributary flow gaps in the months of September–November, which is the period when the groundwater basin begins filling and flows begin rising in response to increased precipitation and decreased evapotranspiration following the hot dry summer and year's lowest flows. This period is biologically important because it coincides with the start of chinook salmon spawning season. We are unclear on how poorly the fit of the Scott River regression model during this period (Figure 3a) affects the simulation of groundwater dynamics and outflows in the SVIHM. Have any sensitivity analyses been conducted to see how sensitive outflows are to inflows during this period?

In contrast to the major differences in the relationships between tributaries flows and Scott River flows for the WY 1957–1972 and WY 1973–2016 periods (Figure 1a), there appears to be no difference between the periods when the Salmon River gage is used instead (Figure 1b). The lack of difference between these periods in the Salmon River models suggests that for tributaries that have no post-1972 flow data (i.e., Shackelford, Patterson, and Etna creeks)(Figure 2a), it is likely better to use the Salmon River model for gap-filling additional months (i.e., maybe June–December for these tributaries, instead of the September–November we are recommending for the other tributaries?). The recommendation for June–December is based on the observation that the between-period divergence occurs at normalized $\log_{10}$ Scott River flows less than zero (Figure 1a) and in the WY 1973–2016 period such flows tend to occur more frequently in June–December than other months (Figure 4a).

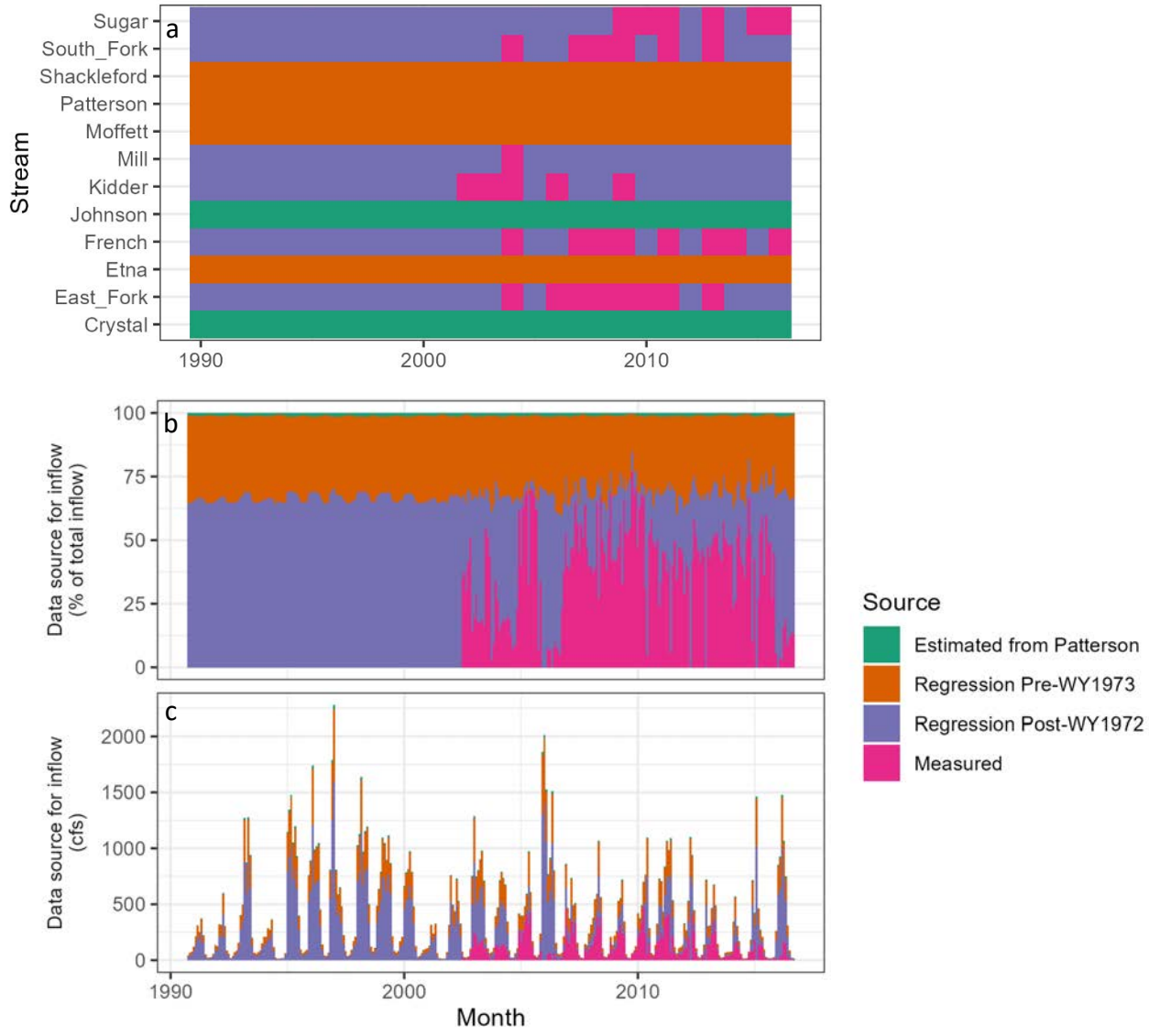

Figure 2. Monthly time series for hydrologic years 1991–2016 for the existing SVIHM's (a) data sources for flow data at twelve tributaries, (b) percent of total inflows from each data source method, (c) total inflows for inflows from each data source method. We generated this time series by adapting the Tolley et al. (2019) data processing codes.

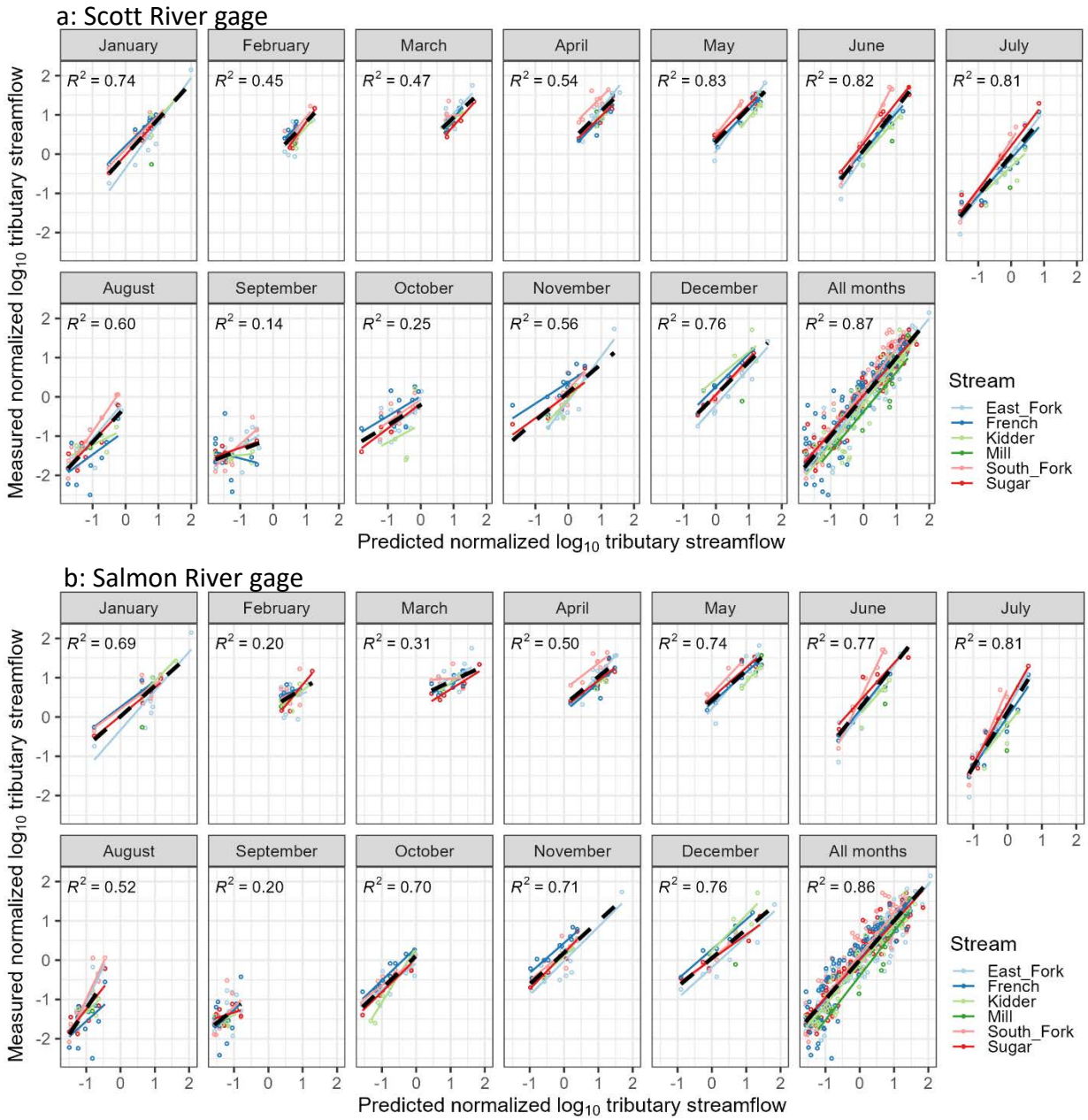

Figure 3. Scatterplot comparing measured monthly Scott River tributary flows with regression predictions based on gaged monthly flows for the WY 1973–2016 period in (a) Scott River USGS gage, and (b) Salmon River at Somes Bar USGS gage. Black linear trendlines are for all sites combined, with R^2 labeled in the upper left corner of each panel. Colored linear trendlines are for individual sites. R^2 indicates the fraction of variation explained by the model (value of 1 would indicate a perfect correlation with predictors explaining 100% of variation in the response variable while a value of 0 indicates none of the variation is explained).

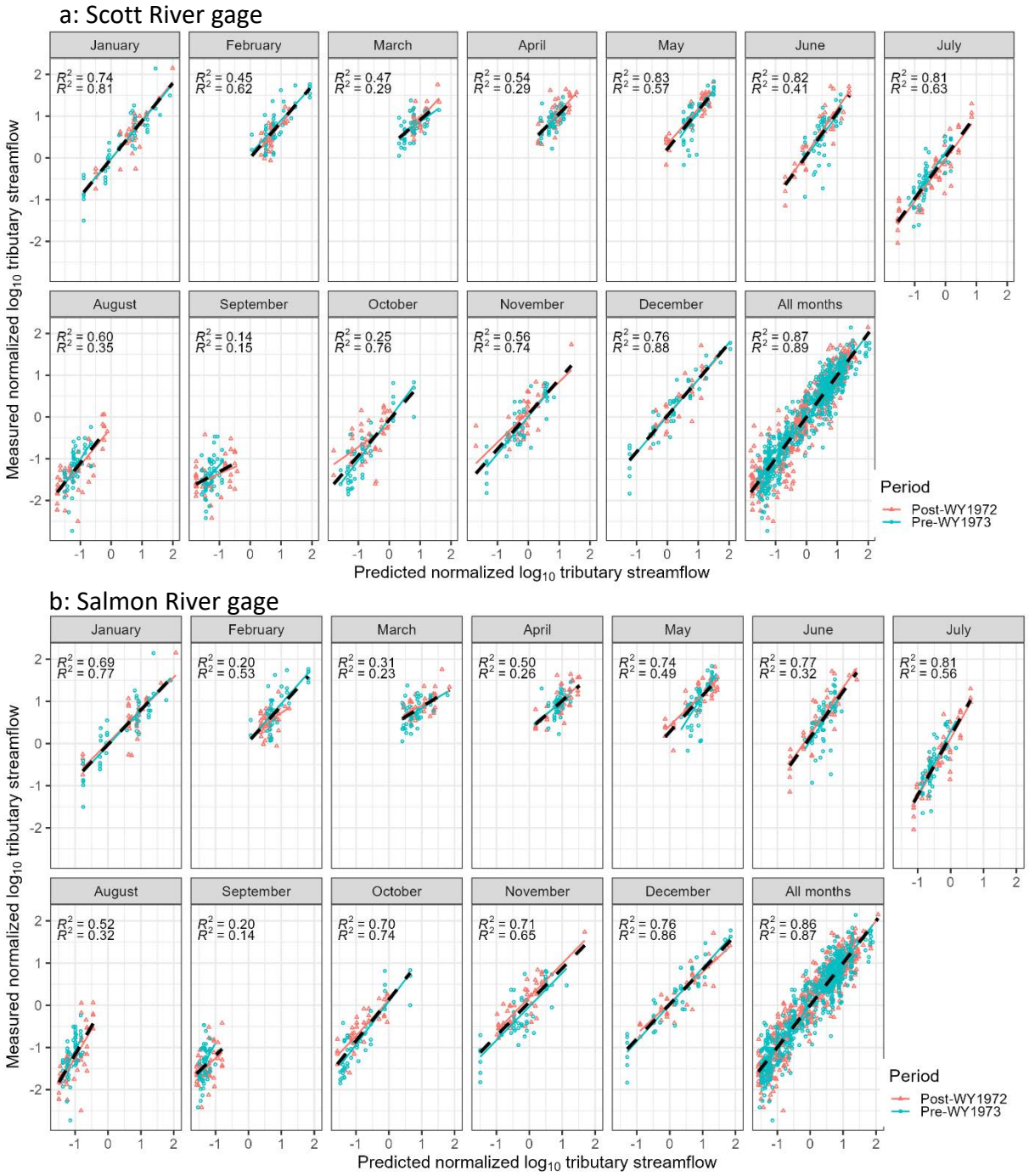

Figure 4. Scatterplot comparing measured monthly Scott River tributary flows with regression predictions based on gaged monthly flows in (a) Scott River USGS gage, and (b) Salmon River at Somes Bar USGS gage, with separate regressions for the WY 1957–1972 and WY 1973–2016 periods. Black linear trendlines are for combined periods whereas colored linear trendlines are for individual periods. R^2 values in each panel match legend order (top is post-WY1972, bottom is pre-WY1973).

Consideration of model types beyond linear regression

One additional suggestion for potential additional refinements to the methods for filling data gaps that we do not currently have time to test, but want to mention here so it could potentially be followed up on later, it to use hierarchical models and account for watershed area. The SVIHM's normalization (a.k.a. "standardizing", our preferred term) of the flow data (subtracting the mean and dividing by standard deviation, with the mean and standard deviation calculated individually for each site based on that site's period of record) is intended to allow all tributaries to be included together in the same regression model. However, we have some concerns that for sites with short records (e.g., 11 months at Mill Creek, 6 months at Etna and Patterson creeks), there are far too few data points for the mean and standard deviation to be representative of long-term patterns, which could lead to artifacts in the regression outputs. A possibly more robust alternative would be to instead convert the flow data to specific discharge (i.e., flow per watershed area in units of cfs/mi^2 or its metric areal equivalent mm/d), then standardizing by subtracting the mean and dividing by standard deviation (with the mean and standard deviation calculated from the entire pool of specific discharges from all sites, rather than calculating the mean and standard deviation only from each site's period of record). From these standardized specific discharges, a single hierarchical model (a.k.a. mixed effects model) could be constructed with appropriate random effects to explicitly account for inter-site differences. R packages available for implementing such models include 'mgcv', 'lme4', and 'nlme'. A hierarchical model could help account for inter-site differences. For example, not surprisingly given its the relatively low elevation watershed, Moffett Creek appears to have a greater percent of its annual flow occur during January–March than other tributaries and then a lesser percent of its annual flow occurs during May–June snowmelt runoff (not shown here). There are clear, albeit relatively small, seasonal patterns in the residuals (calculated as measured minus modeled) in both the Scott River and Salmon River regression models, with both models under-predicting tributary flows in May–June and October–November underpredicting tributary flows in January–March and August–September (Figure 5). A hierarchical model would likely help remove the seasonal patterns in model residuals.

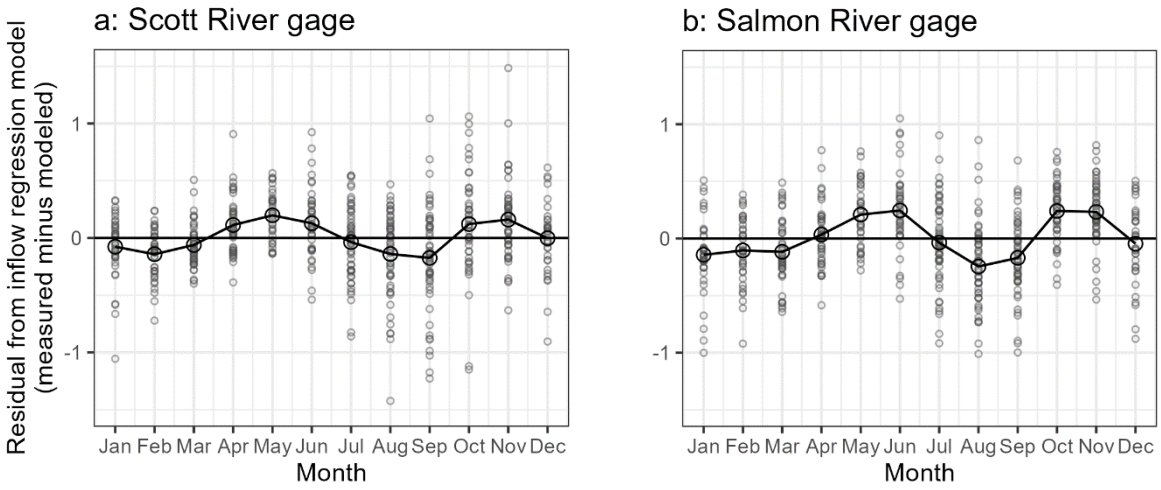

Figure 5. Monthly distribution of residuals from regression models that predict monthly Scott River tributary flows for the WY 1973–2016 period using (a) Scott River USGS gage, or (b) Salmon River at Somes Bar USGS gage. Small gray points are individual site-month-year combinations while large black circles are the mean of all points within a month. Values above zero indicate model is under-predicting flow while values below zero indicate the model is over-predicting flow.

C) COMMENTS ON SPECIFIC GSP SECTIONS USING THE COMMENT FORM PROVIDED

Reviewer name: Quartz Valley Indian Community
Submission date: 09/22/21
GSP sections reviewed: Scott Valley public review draft ExecSum, Chapter 2, Chapter 3, Chapter 4, App 2-a, App 2-c, App 2-d, App 4-a

Chapter	Page	Section	Line/Table/ Figure #	Comment	
ES	8	ES-2	214-215	"…lateral flux of Mountain Front Recharge (MFR) is assumed constant at <18 TAF." Seems odd that this would be assumed constant between years. See comment below regarding Chapter 2, page 117, section 2.2.3.2.	QVIC-034
2	13-15	2.1.2	259-369	It would be very helpful to provide citations for most (or all) of the documents listed on these pages, rather than the current few. The top of the sections says "This chronology was provided by Sari Sommarstrom (2019), with additional details from select sources", but Sommarstrom (2019) is not listed in the references at the end of this chapter.	QVIC-035
2	15	2.1.3	378	Should Karuk Tribe be added to the list of monitoring entities because they monitor water quality at the mouth of the Scott River, or is this list only for monitoring within and upstream of the Scott Valley? Even though the Karuk Tribe monitoring is downstream, it is informative to conditions within the basin.	QVIC-036
2	18	2.1.3	Table 2	For Quartz Valley Indian Reservation Environmental Department, Plan/Program columns should be updated to: "Flow monitoring, groundwater elevation, and ~~Annual~~ surface and groundwater quality monitoring". Also, "Regulatory?" column should be changed to "Yes" and "What is regulated?" column should be changed to "Surface and groundwater quality", because QVIR has been approved by U.S. EPA for Treatment as a State status for regulating those with tribal trust lands.	QVIC-037
2	19	2.1.3	Table 2	In the "Tool" section of the table, a row should be added for "Quartz Valley Indian Reservation Environmental Department", with "Plan/Program" of "Statistical model to predict water temperature at Scott River USGS gage"	QVIC-038
2	30	2.1.3	839	Add new sentence to end of paragraph: "QVIR was approved by U.S. EPA for Treatment as a State status for regulating water quality within the tribal trust lands."	QVIC-039
2	30	2.1.3	840	Add new paragraph: "QVIR and Riverbend Sciences have developed a statistical model to predict daily water temperatures at Scott River USGS gage using flow and air temperature data. The model was calibrated with 24 years of data is currently undergoing peer review (Asarian and Robinson 2021). It is freely available from an online repository." In addition, we recommend the first sentence on line 840 be revised to: "The QVIR Environmental Department has made this	QVIC-040

Chapter	Page	Section	Line/Table/ Figure #	Comment	
				water quality and water level monitoring data and statistical model available for use in GSP development." Citation to add to references section: "Asarian, J. E., & Robinson, C. (2021). Modeling Seasonal Effects of River Flow on Water Temperatures in an Agriculturally Dominated California River [Preprint]. Earth and Space Science Open Archive; Earth and Space Science Open Archive. https://doi.org/10.1002/essoar.10506606.1" We are hopeful that the final peer-reviewed version of the article will be complete in late 2021 or early 2022.	QVIC-040 contd.
2	39	2.1.5.2	1241-1245	"The Advisory Committee discussed modeled scenarios using the Siskiyou County Sheriff Department's estimate of 2 million illicit cannabis plants and a consumptive use of 4-10 gallons of water per plant per day, to consider the potential impacts to groundwater resources from this activity under current and future conditions. This information can be found at Appendix [ ]." What appendix is this referring to? Also, it would be good to clarify if the estimate of 2 million plants is regarding the whole county or just the Scott basin.	QVIC-041
2	41	2.1.5.2	1299	The Lee 2016 document cited here is not included in the references at the end of the chapter.	QVIC-042
2	44	2.2.1.2	1379-1391	This paragraph discusses trends at 9 snow stations. The up-to-date data are appreciated, but it would also be good to cite previous analyses of regional snowpack data, something like "Since the 1940s, the percent of precipitation falling as snow has decreased in the region (Lynn et al. 2020) and April 1 snowpack has decreased, especially at lower elevations (Van Kirk and Naman 2008)." Citation: "Lynn, E., Cuthbertson, A., He, M., Vasquez, J. P., Anderson, M. L., Coombe, P., Abatzoglou, J. T., & Hatchett, B. J. (2020). Technical note: Precipitation-phase partitioning at landscape scales to regional scales. Hydrology and Earth System Sciences, 24(11), 5317–5328. https://doi.org/10.5194/hess-24-5317-2020"	QVIC-043
2	69	2.2.1.6	1878	"Some of these flow gauges (notably French Creek and Sugar Creek) have later end dates than the years listed…"	QVIC-044
2	70	2.2.1.6	1934-1936	In contrast, lower baseflow in September and October since the 1970s has been attributed to climate change as the dominant factor (ibid. Figure 6; Drake et al., 2000), although Asarian and Walker (2016) found that flow declines in August, September, and October were much larger than could be explained by precipitation alone." Suggested language is based on Figure 8 from Asarian and Walker (2016) which shows declines in precipitation-adjusted flow. Citation: Asarian, J. E., & Walker, J. D. (2016). Long-Term Trends in Streamflow and Precipitation in Northwest California and Southwest Oregon, 1953-2012. Journal of the American Water Resources Association, 52(1), 241–261. https://doi.org/10.1111/1752-1688.12381	QVIC-045
2	70	2.2.1.6	1936-1939	"Over the past 22 years, the relative frequency of below average and dry years has been much higher than during any period in the 20th century during which Scott River flows at Fort Jones have been measured (Figure 16). This has resulted in more frequent occurrence of baseflow	QVIC-046

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				conditions of less than 20 cfs, although low flows measured in recent years have not been lower than low flows measured prior to 2015 (Figure 16).” These sentences are unclear and should be re-worded. The phrase “below average and dry years” implies precipitation, but Figure 16 shows flows not precipitation, so should probably be re-worded as “years with low-flows”. Are water year types (and methods used to derive water year types) explicitly defined somewhere in the GSP (i.e., see comment on Chapter 2, Section 2.2.3, page 108, line 2991)? The purpose of the statement “although low flows measured in recent years have not been lower than low flows measured prior to 2015” is unclear and should either be deleted or explain why that is notable. Minimum flows have clearly declined over the period of record (e.g., see Figure 16, or the statistical analyses in Asarian and Walker 2016). Looking at Figure 7 on page 26 which shows precipitation, the period 2000-2021 does not look obviously drier than 1977-1999.	QVIC-046 contd.
2	73	2.2.1.7	1960-1963	“Figure 18 illustrates the monthly variations in the amount and direction of water exchange between groundwater and surface water. Losing sections are indicated by red colors and the positive value of the logarithm of the rate of stream leakage to groundwater. Gaining stream sections are indicated by blue colors…” The Figure 18 on page 72 (a map of dry and wet river/stream reaches from SRWC 2018) does not match the description on page 73. Page 73 appears to instead describe Figure 5 from Tolley et al. (2019) which we do not see in the GSP document.	QVIC-047
2	73	2.2.1.7	1975	Tributary names should be labeled on subject Figure.	QVIC-048
2	75	2.2.1.7	2040	When talking about summer baseflow period depletion, what is the rationale for only presenting estimates for the Sept.-Oct. period? What is going on earlier in the summer and in the late fall?	QVIC-049
2	75	2.2.1.7	2026-2051	Table 7 provides summaries of stream depletion. Values are presented as ranges (e.g., 43-65 cfs). Please clarify what these ranges are (e.g., is the minimum and maximum of the seasonal averages observed across all years?) and briefly discuss in the text if there are any apparent patterns driving the variation between years (e.g., is stream depletion generally greater in low-snowpack/flow years?).	QVIC-050
2	76	2.2.1.8	2063-2065	“For purposes of this section, ‘GDE’ is used to refer to a spatial area covered by vegetation that is observably distinct from dry-land terrestrial vegetation.” What about areas that historically had groundwater-dependent riparian vegetation but do not currently support this vegetation because of groundwater depletion. For example, the valley reach of Moffett Creek used to have large riparian trees but they are nearly all dead now, with a few standing skeletons remaining. Moffett Creek is not mapped as GDE in Figure 19 and should be.	QVIC-051
2	80	2.2.1.8	2172-2174	What depth to groundwater mapping analysis performed? What seasonal (winter vs. summer) groundwater level information used to inform the DTW determination?	QVIC-052

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2	80	2.2.1.8	2179-2180	The GDE mapping appears to be based solely on visual or aerial map inspection. Were all iGDEs assumed to be GW dependent or were some removed due to excessive DTW? What iGDEs dropped and why, if any?	QVIC-053
2	82	2.2.1.8	Table 1	Shouldn't cascade frogs and willow flycatchers be added to Table 1 (or related text), even they were not listed by the Nature Conservancy?	QVIC-054
2	108	2.2.3	2991	It is unclear how water year types were defined. Tolley et al. (2019) used the "Sacramento Valley water year hydrologic classification" (though no citation is provided so it is unclear what that is) while Foglia et al. (2013) used an analysis of Fort Jones and Callahan precipitation data. Please clarify here how water year types were defined.	QVIC-055
2	112	2.2.3	3030-3050	In Table 15, the SW Irrigation values do not add up to the Farmers and SVID Div. values presented in Table 14. Where do the SW Irrigation values in Table 15 come from? Similarly, the GW Irrigation values in Table 15 don't equal the "Wells" values presented in Table 16 – where do the GW Irrigation values come from and why do they differ from the Wells values?	QVIC-056
2	112	2.2.3	3030-3050	The Median SW budget values indicates a 10 TAF deficit in stream flow. This suggests a long-term chronic condition of stream outflows exceeding inflows during most years. It would also be helpful to present the Average values on Tables 14-16 for comparison.	QVIC-057
2	113	2.2.3	3079-3081	"The streamflow regression model is a statistical tool used to estimate tributary inflows at the valley margins when upper watershed flow data are unavailable ('streamflow regression model') (Foglia et al. 2013)." While true, this statement is somewhat misleading. During the 1992-2018 model period, most tributary inflows are estimated not measured. It would probably be more accurate to revise this to: "…used to estimate tributary inflows at the valley margins, supplemented by gaged upper watershed flows when data are available ('streamflow regression model') (Foglia et al. 2013)."	QVIC-058
2	113	2.2.3.1	3090	"Agricultural irrigation is calculated based on daily crop demand." should be revised to "Agricultural irrigation is calculated based on daily crop demand, with an efficiency assigned to each field based on source of irrigation water and type of irrigation." Efficiency is an important component of the model that merits brief explanation here even if the details are explained in Appendix 2-C.	QVIC-059
2	114	2.2.3.1	3096-3097	All precipitation falling on cultivated fields and native vegetation is assumed to infiltrate completely and "runoff is neglected". Yet, the SW budget indicates runoff (overland flow). So, are the water budget models double accounting for runoff? (i.e., ppt. runoff contributing to SW flow and ppt. runoff being infiltrated into soil budget and possibly being transferred to GW recharge).	QVIC-060

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2	114	2.2.3.1	3121	What does “weakly coupled” mean?	QVIC-061
2	114	2.2.3.1	3130-3134	“However, for the MODFLOW model, daily values of stream inflow from the upper watershed, pumping, and recharge, including canal and mountain front recharge, are aggregated (averaged) to each calendar month and held constant within a calendar month. In MODFLOW, the calendar month is referred to as a ‘stress period’”. This seems like an un-necessary coarsening of the data, given that the computationally intensive part is the daily time step of the daily model, right? Why do that? The surface water budget is calculated on a daily basis. Flow data could be estimated on a daily basis. The model is used for purposes such as predicting the date when flows in the fall first increase to above 20 cfs, so a monthly model seems less than desirable for those purposes. Foglia et al. 2013 wrote: “However, if warranted, the budget model described here can also be applied to an integrated hydrologic modeling scenario with weekly or bi-weekly varying stress periods or to stress periods of varying period length.” This issue is particularly pertinent in the fall, when the model does not do well at representing the timing and magnitude of flow increases (i.e., as discussed in Appendix 2-D).	QVIC-062
2	116	2.2.3.2	3197	“Surface water irrigation diversions are computed as a function of irrigation demand. Fall/winter diversions for stockwater are not included in the current version of SVIHM, but will be added in the future.” If we understand correctly, the SVIHM assumes that no surface water diversions occur outside of the irrigation season (i.e., after September 30? or is it weather driven?). In reality, there are substantial diversions for stockwater, with many diversions remaining in place after the end of irrigation season. In years when there is not much fall rain (i.e., 2009, 2020), these stockwater diversions can divert the flow of entire creeks and leave downstream reaches dry during salmon spawning season. Not including these diversions is a considerable deficiency of the SVIHM. The effect of these winter stockwater diversions on fall/winter flows is an important management question that we need tools like the SVIHM to answer. These diversions inadvertently (from a water rights perspective, though we cannot rule out that recharge might be part of diverters’ motivation) provide some amount of beneficial aquifer recharge in late winter or spring once surface flows are reconnected throughout the valley. On the other hand, during fall these diversions likely extend the period of low river flow by some unknown number of days because they take water from the channel and recharge the aquifer in locations far from the river where the water may take weeks or months to return. Stockwater diversions in the fall cause recharge during the worst possible time of year (managed aquifer recharge should occur in the late winter and spring, not the summer and fall!). Incorporating these stockwater diversions into the model would be difficult because these diversions are unreported and unmetered. One	QVIC-063

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				approach for dealing with the data gaps would be to bookend the estimates in a sensitivity analysis with low and high scenarios. The low scenario could assume that the diversions match demand including transmission losses (i.e., recent State Water Boards emergency regulations set maximum diversion rates based on the number of animals and assumed 90% conveyance losses, see https://www.waterboards.ca.gov/drought/scott_shasta_rivers/docs/surface_water_stockwater_diverters_090121.pdf). The high scenario could assume that the diversions match the irrigation season right (i.e., from the adjudication), since the stockwater diversions utilize the same ditches as the irrigation diversions. We are not very familiar with the day-to-day operation of these stockwater diversions and thus are unclear if they are pulsed (i.e., on for a few days, off for a few days, etc.) or continuous, but hopefully local farmers and ranchers could provide information on that as well as advise on the volume of the diversions. One exception to the data gaps on winter stockwater diversions is that the Scott Valley Irrigation District (SVID) diversions are reported monthly for the years 2010–2020 in the State of California's eWRIMS database. For example, SVID diversions for the October 2019 for "1000-1800 cattle-sheep-horses" were reported as 260.4 AF (https://rms.waterboards.ca.gov/LicensePrint_2019.aspx?FORM_ID=476977). This equates to 4.2 cfs during a month when flows at the USGS gaged average 7.1 cfs. Assuming that each head of livestock needs 15 gallons per day (cattle value from https://www.waterboards.ca.gov/drought/scott_shasta_rivers/docs/surface_water_stockwater_diverters_090121.pdf), then 1800 cattle would need 27,000 gallons/day. In comparison the 260.4 AF diversion equates to 8.4 AF/day, or 2.7 million gallons/day, which is 100x greater than the amount of water actually needed to sustain the livestock. Is this a "reasonable" use of water at a time when mainstem river flows were so low that salmon could not access their spawning grounds? Conversion of winter stockwater diversions to stock tanks fed by small wells could be the lowest-hanging fruit for achieving meaningful increases in fall river flows while having little or no economic cost to agriculture (assuming the conversions are paid for with public money). We recognize that the GSP cannot dictate management of surface flows; however, the analyses and models used in the GSP should consider the real-world water budget and not ignore important drivers of key groundwater management endpoints (i.e., fall flows).	QVIC-063 contd. QVIC-064 QVIC-065

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2	116	2.2.3.2	3197-3200	"Surface water diversions are computed as a function of irrigation demand. The conceptual diversion points from tributary flows are just outside the Basin boundary, except for two internal diversions (6 TAF, see below), which is consistent with most diversions occurring near the Basin margin." Due to data constraints, the approach of estimating diversions based on irrigation demand (i.e., deduct diversion from gages surface inflows) makes sense. However, since some tributary flow gages are located downstream of substantial diversions (e.g., French Creek), it seems like the flows at these gages should be treated differently than gages that are upstream of diversions, but we do not see this mentioned anywhere in the documentation. For fields irrigated with water diverted upstream of flow gages, shouldn't the water demand not be deducted from the gaged flows? Deducting the demand seems like double-counting the diversion (first it is already implicitly deducted prior to the gage measurement because the water is not physically there, then it is explicitly deducted during data processing).	QVIC-066
2	117	2.2.3.2	3209-3214	"Mountain Front Recharge, the phenomenon of diffuse water flow through mountain soil or fractured bedrock into the alluvial sediments of an aquifer along a valley margin, is simulated along the western edge of the model domain. It is estimated to be a volume that changes month-to-month (i.e., greater recharge during the wet season) but which is identical year over year (see Appendix 2-C for more details)." We have reviewed the Appendix 2-C documents as well as the S.S. Papadopulos (2012) report that is cited for the original estimate. Mountain Front Recharge is estimated at <18 TAF (thousand acre-ft), so is quite small relative to other inputs (i.e., it is <5% of the other inflows [stream inflow and precipitation] on average). While we sympathize with the difficulty of estimating this parameter, we do not understand why it should be constant between years, given that it is derived from a water balance of terms that vary considerably between years (i.e., precipitation minus evapotranspiration minus surface flows). Seems like it would make more sense to scale it to be larger in wet years than dry years?	QVIC-067
2	120	2.2.3.2	3330-3331	"Recharge from the land surface occurs primarily in winter months but is limited – except under flood irrigation – during the summer months." This ignores fall/winter stockwater diversions, which are substantial but not included in the SVIHM. See comments above regarding chapter 2, page 116, section 2.2.3.2, line 3197.	QVIC-068
2	125-126	2.2.4	3437-3515	The "Future Water Budget" section is lacking discussion of some key factors. For example, what changes are expected to snowpack and tributary inflow hydrographs (i.e., runoff timing) of the four climate change scenarios evaluated? What are the greenhouse gas emissions trajectories associated with the climate scenarios (i.e., does it assume "business as usual" or that aggressive efforts are made to reduce greenhouse gas emissions, or something intermediate?). Listing the	QVIC-069

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				degrees Celsius (or Fahrenheit) of air temperature increase associated with each scenario would be helpful for context.	QVIC-069 contd.
2	125	2.2.4	3473	DWR 2018 citation is not included in the references cited at the end of the chapter.	QVIC-070
2	126	2.2.4	3499-3502	Figure citation should be fixed: "Importantly for sustainable groundwater management, none of the future climate scenarios indicate that the lowest groundwater storage points decrease over repeated drought occurrence (Figure 31~~28~~)." Also, please explain the significance/implications of this. Does it mean that long-term overdraft and subsidence are unlikely? Or that late summer streamflows will not be lower with climate change?	QVIC-071
2	130	2.2.4	Figure 32	"Figure 32. Projected flow at the Fort Jones Gauge, in difference (cfs) from Basecase, for four future projected climate change scenarios. Near and Far scenarios show minimal differences from historical basecase flow conditions." Perhaps we are mis-understanding what these scenarios are, but are extremely skeptical of any claims that the temperature-driven changes in precipitation form due to climate change (i.e., more rain and less snow) are not going to substantially decrease river flows in summer and fall, regardless of what happens to total annual amount of precipitation. The GSP should acknowledge these realities and then describe how the model predicts that this will seasonally change river flow and groundwater. The format of the graph makes it very difficult to see meaningful seasonal patterns. The y-axis scale that ranges from -2,000 to +12,000 cfs makes it impossible to see what is happening during low flows. Can you add a second panel to the graph so that the low-flow period is legible (maybe -100 to +100 cfs?)? Or maybe limit the months to just show April through October?	QVIC-072
2	137	References	3775-3777	Langridge, Ruth, Abigail Brown, Kirsten Rudestam, and Esther Conrad. 2016. "An Evaluation of California's Adjudicated Groundwater Basins." https://www.waterboards.ca.gov/water_issues/programs/gmp/docs/resources/swrcb_012816.pdf ~~https://doi.org/10.1038/nmicrobiol.2016.214~~	QVIC-073
3	9	3.3	351-353	"Where it is necessary, the GSA will coordinate with existing programs to develop an agreement for data collection responsibilities, monitoring protocols and data reporting and sharing." How will transparency and public access to data be incorporated into these data reporting and sharing agreements? All data that is paid for with public money should be accessible to the public.	QVIC-074
3	21	3.3.5.1	748+	Surface water flow estimates in SVIHM appear to only be calibrated to the Ft. Jones gauge. Comparing simulated stream flow against only one calibration point for such a large river system calls into question how well the model is at simulating stream flow in other reaches that may be experiencing different management and hydrogeologic conditions. The proposed monitoring plan does not call for any additional river flow monitoring along the mainstem river. We recommend	QVIC-075

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				adding additional stream flow monitoring gauges along the mainstem river to better calibrate/validate the stream flow estimates along the entire reach, not just at the downstream Ft. Jones outflow point. Given the need for additional tributary gages as model inputs, we are not sure how we would rank the priority of additional mainstem gages. Perhaps these additional mainstem gages should just be operated for a few years, long enough to capture different water year types. Or perhaps there are discrete flow measurements collected during other sampling or special projects (i.e., in the early/mid 2000s in preparation of the TMDLs) that could be used for calibration and verification?	QVIC-075 contd.
3	26	3.3.5.2	935-972	In this "Assessing and Improving SVIHM" section, we recommend several additional tasks. These model refinements are described in more detail in a separate comment document (not in this comment form), but are briefly summarized here: 1) use a better method for filling the large gaps in tributary inflows (e.g., considering other model types beyond linear regression, and using Salmon River gage as an alternative to the Scott River gage for filling tributary data gaps at least for some months and/or sites), 2) incorporate fall/winter stockwater diversions, 3) shorten the MODFLOW model timestep to something shorter than a month, 4) do a sensitivity analysis to quantify how sensitive modeled outflows are to tributary inputs (especially during September and October).	QVIC-076
3	30	3.4.1	Figure 5	The definition of Minimum Threshold in Figure 5 is confusing: "Minimum Threshold: historic low – (10 % of max historical depth to water or 10 ft, whichever is less)" Maybe revise to "Minimum Threshold: historic low minus either 10% of max historical depth to water or 10 ft, whichever is less"	QVIC-077
3	30-38	3.4.1	1088-1265	As currently proposed, the Actions Trigger occurs if water levels at a well fall below the historic level for two consecutive years and the Minimum Threshold occurs if a well falls more than 10% (or 10 ft, whichever is less) of the historic level. We have not actually tried an experiment with hypothetical or real well data, but it seems possible that well levels could have long-term declines but not ever violate the Actions Trigger and Minimum Threshold if the decline is "bumpy", meaning there are not consecutive drought years. For example, well levels could alternate between moderate/high levels in wet or normal years, followed by a severe drought year in which well levels drop to historically low levels (but not exceeding the 10 ft or 10%), followed by moderate/high levels in wet or normal years, followed by a severe drought year in which well levels drop to historically low levels (but not exceeding the 10 ft or 10%), etc. This seems very problematic because conditions could progressively deteriorate but never violate the AT or MT.	QVIC-078

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3	34	3.4.1.1	1173-1183	This paragraph of the GSP, similar to other sections of the GSP, does not mention one of the key elements of climate change for which there is high certainty- there will be a shift in precipitation form (less snow and more rain) that will shift the seasonal timing of tributary surface flows into the valley. Regardless of what happens to total precipitation or total runoff, this change in precipitation form and runoff timing is a huge issue that water management is going to need to deal with.	QVIC-079
3	35	3.4.1.2	1236-1237	As these are depth to groundwater values in Table 5, shouldn't the MO values have less-than signs, not greater than signs?	QVIC-080
3	35-36	3.4.1.2	1227-1245	Is "primary trigger (PT)" here the same as "Action Trigger" in Figure 5 (on page 30)? If the meaning is the same, then it would be better (i.e., easier to understand) to use the same phrase/abbreviation rather than have two separate terms that mean the same thing. On the other hand, if they are different, then shouldn't Figure 5 also show the PT in addition the Action Trigger?	QVIC-081
3	44	3.4.1.3	1495-1531	The water quality triggers are all based on the 75th percentile of wells, so it is conceivable that water quality conditions could deteriorate horribly at 20% of wells and that would not violate any triggers. Seems like it might make sense to also have some metric that would reflect conditions in the wells with the worst water quality?	QVIC-082
3	46	3.4.3.1	1591-1593	Same comment from March Draft: Irrigating with water containing moderate to high nitrate levels may also increase nitrate concentrations in underlying groundwater.	QVIC-083
3	46	3.4.3.2	1618-1621	Same comment from review of draft in May: This language is very confusing and unclear how it translates to concentrations. One way it reads suggests that a 14% annual increase per year over a 10 year period in no more than 25% of wells is acceptable. However, compounding a 14% increase over a 10 year period results in a 370% increase in concentration. Perhaps the intent of the statement is, "Monitoring well concentrations shall not exceed the Maximum threshold by 15% in more than 25% of wells during any given year". One could also argue that it isn't warranted - a Maximum threshold should be treated as a just that - a Maximum threshold. Why are exceptions warranted? Theoretically, reaching/exceeding the trigger concentrations should trigger corrective actions. Perhaps the 15% annual exceedance in 25% of wells exception should be applied to trigger values, not Maximum thresholds.	QVIC-084
3	54	3.4.5.1	1868-1870	Asarian and Robinson (2021) would be a good citation for this sentence: "Excessive stream temperatures are also related to earlier completion of the snowmelt/spring flow recession…" Full reference is: Asarian, J. E., & Robinson, C. (2021). Modeling Seasonal Effects of River Flow on Water Temperatures in an Agriculturally Dominated California River [Preprint]. Earth and Space	QVIC-085

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				Science Open Archive; Earth and Space Science Open Archive. https://doi.org/10.1002/essoar.10506606.1	QVIC-085 contd.
3	54	3.4.5.1	1885-1889	"Some consumptive uses of groundwater may have a more immediate impact on streamflow than others; for example, a well that begins pumping groundwater 66 ft (20 m) from the river bank may cause stream depletion hours or days later, while a well that begins pumping two miles (3 km) west of the river bank may not influence streamflow for months or even a year." This is an important point. Unfortunately, the SVIHM is not capable of simulating the short-term impacts. Prudic et al. (2004) provide the following statement on the associated limitations on MODFLOW's streamflow routing package: *"The mass-balance or continuity approach for routing flow and solutes through a stream network may not be applicable for all interactions between streams and aquifers. The SFR1 Package is best suited for modeling long-term changes (months to hundreds of years) in ground-water flow and solute concentrations using averaged flows in streams. The Package is not recommended for modeling the transient exchange of water between streams and aquifers when the objective is to examine short-term (minutes to days) effects caused by rapidly changing streamflows."*	QVIC-086
3	58	3.4.5.1	2032-2034	"The reasonableness of groundwater use that may contribute to stream depletion could depend on a number of circumstances, including the benefits of pumping groundwater and the resource benefits of pumping groundwater" This statement distracts from the issue as it addresses the beneficial uses of groundwater consumers, not the beneficial uses of surface waters.	QVIC-087
3	58	3.4.5.1	2044-2047	"In the context of assessing MTs for the ISW SMC, it is reasonable to only hold groundwater users~~producers~~ outside the adjudicated zone to a modest percentage of stream depletion reversal because any greater responsibility would unreasonably constrain groundwater users in the basin." We agree that groundwater users outside the adjudicated zone are not responsible for solving all the water issues in the Scott River. However, the approach taken here is backwards. Rather than first defining an arbitrary endpoint based on what groundwater users can relatively easily tolerate, the first step should be to determine the instream flows needed by fish, then calculate the difference between those needed flows and current flows, and then assign the same percent reductions needed by all water users (surface, adjudicated groundwater, and unadjudicated groundwater) to meet that difference. To use a hypothetical example, if overall water use needs to be reduced by 40% to meet instream flow targets, then surface water users, adjudicated groundwater users, and unadjudicated groundwater users should each be responsible for reducing	QVIC-088

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				their water use (or coming up with projects that produce an equivalent amount of seasonal supply) by that same 40%.	QVIC-088 contd.
3	58	3.4.5.1	2044-2047	What is "modest" and how is it quantified in terms of groundwater use?	QVIC-089
3	59	3.4.5.1	2089-2090	"…that is, what is an "unreasonable" amount of stream depletion, which could 2089 be reframed as: what is a "reasonable" amount of avoided groundwater use?". This statement is not how SGMA defines an unreasonable impact for ISW. The GSA can't replace "unreasonable impacts on beneficial uses of surface water" with reasonable use of groundwater.	QVIC-090
3	60+	3.4.5.1	2108-2209	ISW MT should not be defined based on a proportion or partial contribution to an undesirable result. SGMA requires that an MT define the minimum threshold for a full undesirable result. The whole concept of defining the ISW MT on what the PMA can achieve is putting the cart before the horse. The MT is a numeric value used to define an undesirable result (this may be why the GSP spends so much time confusing and twisting the definition of undesirable result). The MT, if exceeded, may cause an undesirable result. PMAs are a means to avoid exceeding an MT, not a mechanism to define an MT.	QVIC-091
3	63	3.4.5.1	Table 7	The caption here says that streamflow depletion is summarized across the "Sep 1 to Nov 1" period. Is that correct, or should it be "Sep 1 to Nov 30", as is stated on the Slide 8 of Appendix 4-a? Given that the model's primary time scale is monthly, the correct time period is probably Sept. 1 – Nov. 30, right?	QVIC-092
4	3	4.1	107-110	"In developing PMAs, priorities for consideration include effectiveness toward maintaining the sustainability of the Basin, minimizing impacts to the Basin's economy, seeking cost-effective solutions…" Based on the description here, it seems like increasing the efficiency of fall/winter stockwater diversion and delivery systems (so these diversions could be dramatically reduced with little economic impact) would be low-hanging fruit that should have been included as a PMA. This would not improve groundwater conditions, but could (we do not know, in part because the SVIHM is not currently set up to be able to provide answers to this important question) mitigate some of the fall streamflow depletion caused by groundwater pumping. While ditches currently used for stockwater could be very useful for managed aquifer recharge (MAR), this activity should only occur during times when there is abundant surface water, such as late winter and spring of normal and wet years, and should utilize a MAR-specific water right so it	QVIC-093

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				can be appropriately managed to benefit, rather than harm, instream flows. See our comments on Chapter 2, page 116, section 2.2.3.2 for additional information on this topic.	QVIC-093 contd.
4	5	4.1	205	Which "Existing reports, proposals" were used to develop the PMAs for recharge? Please provide specific citations.	QVIC-094
4	5	4.1	206	Shouldn't the Scott River Watershed Council be listed as an entity that is engaged in planning and implementing habitat improvement projects? Table 1 on page 7 lists several PMAs being implemented by the Council.	QVIC-095
4	7	4.1	Table 1	Increasing the efficiency of fall/winter stockwater diversion and delivery systems (so these diversions could be dramatically reduced will little economic impact) should be included as a PMA. See our comments on Chapter 2, page 116, section 2.2.3.2 for additional information on this topic.	QVIC-096
4	8	4.1	Table 1	Beaver Dam Analogues (BDAs) are listed solely in the "Habitat Improvement" category. Aren't they also designed to increase groundwater storage and recharge? Why weren't model runs conducted on the effects of BDAs? Is the model not capable of simulating BDAs? If not, what modifications to the model would be needed to simulate BDAs?	QVIC-097
4	8	4.1	Table 1	Prescribed fire should be added to the list of activities described in the Scott River Watershed Council's "Upslope Water Yield Projects" PMA.	QVIC-098
4	9	4.1	Table 1	In the "Voluntary Managed Land Repurposing" PMA, we recommend adding groundwater recharge. See our comments on Chapter 4, Section 4.3, pages 24-28, lines 640-809 for additional discussion of this topic.	QVIC-099
4	13	4.3	316	The "Avoiding Significant Increase of Total Net Groundwater Use from the Basin" PMA does not provide a definition of what "significant" means, so we suggest removing that word. Without a definition, isn't this PMA meaningless? It should probably either be percent (e.g., 1%) or volume? See related comment regarding Chapter 4, page 17, section 4.3, lines 454-456.	QVIC-100
4	13	4.3	340-344	We are unable to understand exactly what the "Avoiding Significant Increase of Total Net Groundwater Use from the Basin" PMA means, especially, this excerpt: "Due to the direct relationship between net groundwater use and ET, implementation of the MA is measured by comparing the most recent five- and ten-year running averages of agricultural and urban ET over both the Basin and watershed, to the maximum value of Basin ET measured in the 2010-2020 period, within the limits of measurement uncertainty." Can it be re-stated more clearly, such as, "The goal of this MA is for X not to exceed Y by Z percent?" Can you provide information on the limits of measurement uncertainty? What is the rationale for using the maximum as the basis for the comparison? Is the purpose of the running averages to smooth out climatic variation (i.e., is ET higher in wet years than dry years)? If there is substantial variation between water year	QVIC-101

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				types, then should the goal be different in different water year types? What about the contribution of surface water irrigation to ET? We anticipate that climate change will cause increased reliance on groundwater because surface water flows are going to recede earlier in the irrigation season (due to less snowmelt), which could result in ET staying the same but groundwater extraction will increase and flows be lower, all without violating this MA.	QVIC-101 contd.
4	13	4.3	348-352	"To provide an efficient, effective, and transparent planning tool that allows for new urban, domestic, and agricultural groundwater extraction without increase of total net groundwater use. This can be achieved through exchanges, conservation easements, and other voluntary market mechanisms while also meeting current zoning restrictions for open space, agricultural conservation, etc. (see Chapter 2)." Exchanges and markets need real, verifiable information if they to operate properly. Without widespread metering, it would be far too easy to game the system.	QVIC-102
4	14	4.3	354-356	"To be flexible in adjusting the limit on total net groundwater extraction if and where additional groundwater resources become available due to additional recharge dedicated to later extraction." Groundwater is already over-extracted. Additional recharge should be used to reverse streamflow depletion, not enable more extraction.	QVIC-103
4	15	4.3	414-415	"The Basin has negligible groundwater inflow and outflow across its aquifer boundaries. As a result, pumping and recharge outside the Basin do not affect groundwater levels." Negligible is probably too strong a word, probably should be "relatively little" instead? Mountain Front Recharge ("the phenomenon of diffuse water flow through mountain soil or fractured bedrock into the alluvial sediments of an aquifer along a valley margin") is estimated constant at <18 thousand acre-feet (TAF), compared to total inflow which ranges from 149 TAF in the driest year to 788 TAF in the wettest year (i.e., see Chapter 2, page 17, Section 2.2.3.2)? Mountain Front Recharge is estimated to be 12% (18/149) of total inflow in the driest year, which isn't really "negligible," is it?	QVIC-104
4	17	4.3	454-456	"The permitting program would ensure that construction of new extraction wells does not significantly expand current total net groundwater use in the Basin (to the degree that such expansion may cause the occurrence of undesirable results)." How are "undesirable results" defined? Please add a definition or citation here. See related comment regarding Chapter 4, page 13, section 4.3, line 316.	QVIC-105
4	17	4.2	460	"Here are two illustrative examples of an appropriate use of well replacement…" … "Example 2: Replacement of a 1,000-gpm agricultural well that will be properly decommissioned with a new 2,000-gpm capacity agricultural well is permissible with the explicit condition that the 10-year	QVIC-106

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				average total net groundwater extraction within the combined area serviced by the old and the new well does not exceed the average groundwater extraction over the most recent 10-years." Since groundwater use is mostly unmetered (much less publicly accessible), how would this be tracked or enforced?	QVIC-106 contd.
4	21	4.2	543	The discussion of Beaver Dam Analogues (BDAs) discusses habitat, but aren't BDA's also designed to increase groundwater storage and recharge? See comments on Chapter 4, Section 4.1, page 21, Table 1 for additional information.	QVIC-107
4	22	4.2	574	Prescribed fire should be added to the list of activities described in the Scott River Watershed Council's "Upslope Water Yield Projects" PMA.	QVIC-108
4	23	4.2	609-639	For the Irrigation Efficiency Improvements, "Potential benefits were quantified through modelled scenarios of a 10% increase, 20% increase, and 10% decrease in irrigation efficiency. Relative stream depletion reversals resulting from these scenarios were 4%, 12% and -2%, respectively (Appendix 4-A)." Can you add a sentence or two here describing how improved efficiency affects the monthly/annual water budgets and reduces streamflow depletion in the September-November period? There's a widespread misconception among the public and agencies that increasing irrigation efficiency magically creates water, so it would be helpful if the text here provided specific estimates of how it changes the water budget. Increased efficiency would have zero impact on ET, but would decrease pumping and diversions and would decrease recharge, right? Does efficiency reduce some of the streamflow depletion because the reductions in pumping and diversions outweigh the decreases in recharge?	QVIC-109
4	23	4.2	631-639	The proposed monitoring of irrigation efficiency omits a key tool– metering of water use. Without metering, how can we know if the efficiency projects are actually working?	QVIC-110
4	23	4.2	631-639	The proposed monitoring of irrigation efficiency lists "Assessment of the increase in irrigation efficiency, with particular emphasis on assessing the reduction or changes in consumptive water use (evaporation, evapotranspiration) based on equipment specification, scientific literature, or field experiments." Doesn't efficiency usually not affect consumptive water use but instead just change recharge (that's how it is represented in the SVIHM, right?). What is the physical basis for thinking efficiency would affect consumptive use for crops like pasture and alfalfa that have low-lying continuous canopy cover (i.e., in contrast to orchards or row crops like tomatoes where efficient delivery systems like drip irrigation could reduce evaporation from bare soil)?	QVIC-111
4	27	4.3	764	The Permitting and Regulatory Process section explains the legal basis for how water could be diverted for managed aquifer recharge (MAR) though a SWRCB temporary permit, but we are unclear how the water rights would work for in lieu recharge (ILR). Is switching from groundwater to surface water really legal under California water law? If so, please explain in this	QVIC-112

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				section. Would the ILR utilize existing surface water rights (but don't farmers generally already exhaust their surface water rights each year before switching to groundwater)? Or would ILR require a separate temporary permit than MAR? Or would ILR require new permanent surface water rights? It seems very unlikely that SWRCB would grant new surface water rights for irrigation after the start of the April 1 irrigation season, but there might be new rights available in March.	QVIC-112 contd.
4	24-28	4.3	640-809	We support the concept of managed aquifer recharge (MAR) in winter and in lieu recharge (ILR) during the irrigation season, but have some concerns. The largest concern is that we do not think that MAR/ILR alone are sufficient to reverse enough of the streamflow depletion to make meaningful improvements to river flows. We are also concerned that there has not been sufficient analysis of the effects of MAR and ILR on river flows (and resulting biological effects) during the period of increased diversions (i.e., winter and spring). As shown in the figures in the "Percentile Flows and Flow Regime Comparison" section of Appendix 4-a, the CDFW (2017) flows are very low compared to the historic range of observed flows during March through May (i.e., always <25th percentile and sometimes approach or even drop below the lowest flows ever recorded). For example, CDFW's recommended April flows are 134 cfs, which if that volume remained instream after a full ILR diversion of 43 cfs would mean that 20% of the 168 cfs river flow would being diverted during a severe drought which seems like quite an aggressive rate of diversion. It probably would make more sense to increase the rate of diversion above 43 cfs when flows are higher, but drop to rate far below 43 cfs (or even to zero) when flows are low. Increased diversions after May 1 could have detrimental effects on water temperatures (Asarian and Robinson 2021).	QVIC-113
				The documentation provided in the GSP leaves many unanswered questions. Given the prominence of MAR/ILR in the GSP, we would have expected to see a more detailed level of analysis and discussion. For example: - What MAR/ILR diversion volumes are feasible in individual dry and severe drought years (e.g., 1977, 2001, 2020, 2021), and what effects does this have on river flow during the spring diversion period and the summer/fall period? We see Table 7 in Chapter 3, and the figures in Appendix 4-a, but we would like to see daily hydrographs (comparing the in-river flow and diversions with/without MAR/ILR) for individual severely dry years.	QVIC-114

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				- How were the parcels selected for the primary MAR/ILR scenario? Why not also use Farmer's Ditch in addition to Scott Valley Irrigation District (SVID)? - How was 43 cfs selected? Is that capacity of SVID, if so please state that? - What are the "CDFW requirements"? If that the same as CDFW (2017) Interim Instream Flow Criteria, then that document should be cited. - It might also be appropriate to use tributary ditches for MAR during winter high flows? We are hesitant to open this can of worms, but if done carefully (limiting the diversions to limited high-flow periods and only diverting a small percentage of flow [i.e., 5-10%] it could have benefits. - The GSP does not explicitly define the time period for ILR. For example, Appendix 4-a says "in the early growing season, as long as surface water is available." Does this mean a set start date of March 1, or April 1, or a custom date that changes each year depending on the weather? Does it end when there is no water at all, or when flows drop below CDFW requirements? How about voluntary (i.e., paid) permanent conversion of land in key areas (i.e., where that water would not flow the river for many months) for MAR during the spring to extend the season for groundwater recharge into the active growing season? On agricultural lands, MAR would normally have to cease once pasture or crops emerge from dormancy, but if lands were solely dedicated to MAR then the recharge season could be extended. Also, during period (i.e., summer) when there is not sufficient water for MAR, if these areas were not irrigated then they could also contribute to demand reduction. Would doing this require new ditches (because all ditch capacity is already used during irrigation season?), or is there sufficient capacity?	QVIC-114 contd.
4	28	4.3	810	In the "Voluntary Managed Land Repurposing" PMA, we recommend adding groundwater recharge. See our comments on Chapter 4, Section 4.3, pages 24-28, lines 640-809 for additional discussion of this topic.	QVIC-115
4	29	4.3	841	The "Voluntary Managed Land Repurposing" PMA discusses "For example, a corner of a field may be well suited for wildlife habitat or solar panel". This is an interesting idea. Would it be possible to convert some agricultural land to solar photovoltaic (i.e., electricity-producing) farms and still use those lands for groundwater recharge? Such a project could accomplish four things: reduce irrigation demand, increase groundwater recharge, generate electricity, and provide a new income stream to the landowner through lease payments.	QVIC-116
4	32	4.4	984	We strongly support the Floodplain Reconnection/Expansion PMA due to its benefits to instream habitat, and potentially its effects on hydrology as well; however, we are confused by the	QVIC-117

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				statement that the "Floodplain Reconnection/Expansion" PMA "…will be evaluated and assessed with SVIHM using the methodology described in Section 3.3 and using monitoring data that describes the implementation of the floodplain reconnection/expansion program." We do not see any discussion in Section 3.3 about how changes to floodplains could be modeled by SVIHM. In its current form, SVIHM seems ill-equipped to model floodplain recharge scenarios, because: 1) the monthly timestep for inflows likely does not have a good representation of overbank flows because presumably those occur at shorter time scales (i.e., primarily hours and days, but possibly also weeks), 2) most tributary inflows gages are not rated for high flows, so the model inputs for high flows periods may not be very accurate. Are we mis-understanding something? Another comment we have on this section is that it should specifically	QVIC-117 contd.
4	31	4.4	953-957	"The floodplain reconnection/expansion program will reverse some of these historical effects on groundwater dynamics by reconnecting the river to the floodplain and thus, avoiding further channel incision and leading to stable or even increased water level elevations from flooding." Overall, we like this sentence, but it is an incomplete list of potential benefits. We recommend adding the following sentence: "It is possible that reversing channel incision through aggradation (i.e., raising the channel bed) would not only increase recharge by increasing the frequency of overbank flows, but would also reclaim (increase) aquifer storage by reducing the depth to which the water table is lowered by drainage to the channel during the spring recession."	QVIC-118
4	32	4.4	1009	Discussion of the "High Mountain Lakes" PMA neglects to mention many factors which make this idea not feasible. This PMA should also mention the Wilderness Act which is likely to substantially restrict what can be built in designated Wilderness Areas and the construction methods that would be allowed. Given these legal constraints, in addition to other factors like the aesthetic concerns and a lack of road access, we think that high mountain lakes are unlikely to be a feasible means of meaningfully increasing surface supply and therefore recommend that effort be places into other PMAs. We recommend adding the following sentence: "DWR (1991) recommended against developing mountain lakes as water sources to augment Scott River flows because there were not enough benefits to offset all the negative aspects which include aesthetic concerns in addition to access, logistical, and legal constraints." The exact quote from DWR (1991) was: "Under present law no development inside a wilderness area is permitted. Special legislation may be required to implement this alternative. Second, access and construction methods may make many of these enlargements impractical. Third, while these enlargements may benefit the individual creeks, their cumulative impact on the	QVIC-119

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				Scott River is difficult to judge. Water would enter the river from seven different tributaries distributed over the entire Scott Valley. It would not be a concentrated water source. Fourth, it would be difficult, or impossible, to coordinate releases from the 29 lakes to maximize the benefit to the Scott River fishery. Fifth, enlarging the lakes may disturb their natural aesthetic value. DWR does not recommend developing these lakes for water sources to augment the streamflow of the Scott River. There are not enough benefits to offset all the negative aspects of this alternative. ”	QVIC-119 contd.
4	33	4.4	1012	We support evaluation of surface reservoirs as means to augment water supply and river flows, if such reservoirs can be constructed in a way that minimizes impacts to fish habitat and would result in meaningful increases in river flows. An off-stream reservoir is particularly appealing. In watersheds like the Scott River that currently have little surface storage, the changes in runoff timing expected to occur with climate change will make surface storage even more important in the future than it is now. Given the water quality impacts to surface water with reservoirs and the associated water rights challenges, this type of project will require careful thought and planning, but it is worth the effort.	QVIC-120
4	33	4.4	1043	The “Sediment Removal and River Restoration” PMA is summarized as: “A river restoration project to remove significant sediment from the main stem Scott River from Fort Jones to the mouth of the canyon is envisioned to improve in-stream flow, channel geomorphology, and habitat for fish.” We are extremely skeptical of this PMA. Please either provide additional information including a more detailed rationale, citation, and project proponent, or delete this PMA. What is the physical mechanism by which removing sediment could improve instream flow (wouldn’t removing sediment cause further incision which would further reduce aquifer storage capacity)? Wouldn’t removing sediment decrease floodplain connectivity and be counter to the “Floodplain Reconnection/Expansion” PMA? What specifically is meant by “improve channel geomorphology” (that is vague and could be interpreted many different ways)?	QVIC-121
4	33	4.4	1052	We support the Strategic Groundwater Pumping Curtailment PMA. This would be particularly valuable in drought years when there is limited water available for MAR/ILR.	QVIC-122
4	34	4.4	1069	We strongly support a properly designed and implemented Watermaster Program; however, we have serious concerns with the lack of transparency with the current Scott Valley and Shasta Valley Watermaster District program. Watermastering should be returned to the State of California, implemented basinwide, with well-organized publicly accessible records of diversions.	QVIC-123
4	35	4.4	1126	The “Well Inventory Program” section does not mention anything about data management. The results of this inventory should be made publicly accessible.	QVIC-124

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4	35	4.4	1135	Regarding "Voluntary Well Metering," we understand the political sensitivity of well metering, but it seems like the first step in good management is measurement and transparency. At least some subset of the wells should be mandated to be metered. Examples could include the largest wells, or new wells drilled after the passage of the SGMA legislation or after adoption of the Scott Valley GSP. How can existing ordinances, such as the prohibition on the use of groundwater for cannabis production or the requirement for permits being needed for inter-basin transfers of groundwater, be enforced without the well metering? The lack of metering requirements suggests a lack of transparency, which further suggests a lack of will to actually manage groundwater extraction.	QVIC-125
5	4	5.1.1	128	The Annual Reporting section does not clarify if the data presented will be figures or actual tables with numbers. The report should include electronic appendices with easily accessible data, so others could run their own analyses on the data.	QVIC-126
5	9	5.1.2	Figure 1	The Figure 1 flow chart says "Model update and calibration using new data (annually for the first five years)". Is it really feasible and desirable to re-calibrate the model every year? That seems like a lot of work for an unclear benefit. Wouldn't it be better to re-calibrate every two to five years rather than every year? There are certainly improvements we'd like to see in the model, and we'd rather have the GSA focus on incorporating these refinements rather than just re-calibrating the model with additional years. These model refinements are described in more detail in a separate comment document (not in this comment form), but are briefly summarized here: 1) use a better method for filling the large gaps in tributary inflows (e.g., considering other model types beyond linear regression, and using Salmon River gage as an alternative to the Scott River gage for filling tributary data gaps at least for some months and/or sites), 2) incorporate fall/winter stockwater diversions, 3) shorten the MODFLOW model timestep to something shorter than a month, 4) do a sensitivity analysis to quantify how sensitive modeled outflows are to tributary inputs (especially during September and October).	QVIC-127
App 2-a	7-10			This section refers to comparing SVIHM modeled outflow from the river flow observed at the USGS for the 2012-2018 period as "validation" because the model was not recalibrated for this period. However, this section fails to note that this is not a truly independent validation because the largest input to the model is tributary flow, which for the 2012-2018 was 100% estimated (i.e., no tributary gages) based on regression with measured flows at the USGS gage at the outlet	QVIC-128

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				of the valley. That same USGS gage is then used to "validate" the model's predicted outflows. To be clear, it is not the act of comparing the model predicted outflows to the gaged flows that we object to (indeed, those are the only flow data that are available); however, we assert that when these comparisons are presented it should be clearly noted that these comparisons are somewhat circular and not truly independent.	QVIC-128 contd.
App 4-a				This appendix presents a lot of great information in an accessible format. We appreciate the maps and graphs showing effects by month.	QVIC-129
App 4-a				It would be good to also include the Summary Table somewhere in the main text of the GSP rather than solely having it be in the appendix. In addition, the column headers in summary table should be revised to clarify if Sep-Nov means Sep 1-Nov 30 or Sep 1-Nov 1 (i.e., see comment regarding caption of Figure 2 on page 63 of Chapter 3, Section 3.4.5.1).	QVIC-130
App 4-a		Slide 23		"Restrictions on tributary flow diversions for irrigation at low FJ flows" Since the SVIHM only includes diversions for irrigation, ignoring the fall/winter diversions for stockwater, this scenario should be renamed to clarify that it is regarding irrigation diversions only (i.e., not stockwater).	QVIC-131
App 4-a		Slide 25		The irrigation efficiency scenarios "…assume an unspecified change in irrigation equipment that results in either an increase or decrease in irrigation efficiency on all irrigated fields." Wouldn't it make more sense (i.e., more realistic), to instead have the efficiency increase or decrease depend on the current efficiency of the field? For example, assume all fields with flood irrigation (currently assumed in SVIHM model as 70% efficient [Foglia et al. 2013]) and wheel-line sprinkler (currently assumed in SVIHM model as 75% efficient [Foglia et al. 2013]) were upgraded to 90% efficient center pivot sprinklers? Or maybe that should be added a new scenario?	QVIC-132
App 4-a		Slide 8		This slide defines the Sept-Nov period as "Critical dry window, Sept. 1 – Nov. 30", which seems to contradict other places in the GSP. For example, "Sep 1 to Nov 1" in caption of Figure 2 on page 63 of Chapter 3, Section 3.4.5.1. Given that the model's primary time scale is monthly, the correct time period is probably Sept. 1 – Nov. 30, right?	QVIC-133
App 4-a				The slide describing the "Alfalfa irrigation schedule change" scenarios states "Would presumably involve an incentive or compensation program (a back-of-the-envelope estimate of the value of the 3rd cutting of alfalfa is approximately $7.5 million)." Can you provide any more information on the justification for that estimate? This seems somewhat high given that the Siskiyou County annual crop report (https://www.co.siskiyou.ca.us/sites/default/files/fileattachments/agriculture/page/4581/agd_20200909_2019_cropreport.pdf) reported the total value of countywide field crops (including alfalfa	QVIC-134

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				but also other crops such as wheat, barley, pasture, etc.) as $86 million in 2019. Scott Valley is just one (though perhaps the largest?) of the alfalfa growing regions within the county and two cuttings of alfalfa would still occur under these scenarios.	QVIC-134 contd.

D) LEGAL COMMENTS PREPARED BY A CONSULTANT TO THE KARUK TRIBE

1. The GSP Fails to Properly Specify Undesirable Results, Minimum Thresholds and Measurable Objectives for the Interconnected Surface Waters Sustainability Goal

Despite the known impacts of low flows on protected species, the GSP fails to properly define undesirable results, minimum thresholds, and measurable objectives for the interconnected surface waters (ISW) sustainability indicator.

SGMA sets out a three-step process for defining these terms. The undesirable result is an "effect" caused by over pumping; here, the depletion of streamflow. (Wat. Code § 10721, def (x)(6); Cal. Code Regs. tit. 23, § 354.26.) The minimum threshold is the numeric value that determines when an effect becomes "undesirable," i.e. when it becomes "significant and unreasonable." (Wat. Code § 10721, def. (x); Cal. Code Regs. tit. 23, § 354. It must

> quantify groundwater conditions for each applicable sustainability indicator at each monitoring site or representative monitoring site established pursuant to Section 354.36. The numeric value used to define minimum thresholds shall represent a point in the basin that, if exceeded, may cause undesirable results….

(Cal. Code Regs., tit. 23, § 354.28, subd. (a).) With regard to depletions of interconnected surface water, the regulations require that the minimum threshold be defined as the "rate or volume of surface water depletions caused by groundwater use that has adverse impacts on beneficial uses of the surface water and may lead to undesirable results." (*Id.* § 354.28, subd. (c)(6).) And the measurable objective represents numeric targets to achieve sustainability; that is, to avoid undesirable results by keeping the basin above the minimum threshold. (Cal. Code Regs. tit. 23, § 354.30.)

The GSP defines these terms for interconnected surface waters in a way that fails, as the statute requires, to tie the results of over pumping to concrete effects in the basin. The GSP distinguishes between a "SGMA undesirable result" and an "aspirational 'watershed goal.'" (GSP at 3.57-59.) The former is defined as "stream depletion that can be attributed to groundwater pumping outside of the adjudicated zone to the degree it leads to significant and unreasonable impacts on beneficial uses of surface water." (GSP at 3.57.) The minimum threshold is defined as the "the amount of stream depletion reversal achieved by one or an equivalent set of multiple minimum required PMAs to meet the intent of SGMA (no additional undesirable results), and Porter Cologne and the PTD (some reversal of existing undesirable results)."[1] (GSP at 3.60.)

QVIC-012

[1] The GSP finds that the ISW undesirable result existed prior to 2015 and thus the GSP need not address it under SGMA. (GSP at 3.55-56; Wat. Code § 10727.2.) This memo discusses this finding below.

And the measurable objectives are defined by percentages of streamflow depletion reversed by PMAs. (GSP at 3.63-64.)

QVIC-012 contd.

2. The Undesirable Result Definition is Tautological and Fails to Achieve Basin-Wide Sustainability as SGMA Requires

As part of achieving a basin's "sustainability goal," a GSP must "identify" "undesirable result[s]." (Wat. Code §§ 10721 subds. (u)-(x); 10727.2, subd. (b).) An "undesirable result" means an "effect[] caused by groundwater conditions throughout the basin." (Id. § 10721, subd. (x).) Undesirable results include "[d]epletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water." (Id. § 10721, subd. (x)(6).)

The GSP must define these "significant" and "unreasonable" effects. (Cal. Code Regs. tit. 23, § 354.26(a).) But the GSP's definition of "undesirable results" is a tautology. The GSP defines it as "significant and unreasonable stream depletion due to groundwater extraction from wells subject to SGMA (i.e., outside of the Adjudicated Zone)." (GSP at 3.59.) By including the terms "significant and unreasonable" in the definition, the GSP fails to provide a workable definition: an effect is defined as unreasonable if it is unreasonable. This is nonsensical and unworkable. In *Asociacion de Gente Unida por el Agua v. Central Valley Regional Water Quality Control Board* (2012) 210 Cal.App.4th 1255, 1280, the Court of Appeal disapproved a waste discharge requirement for dairy pollution where "the basis for concluding that any degradation of groundwater will be of maximum benefit to the people of California is that the Order states that it prohibits any further degradation of groundwater." The court found that this reasoning was "circular." (*Ibid.*) The same is true here.

QVIC-013

What the GSP could have done, but did not do, is establish a streamflow target that is protective of beneficial uses in the Scott. It then could have determined the relative contributions of groundwater users inside and outside the adjudication along with surface users. It could then establish the needed reductions in use by all three categories of water users. Even though the GSA lacks authority over surface users and the adjudicated zone, the exercise would inform the amount that pumpers outside the zone need to reduce by to reach a satisfactory flow rate. And making these calculations would inform the County, the State Board, the Watermaster, and potentially the courts and other agencies about the scale and nature of needed actions. This approach would also comply with SGMA by quantifying the undesirable result and minimum threshold.

QVIC-014

Starting with a streamflow target and working backwards is consistent with SGMA because the statute measures compliance at the basin scale. For instance, the "sustainability goal" means ensuring that the "applicable basin is operated within its sustainable yield." (Wat. Code § 10721, def. (u).) And an

"undesirable result" means "one or more of the following effects caused by groundwater conditions occurring throughout the basin." (*Id.* def. (x).) And DWR evaluates GSPs to determine whether they are "likely to achieve the sustainability goal for the basin covered by the groundwater sustainability plan." (Wat. Code § 10733, subd. (b).) The regulations reiterate that undesirable results are "significant and unreasonable effects…occurring throughout the basin." (Cal. Code Regs. tit. 23, § 354.26(a).) Again, the regulations and the statute include the language "throughout the basin." If the legislature did not want to include consideration of effects in the adjudicated areas, it could have done so but did not. By focusing solely on pumping outside the adjudicated zone, the GSP fails to ensure, or even analyze what would be necessary to ensure that the basin as a whole reaches sustainability. QVIC-015

3. The Undesirable Result Is Not Quantified, in Violation of the SGMA Regulations

The SGMA regulations require the GSP to quantify the undesirable result:

> The criteria used to define when and where the effects of the groundwater conditions cause undesirable results for each applicable sustainability indicator. The criteria shall be based on a **quantitative description** of the combination of minimum threshold exceedances that cause significant and unreasonable effects in the basin.

(Cal. Code Regs., tit. 23, § 354.26, subd. (b)(2) (emphasis added).) The description in the GSP is inadequate because it is not a "quantitative description." The regulations are clear that the result must be in the form of numbers tying minimum threshold exceedances to the significant and unreasonable effects. The GSP's description is entirely qualitative. In addition, the description lacks "criteria" for "when and where" groundwater conditions cause significant and unreasonable depletions. Again, SGMA and the regulations make crystal clear that the undesirable results analysis must be tied to physical conditions and physical locations, not solely a model output. QVIC-016

This violates the regulations.

4. The Reasonableness Analysis Fails to Consider Costs to Beneficial Users of Surface Waters

The GSP is required to determine whether the depletions of surface waters have "unreasonable impacts on beneficial users of surface waters." But instead of focusing its discussion on the harms to beneficial users, it focuses solely on the costs to groundwater users. This violates SGMA. QVIC-017

The GSP fails to properly consider the "unreasonableness" of stream depletions by failing to analyze not only of the costs of compliance but of the costs to the public, tribes, and commercial fisheries of the loss of fish populations—loss which may include the incalculable consequences of extinction or extirpation. For instance, courts have held that when setting water quality objectives under Water Code section 13241, the "Water Control Boards are charged with taking into account economic considerations, not merely costs of compliance with a permit. As noted, economic considerations also include, among other things, the costs of not addressing the problems of contaminated water." (*City of Duarte v. State Water Resources Control Board* (2021) 60 Cal.App.5th 258, 276.*)* The same is true here: determining whether an effect is reasonable requires looking at both costs to comply with any restrictions and also the costs to the public of over-extraction. QVIC-018

The GSP states: "In the context of assessing MTs for the ISW SMC, it is reasonable to only hold groundwater producers outside the adjudicated zone to a modest percentage of stream depletion reversal because any greater responsibility would unreasonably constrain groundwater users in the basin." (GSP at 3.58.) Later, the GSP purports to analyze "what is an "unreasonable" amount of stream depletion, which could be reframed as: what is a "reasonable" amount of avoided groundwater use?" (GSP at 3.59.) This is not the question the statute asks: SGMA requires the definition of significant and unreasonable effects to focus on the *results* of stream depletion, not the cost of avoiding it. (Wat. Code § 10721, def. (x); Cal. Code Regs. tit 23, § 354.26(a).) Any costs associated with any constraint on groundwater users has to be balanced against the effect of their actions on groundwater conditions. A reasonableness analysis that focuses entirely on costs to groundwater users is incomplete. QVIC-019

5. The Unreasonableness Analysis Ignores Legally Binding Streamflow Limits in the Scott River

The analysis also misses the fact that the State Board recently adopted emergency regulations setting flow levels (embodied in the CDFW drought minimum flows) below which extractions are deemed to be unreasonable. (See Wat. Code § 1058.5. (State Board authority to adopt emergency regulations to "prevent the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion, of water"); Cal. Code Regs. tit. 23, § 875 et seq.) Rather than focusing on the cost of compliance, the GSP must revisit its significant and unreasonable analysis in light of the State Board's determination of what is "reasonable." It is within the State Board's authority to determine which uses are reasonable. (*Stanford Vina Ranch Irrigation Company v. State* (2020) 50 Cal.App.5th 976, 1002–1003 ("[T]he Board is charged with acting to prevent unreasonable and wasteful uses of water, regardless of the claim of right under which the water is diverted.").) QVIC-020

Nor does the fact that extraction has been continuing at these levels for the last several decades (a fraction of the time that the Karuk Tribe has existed in the Klamath basin) make over-extraction of groundwater reasonable. (Wat. Code § 100.5 ("conformity of a use, method of use, or method of diversion of water with

local custom shall not be solely determinative of its reasonableness.") The GSP must account for the fact the State Board has now declared flows below the CDFW drought minimum flows to be unreasonable. QVIC-021

6. Minimum Thresholds Inadequately Defined

The GSP defines the minimum threshold for interconnected surface waters as "the amount of stream depletion reversal achieved by one or an equivalent set of multiple minimum required PMAs to meet the intent of SGMA (no additional undesirable results), and Porter Cologne and the PTD (some reversal of existing undesirable results)." (GSP at 3.60.) It goes on specify: "**average stream depletion reversal** of the implemented PMAs during September–November **must exceed 15% of the depletion caused by groundwater pumping from outside the adjudicated zone in 2042 and thereafter**…" (GSP at 3.60 (emphasis in original).) There are at least three problems with this. First, it is circular. Second, the 15% figure is arbitrary and unsupported by evidence. Last, it is not tied to a "monitoring site or representative monitoring site" as required by the regulations. QVIC-022

The minimum threshold is circular because it starts from the premise that the ILR/MAR scenario is all that need be done. The GSP states that Advisory Committee determined it was "reasonable" implement the MAR/ILR scenario of PMAs. (GSP at 3.60.) This involves flooding fields using excess flows in the winter and switching from groundwater to surface water irrigation using excess water in the spring. This scenario does not involve reducing pumping by groundwater users. Having determined the costs associated with the MAR/ILR scenario are reasonable, the GSP simply states that the streamflow associated with that scenario is the minimum threshold. (GSP at 3.61.) This depletion reduction figure is 15%.

By defining the minimum threshold as the results of simulated PMAs, the GSP creates a circle. It can define the undesirable result and achieve it without demonstrating any real-world impact on flows, fish, or the people that rely on them. This violates SGMA. QVIC-023

In addition, the 15% figure is completely lacking in evidence. An agency's action is invalid if it is "arbitrary, capricious, or without evidentiary support." (E.g. *Association of Irritated Residents v. San Joaquin Valley Unified Air Pollution Control Dist.* (2008) 168 Cal.App.4th 535, 542.)

While the GSP implies that it was discussed at the Advisory Committee meetings, there is no justification for why 15% was chosen, and not 50%, 100%, or 5%. Indeed, although the key driver of the GSP's MT analysis is the cost of the MAR/ILR scenario, the GSP *does not consider the cost of the scenario!* (GSP at 3.60-61, 4.27 ("Costs and funding for [the ILR/MAR] project have not yet been explored.") Here, the failure QVIC-024

to consider the costs of the ILR/MAR scenario—which is the only basis for the selection of the 15% reduction figure—is arbitrary and capricious because it is not based on any evidence in the record.

QVIC-024 contd.

Moreover, there is no analysis of the impacts of the 15% depletion reduction on the stream itself. Without this analysis, there is no way to know whether this level of reduction is "significant" or "unreasonable," no matter how the terms are defined. And this illustrates the problem with defining the minimum threshold in terms of a modeled output rather than, as required by the regulations, a value at a monitored site.

QVIC-025

The "minimum thresholds" must "quantify groundwater conditions for each applicable sustainability indicator *at each monitoring site or representative monitoring site.*" (Cal. Code Regs., tit. 23, § 354.28(a), emphasis added.) Therefore, the definition of the undesirable result must be "quantitative" and must be tied to minimum threshold exceedances at *particular monitoring sites.*[2] In other words, the SGMA regulations require a GSP to express an undesirable result in terms of a real-world impact to a directly measured value, in this case, streamflow.

QVIC-026

The SVIHM model will doubtless be a useful tool and provides invaluable insights into those parameters that cannot be directly measured. But it is not a "monitoring site." The GSP must include minimum thresholds that inform the GSA and the public when physical conditions in the basin have reached the point of being "significant and unreasonable" impacts on interconnected surface waters.

QVIC-027

7. Measurable Objectives are not Properly Defined

The GSP attempts to avoid the requirement to define the minimum threshold and measurable objectives in terms of stream flow by referring to section 354.30, subdivision (b) of the regulations. The GSP states, "Choosing the aspirational watershed goal itself as MO would not meet the requirement that quantification/measurement of streamflow depletion that is used to establish the minimum threshold, Section 3.3.5.1, must also [be] used to quantify the MO."[3] But this is precisely backwards. As discussed above, the minimum threshold must be defined with reference to a measured value at a monitoring site. And there is no requirement that the measured value be identical, only that the metrics and monitoring sites be the same. Again, SGMA is clear that measurable objectives, like minimum thresholds and undesirable results, be defined in terms of measurable stream flow, not as a portfolio of PMAs or solely as a model output.

QVIC-028

[2] Section 352.4 of the regulations makes clear that a monitoring site is a physical location, not a model output. (Cal. Code Regs., tit. 23, § 352.4.)

[3] GSP, Chapter 3, at p. 53. The cited regulation states: "measurable objectives shall be established for each sustainability indicator, based on quantitative values using the same metrics and monitoring sites as are used to define the minimum thresholds." (Cal. Code Regs., tit. 23, § 354.30, subd. (b).)

QVIC-028 contd.

8. The GSP Does not Consider the 2021 Emergency Regulations or the CDFW Drought Flows

On June 15. 2021, CDFW transmitted Minimum Flow Recommendations for the Scott and Shasta Rivers to the State Board.[4] The minimum flow recommendation largely tracks the USFS water right at the Fort Jones Gage, with deviations in September (33 cfs), November (60 cfs), and December (150 cfs.)

Based on these recommendations, the 2017 CDFW flow recommendations, and a Petition for Emergency Rulemaking filed by ELF and the Karuk Tribe on July 1, 2021, the State Board adopted emergency regulations setting minimum flows on the Scott and Shasta River in August 2021. (See Cal. Code Regs. Tit. 23, § 875 et seq.)

The emergency regulations establish the CDFW Minimum Flow Recommendations as the minimum permissible flows in the Scott River. (Cal. Code Regs. tit. 23, § 875(c)(1).) State Board staff is authorized to curtail diversions—both surface waters and groundwater—that reduce river flow below those levels. Curtailment orders have now gone out to diverters.

The GSP does not acknowledge either of these events. Rather, it states "However, neither the ESA, TMDL, or PTD specify mandatory targets, minimum thresholds, or specific project requirements." (GSP at 3.57) This statement is not true. The emergency regulation now sets a minimum flow for the Scott River. Thus, the goal of restoring adequate flows in the Scott is no longer "aspirational"—a minimum flow is now the law. The GSP must be revised to account for this. QVIC-029

9. The GSP Fails to Consider Undesirable Effects that Have Occurred After 2015

Water Code section 10727.2, subdivision (b)(4) states that a GSP "may, but is not required to, address undesirable results that occurred before, and have not been corrected by, January 1, 2015. Notwithstanding paragraphs (1) to (3), inclusive, a groundwater sustainability agency has discretion as to whether to set measurable objectives and the timeframes for achieving any objectives for undesirable results that occurred before, and have not been corrected by, January 1, 2015."

[4] Available at https://www.waterboards.ca.gov/drought/scott_shasta_rivers/docs/swb_2021_shasta_scott_drought_emergency_final.pdf, accessed September 15, 2021.

The GSP says, "In Scott Valley, undesirable results associated with depletion of interconnected surface water that have occurred since January 1, 2015, had already existed for over thirty years prior as of 2015. No additional undesirable results have occurred since January 1, 2015 (Section 2.2.1.6). Additional future surface water depletion due to groundwater pumping will be avoided by rigorous controls set on maintaining current water level conditions (Section 3.4.1) and by avoiding significant additional consumptive water use in Scott Valley (see chapter 4)." (GSP at 3.55.)

This misstates the facts. It is clear that there is sufficient water in the Scott River system to sustain fish populations in almost every year. This is evident from the pre-1980 record showing that the river could sustain the USFS flow right and the CDFW recommended flows prior to the adjudication and the expansion of groundwater pumping. And it is clear from the information contained in the GSP that almost every year, precipitation is sufficient to bring flows up to a level that would support those flows for most of the year, absent irrigation. (See GSP at App. 4-A, at pp. 73-75.)

Therefore, the effects of stream depletion did not "exist" prior to 2015. Indeed, on January 1, 2015, the Scott River flowed at over 500 cfs, well above the CDFW-recommended 362 cfs.[5] The "undesirable result" for the purposes of SGMA is the disconnection and low flow in the river. (Wat. Code § 10721, def. (x)(6).) In the summer of 2015, growers made a choice to withdraw water from a full aquifer. And in 2015, just as in every prior summer, the County, the State Board, and other responsible agencies allowed the depletions to occur.

This does not mean that the undesirable result "existed." Courts have "long settled that separate, recurring invasions of the same right can each trigger their own statute of limitations." (*Aryeh v. Canon Business Solutions* (2013) 55 Cal.4th 1185, 1198.) This a similar situation: the stream depletions are not a continuous problem that occurred long ago and has not been corrected, like seawater intrusion or permanent subsidence. Depletions are discrete events that recur anew each year, but the GSP treats them as permanent. Indeed, the GSP claims that there is no chronic lowering of groundwater levels in the Scott. (GSP at 3.32.) QVIC-030

The GSP should be revised to make clear that the stream depletions did not "exist" prior to 2015 because each year they are caused again.

[5] USGS Flow Meter Data available at https://nwis.waterdata.usgs.gov/ca/nwis/uv/?ts_id=16566&format=img_default&site_no=11519500&begin_date=20150101&end_date=20150101

10. The GSA's Baseline Analysis Must Include Consideration of Other Laws

SGMA also does not absolve the County or the GSA of its duty to comply with other environmental laws. SGMA contains at least four explicit savings clauses making explicit that SGMA's requirements are in addition to, and do not replace, the requirements of other laws, including the Clean Water Act, the public trust doctrine, the state and federal Endangered Species Acts, or Fish and Game Code 5937, to name just a few.

SGMA's savings clauses include:

- "Nothing in this part, or in any groundwater management plan adopted pursuant to this part, determines or alters surface water rights or groundwater rights under common law or any provision of law that determines or grants surface water rights." (§ 10720.5, subd. (b).)
- "A groundwater sustainability agency may exercise any of the powers described in this chapter in implementing this part, in addition to, and not as a limitation on, any existing authority . . . ." (§ 10725, subd. (a).)
- "This part is in addition to, and not a limitation on, the authority granted to a local agency under any other law." (§ 10726.8, subd. (a).)
- "Nothing in this part is a limitation on the authority of the [State Water Board], the [Department of Water Resources], or the State Department of Public Health." (§ 10726.8, subd. (c).)[6]

The GSP purports to consider other laws. But it does so in the context of doing as little as possible to comply with those laws. The GSP states that SGMA requires it to only not cause more undesirable results than "existed" in 2015 (e.g. GSP at 3.60). But it characterizes any "additional" reduction in pumping as in response to the public trust doctrine the Clean Water Act, not SGMA. As discussed above, the conclusion that SGMA does not require further reductions below the 2015 baseline is incorrect. The analysis of undesirable results and minimum thresholds needs to be revised to take into account the requirements of all other relevant laws. QVIC-031

For instance, the analysis of temperature impacts is insufficient. Groundwater extractions reduce cold-water inflows. (GSP at 2.25.) And this occurs not just in the August-November period, but throughout the year. And some of these cold pools may exist in tributaries that are not part of the adjudicated area, such as the East Fork.[7] These areas would thus be fully under the jurisdiction of SGMA. But the GSP does not model or account for cold water refugia, which are crucial for salmonid over-summering and rearing, especially for Coho. (GSP at 2.73.) The TMDL Action Plan reinforces that these thermal refugia are necessary for species recovery: "Where reaches of the Scott River and its tributaries are providing suitable freshwater QVIC-032

[6] The "part" mentioned in each provision refers to Part 2.74 of the Water Code—that is, the entire Sustainable Groundwater Management Act. (§ 10720.)

[7] North Coast Regional Water Quality Control Board, Staff Report for the Action Plan for the Scott River Watershed Sediment and Temperature Total Maximum Daily Loads (2005) at p. 4-35.

salmonid habitat, including cold water refugia for coho and other salmonids, protection of these areas should be a priority for restoration efforts."[8]

QVIC-032 contd.

The GSP's failure to model and consider impacts of groundwater extraction on this crucial habitat implicates the Clean Water Act, by failing to comply with the TMDL for temperature, and the Endangered Species Act, for failing to protect critical habitat. Moreover, temperature impacts are an "effect" that the GSP wholly fails to evaluate the significance and reasonableness of when defining the undesirable result and minimum thresholds for either water quality or interconnected surface waters.

The GSP should, at the very least, incorporate a plan to identify and protect these cold water refugia where they occur.

11. The GSP Fails to Consider Surface Water Quality

The GSP's identification of undesirable results for water quality is insufficient because it fails to consider groundwater extraction's impacts to surface water quality. SGMA provides that "[s]ignificant and unreasonable degraded water quality" is an undesirable effect required to be avoided (Wat. Code § 10721, subd. (x)(4), and SGMA does not limit this definition to degraded *groundwater* quality. But the GSP limits its discussion of the water quality undesirable result to groundwater quality. (GSP at 3.42) This limitation violates SGMA because it does not consider the significant effects that groundwater conditions have on surface water quality, namely, temperature—including cold water refugia. The GSP acknowledges that the Scott is listed as impaired for temperature under section 303(d) of the Clean Water Act. (GSP at 2.23) And extractions of groundwater affect flows and therefore temperature in the Scott. (GSP at 2.25.)

QVIC-033

The GSP must be revised to describe impacts to surface water temperature as an undesirable result and to develop minimum thresholds, measurable objectives, and projects and management actions to remedy the undesirable result.

[8] North Coast Regional Water Quality Control Board, Staff Report for the Action Plan for the Scott River Watershed Sediment and Temperature Total Maximum Daily Loads (2005) at p. 5-4.

QVIC-032 contd.

North Group-Redwood Chapter-Sierra Club
Felice Pace, Water Chair
28 Maple Road Klamath, Ca 95548 707-954-6588 unofelice@gmail.com

September 23, 2021

Siskiyou County Flood Control and Water Conservation District
Via Email to: SGMA@co.siskiyou.ca.us
PO Box 750
1312 Fairlane Road
Yreka, CA 96097

CC: Members, Scott River Basin Groundwater Advisory Committee
Lauren Foglia, Technical Consulting Team Lead
Pat Vellines/DWR Scott Basin contact
Other Interested Parties

SUBJECT: **Comments of the North Group Water Chair and a Scott Valley landowner on the Draft Scott River Basin Groundwater Sustainability Plan (GSP) released for comment August 11, 2021.**

Members of the Scott River Basin GSA:

I lived in the Scott River Basin from 1976 until 2002. I still own a plot of land in Scott Valley and I visit often. These are my comments on the Draft GSP as a landowner and as Water Chair for the North Group Redwood Chapter of the Sierra Club.

The draft Scott River Basin GSP is a disappointment because it does not deal with two key realities:

1. As confirmed by DWR groundwater monitoring, year-to-year groundwater elevations in the Scott River Basin have been falling for the past 20 years. The draft GSP denies this reality and claims that, while there have been a series of recent "dry years" groundwater elevations year-to-year are not dropping.
2. In light of the recent, current and expected future climate, groundwater extraction at current levels cannot be maintained without extending and increasing extraction-related undesirable results.

Instead of addressing these realities, the draft GSP ignores readily available DWR data[1] documenting declining groundwater levels and defines "sustainability" in a manner that would lock-in, rather than correct, undesirable results that have and will continue to threaten Coho and Chinook salmon with extirpation/extinction by dewatering streams and decreasing streamflows, thereby denying Coho and Chinook salmon and Steelhead trout access to spawning grounds and impeding their rearing and migration.

1 DWR Data Viewer screenshot and DWR's California Groundwater Conditions Update – Spring 2020 are attached.

The GSA, has given us a cynical and non-compliant GSP. I will leave it to others better equipped to detail the legal deficiencies and multiple-failures to comply with SGMA's implementing regulations. Instead, attached are detailed comments using the GSA's form for Chapters 2 and 4, as well as the detailed comments on Chapter 3 previously submitted. Those attached detailed comments focus on the science, facts, tools and management approaches that are proposed or which, in my estimation, are needed but missing from the Draft.

In addition to the attached detailed comments, this comment letter focuses below on the Draft GSP's major flaws and inadequacies. Many of these GSP deficiencies were identified in my May 26th 2021 comment letter to the GSA titled "North Group Water Chair's comments on the 04/23/2021 Public Review Draft of the Scott Valley Groundwater Sustainability Plan (GSA) Chapter 3: Sustainable Management Criteria." That September 26 comment letter is attached and is included in these comments by reference because many of the deficiencies identified there have not been corrected in the Draft released on August 11, 2021.

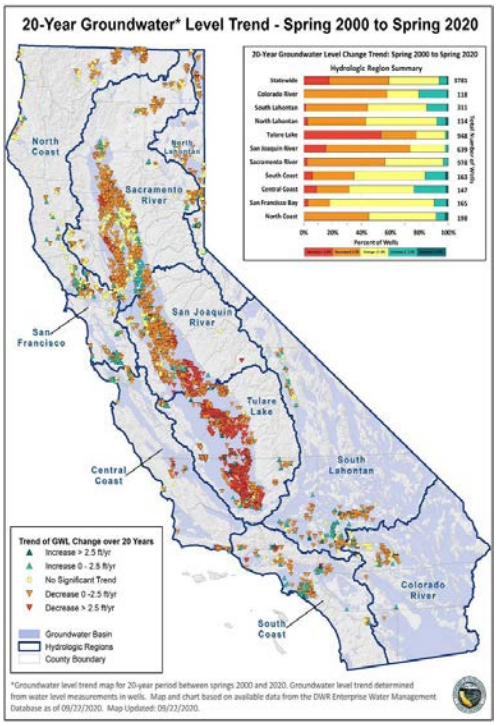
The summary below identifies what I believe are major flaws which, if not corrected, will prevent the Scott GSP from achieving true sustainability. True sustainability means managing groundwater in a manner that complies with applicable laws and regulations, including reversing current undesirable results that are related to groundwater extraction. Sustainability also includes complying with other applicable laws, including the federal and state Endangered Species Acts, the state and federal Clean Water Acts and applicable Fish and Game and Water Codes. Real sustainability attends to the needs of all citizens and all valid interests, seeking inclusion and balance rather than domination of one interest or group over all others.

Major Flaws and Omissions

1. Recognizing the Problem:

FP-001

One cannot solve a problem if one refuses to recognize that the problem exists. The Draft GSP denies the reality that groundwater levels and groundwater storage have been declining in the Scott Valley for two decades. This can clearly be seen in the DWR SGMA Data Viewer, and in DWR's Spring 2020 Update, including the map to the right which shows "groundwater level trend" from 2000 until 2020. Like most of the state, DWR's Scott Valley groundwater monitoring wells shows the groundwater level decreased year-to-year up to 2.5 feet since 2000. More recent trends, in line with climate expectations, are much more dire.



The GSA and the Scott Groundwater Advisory Committee need to get out of denial. They need to admit that groundwater extraction has already produced unacceptable results and they need to give the public a plan that will restore the beneficial uses of water which groundwater extraction in the Scott River Basin has damaged and threatens to destroy.

2. Failure to reverse undesirable results:

The Draft GSP proposes criteria, thresholds and triggers that will result in additional and deepening undesirable results. The thresholds and triggers will unnecessarily delay action to address undesirable results and that will result in additional damage to the beneficial uses of water, groundwater dependent ecosystems and the Public Trust in water.

The GSA alleges that it has no ability to manage groundwater extraction in that part of the Scott River Valley in which groundwater was adjudicated as part of the Scott Stream Adjudication. Others have pointed out that allegation is unfounded. Managing all groundwater in the basin is necessary to achieve sustainability as defined in SGMA and its implementing regulations. Therefore, if the GSA believes it cannot manage a significant amount of groundwater and that will prevent it from realizing the promised benefits of SGMA, it should refer the basin to the State Water Board for a full groundwater adjudication.

FP-002

3. Reliance on the Scott Valley Integrated Hydrologic Model (SVIHM):

The GSP relies on the SVIHM to inform, manage and evaluate the results of groundwater management. It is a heavy burden and one which I believe is not appropriate for a model that has not been validated and which has high mathematical sensitivity. High sensitivity means that small errors in model generated and other inputs can result in large errors in results. Such models can be wildly right but they can also be wildly wrong. That is why validation will be a process designed to render the model more reliable over time. However, for the time being, model results must be complemented by actual measurements and metrics, and compared to alternative results from other models and approaches, in order to properly guide management and evaluate results.

FP-003

Just relying on the SVIHM to inform, guide and evaluate groundwater management going forward is imprudent, dangerous and, for that reasons, unacceptable.

4. Undesirable results on streamflow and stream ecosystems, including salmonids, must be assessed, monitored and evaluated based on flow metrics and flow needs as determined by best available science and the judgment of expert agencies, including DFW and the State and North Coast Water Boards:

There is no need to rely on a sensitive and unvalidated model to evaluate past, current and future undesirable results to streamflow and stream ecosystems which depend on adequate streamflow. Rather those things should be evaluated using actual flow data, flow needs as determined by expert agencies and scientists and by using the tools developed by those agencies and scientists, including the California Environmental Flows Framework.

The GSP must result in the adjudicated flow right for fish in Scott River being met. If the GSA cannot or will not deliver a GSP that results in the flow right being met within a reasonable time frame, all groundwater extraction will need to be adjudicated and the State Water Board will need to proceed on petitions to make the water right changes needed to protect the Public Trust in water.

The Scott GSP is the last chance for locals to retain control of groundwater management in the Scott River Basin. Only a GSP that fully complies with SGMA and its implementing regulations will result

in local control. The current path, if followed, leads inexorably to state management of ground and surface water.

5. The GSP must look to upland management's impact on water supplies and streamflow using the best available science and, at minimum, commit to addressing upland management at the first GSP revision: FP-004

The uplands and how they have been managed is much too important to both the hydrograph (and therefore inputs into the SVIHM) and to future water supplies, including groundwater recharge, to not at least begin to address it in this first GSP. Furthermore, there are radically different stakeholder and citizen views on how past and current forest, fire, grazing and other management has and will impact water supplies and the hydrograph. There is competing relevant science as well. This all needs to be sorted out if we are going to get anything near the support needed to advance upslope management for "favorable conditions of flow" which is, after all, a main reason the national forests were created. Favorable conditions of flow serves the interests of all water users and all citizens.

6. The Draft GSP does not protect the interest of domestic well owners. It will cause more drinking water wells to go dry more of the time and for longer periods of time:

By allowing even more decline of groundwater elevations before any corrective action is even contemplated, the Draft GSP will assure that more and more domestic drinking water wells go dry for longer and longer periods. The Draft GSP does not adequately analyze or disclose those impacts. This issue is addressed in more detail in the attached detailed comment forms.

7. The Draft GSP does not adequately assess or address groundwater quality:

The GSP fails to adequately assess groundwater quality. It does not establish a monitoring network which is capable of detecting deterioration of groundwater quality in those portions of the Basin where groundwater quality is most at risk. Therefore, the GSP does not comply with SGMA regulations which require groundwater quality to be adequately assessed and adequately monitored going forward. This Draft GSP failure is more extensively addressed in my attached prior comment letter and also in the attached comment forms.

8. The offer of collaboration:

So far the Groundwater Sustainability Agency, the Siskiyou County Flood Control and Water Conservation District, has chosen to stack the Scott Groundwater Advisory Committee with individuals who are major groundwater extractors, including some who have played a major role in expanding groundwater extraction in recent years. In the same vein, you have now given us a draft Groundwater Sustainability Plan which seeks to mask the impacts of increasing groundwater extraction and to avoid dealing with the undesirable results of that groundwater extraction.

The GSA's implementation of SGMA so far has favored one interest – groundwater extractors – over all other interests and has sought to bend SGMA to serve that interest. Please recognize that approach must and will fail. Instead, I and others offer collaboration which seeks to respect all interests and to balance needs and desires with the capabilities of our land and water.

Will you choose collaboration?

Sincerely,

Felice Pace

List of attachments:

- DWR Dataviewer screenshot showing falling year-to-year groundwater levels in Scott Valley
- California Groundwater Conditions Update – Spring 2020
- Completed review form for Chapter 2
- Completed review form for Chapter 3
- Completed review form for Chapter 4
- May 26, 2021 letter with comments on Draft GSP Chapter 3

COUNTY OF SISKIYOU

Flood Control & Water Conservation District

Review Form

Scott Groundwater Sustainability Plan

Reviewer name:
Submission date:
GSP sections reviewed:

Chapter	Page	Section	Line/Table/Fig#	Comment (*please delete example text below once you submit*)	
2			1292 et seq	This section should disclose all purposes of the SVID groundwater recharge experiment and the results. The intent was also to evaluate impact of groundwater recharge on flows in Scott River. The conclusion was that recharge on the eastside of Scott Valley can help flows but only in early summer, not critical fall and late summer flows	FP-005
2		Climate	2.2.1.2	This section should discuss relevant climate change predictions and how those changes are likely to impact surface and groundwater supplies, flows, groundwater levels, etc. because all that is critical information for managing water going forward.	FP-006
2			1701-1703	The increase in irrigate acreage since 1964 is 6500 acres which is a 20% increase and not "similar to today's irrigated acreage." This is another among many places the draft downplays the increase in agricultural water use increases. That is wrong and should change.	FP-007
2			1736 - 1747	The section on Land Use fails to note how much more water alfalfa uses as compared to small grains. That should be fixed and the total increase in groundwater use due to the transition from small grains to alfalfa should be quantified and displayed because that is important information to inform management decisions.	FP-008

COUNTY OF SISKIYOU

Flood Control & Water Conservation District

Review Form

Scott Groundwater Sustainability Plan

2	1759 et seq	Y'all do not mention the Shakleford and french Adjudication Decrees. That should be fixed and the season of irrigation for each should be included. Also, there should be a discussion of diversion for stockwatering.	FP-009
2	1795, et seq	The discussion of westside alluvial fans fails to mention the major springs which emerge within these fans and which are a major source of flows for the Valley section of Scott River. This section should also mention that these springs dry up as the groundwater level declines.	FP-010
2	1994 - 2001	The Scott Valley Integrated Hydrologic Model (SVIHM) is a highly sensitive model that has not been validated. These facts and their implications need to be noted here where and anywhere its use is described. Because highly sensitive models can give widely wrong results, the model should not be used alone but in combination with (or with results compared to) the results from other models including the SWRCB E Flows Framework methodology and the TNC natural flows database. Wherever possible actual measurements, rather than models, should be used to guide management. **The model has built in bias and as a result its predictions understate the impact of groundwater extraction on streamflow. That should be corrected.**	FP-011
2	2002 et seq	This section discloses some of the assumptions that are made by the SVIHM. It is the large number of assumptions that make it a poor tool to guide management. Until it can be improved, it alone can not be relied upon to guide management decisions. Real data should guide management, not models.	FP-012
2	2309 et seq	In the section on Priority Habitat Identified in the Basin: Y'all need to consult the maps which show where Critical Habitat for Coho have been designated by NOAA NMFS. It would be good to include a map of Coho designated CH because intrinsic habitat was used to designate it. Y'all need to at least mention that	FP-013

		dataset: designated Coho CH and why it was not used, if indeed it is not used. Table 10 is a good summary.	FP-013 contd.
2	2426 et seq	The section on "Threats to Prioritized Fish and Aquatic Species in the Basin" is grossly inadequate. It fails to identify the problem of low flows and stream dewatering that impacts and kills juvenile Coho and Chinook Salmon and Steelhead trout and impedes outmigration. It fails to mention temperature and nutrients as water quality problems, which they are. This section needs to reference and extensively quote from the Basin Plan and other documents which detail the water quality problems and impairments in the basin and how those impairments impact beneficial uses. In addition, how flows, and in particular low flows, impact water quality and the specific Scott CWA-designated impairments needs to be disclosed and discussed. This section needs major revision.	FP-014
2	2499 et seq	Y'all continue to assert that "groundwater levels in Scott Valley remained relatively consistent, with seasonal cycling of lowered groundwater levels in the summer followed by increases in the winter months (Harter and Hines 2008)". That is a false statement. It contrasts with what DWR has found, that is, recent declines in minimum annual groundwater level and failure to fully recover historic maximum elevation levels. DWR is the expert agency in this regard so you need to consult and cite their information which finds a trend of decline in groundwater levels in Scott Valley wells, some going back to 2010. Here is the link to DWR's latest groundwater report which includes historic trend data and maps: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Data-and-Tools/Files/Maps/Groundwater-Level-Change/DOTMAP_Reports/Spring-2020-Groundwater-DOTMAP-Report.pdf. Y'all need to admit that groundwater has been declining over the most recent decade and is predicted to decline farther if groundwater extraction is not cut.	FP-015

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2		2517 - 2520	The draft states "Historic and recent water level data do not indicate overdraft or long-term declines in groundwater data. However, the past 22 years have seen a higher frequency of dry years and more frequent occurrence of low fall water levels than has been observed on few wells during the previous 40 years. The argument is that, while declines in max and min levels have been observed, that is the result of "dry years", not excessive extraction. The assertion is false. Extraction is lowering groundwater levels in dry years and, because the number of dry years has and is predicted to increase, extraction has and can be expected to continue to decrease groundwater levels and groundwater storage, that is, unless and until extraction is managed and restrained in dry years.
2		2817 et seq	NITRATE: The assessment of nitrate levels in groundwater is inadequate because data has not been collected from the areas most at risk for nitrate groundwater contamination. At minimum, y'all must obtain and cite monitoring data from Hale Dairy required as part of their CWA permit and housed at the NCRWQCB. That data can be used as a proxy for the most at risk sites for nitrate contamination in Scott Valley. However, you MUST establish an adequate network of wells that are regularly tested for groundwater quality in order to comply with SGMA going forward. That means specifying an adequate groundwater quality monitoring network in the GSP. It is wrong to seek to just rely on those two community drinking water wells cited in the draft and call all OK with water quality throughout the Basin.
2	2.2.3.1		Summary of Model Development: The sensitivity of the model and how that sensitivity can impact the range and magnitude of error results needs to be disclosed and discussed. The limitations of the model need to be discussed and also, how limitations and errors can be checked over time using other means and

FP-016

FP-017

FP-018

			other models. The lack of model validation and how that will be addressed needs to be discussed here and not relegated to an appendix.	FP-018 contd.
2		3193 et seq	Surface Water Inflow: The Model predictions of inflow should be compared to actual gauge data (see Figure 15) where we have actual gauges and discrepancies noted going forward.	FP-019
2	2.2.4		Future Water Budget: If one looks at Figure 30, the future basecase scenario has annual rainfall that is greater than any of the actual historic periods. That seems to be highly unlikely. Is it not more likely that future precipitation will be lower on average as compared to the past? If so, that should be reflected in the basecase. Is the basecase a model output? If so, it appears that the model is not a very good predictor of future reality.	FP-020
2	2.2.5		Sustainable Yield: This section assumes that "The Basin is not in overdraft." As noted above, the assertion is not supported by groundwater data and trends collected by DWR. Please consult with DWR about the question of whether or not the basin is in overdraft and include/quote that response in this section.	FP-021
2		3572 et seq	"For the Scott Valley, the sustainable yield is equal to the 28 year average groundwater pumping of 42 thousand acre-feet per year minus any future reduction in groundwater pumping resulting from the implementation of project and management actions (see Chapter 4) to meet the milestones and, after 2042, the minimum threshold and measurable objectives for the interconnected surface water indicator and for the water level indicator." This is an error. In order to maintain current levels of extraction, y'all have made unrealistic assumptions about the future climate and therefore the future water supply. You have also chosen to delay rectifying "undesirable results" to	FP-022

		streamflow until 4042 and based streamflow restoration on unrealistic pie-in-the-sky "projects". That is not acceptable and, if allowed, is likely to result in extirpation of Coho and Chinook salmon from the basin. The Scott is already producing less salmon than it should and loosing more juveniles than other Klamath sub-basins. The Scott GSP should rectify that situation, not make it worse as you are proposing. This extinction GSA will not pass muster with DFW because it does not comply with SGMA but it will serve to further alienate those who depend on Klamath River Basin salmon.	FP-022 contd.
2	2.2.5	Sustainable Yield; The draft GSP relies on future "projects and management actions" to address undesirable results and achieve what it calls sustainability. However, the future projects and management actions are only generally described and many of them are either not realistic or their feasibility has not been assessed. This reliance on unspecified, untested and unassessed future actions and projects is not realistic, likely to result in additional and continuing "undesirable results" and, therefore, does not comply with SGMA and its implementing regulations. At best y'all propose kicking the can down the road. But SGMA requires that you deal with groundwater management and undesirable results now, in the GSP.	FP-023

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Scott Groundwater Sustainability Plan

Reviewer name: Felice Pace
Submission date:
GSP sections reviewed: Chapter 3

Chapter	Page	Section	Line/Table/Figure	Comment (*please delete example text below once you submit*)	
3				This chapter seeks to improperly define past conditions in order to allow continuation of current extraction levels. But the increase in groundwater extraction over the past 20 years has already resulted in undesirable results to streamflow, GDEs and domestic well owners that are unacceptable and which must be reversed. We need SMCs that will do that job. If the GSA won't give them to us we will push to have the State Water Board take over management of groundwater.	FP-024
3			227- 228	Table 1: Summary of monitoring networks, metrics, and number of sites for sustainability indicators: 3 sites is not a sufficient network to monitor groundwater quality. The network needs to be expanded to cover all sections of Scott Valley and those areas most at risk for groundwater contamination which are the areas of former beaver dams in the lower Etna and Kidder Creek Areas .	FP-025
3			227-228	"Stream depletion due to groundwater pumping" has already occurred and not just on the main Scott River. The GSA is responsible for reversing the dewatering that has already damaged and destroyed some of the beneficial uses of water in these waterbodies. The GSA proposes unnecessary delays in action to revere those declines. That violates SGMA and is unacceptable. Restrict extraction now to restore the beneficial uses of our streams….and not just the River but all the Valley sections of major tributaries as well. Failure to do this will involve "take" of Coho salmon and will prompt citizen action to force the GSA to comply with all applicable laws.	FP-026

3		251	"Identification and Evaluation of Potential Data Gaps": The draft fails to recognize the groundwater quality network as deficient and therefore to plan to expand that network as needed. That should be changed. Wells that are monitored for groundwater level should also be monitored for groundwater quality.	FP-027
3	3.3.3.		Groundwater Quality Monitoring Network: Here y'all do call for expansion of the network. However, at least until the network is adequately expanded, the GSA must use the best available information in constructing the GSP and that includes groundwater monitoring data for beneath the Hale Dairy which is in the possession of the North Coast Water Board.	FP-028
3		554-555	"Funding has been made available through NCRWQCB for sample analysis and results of this sampling will be used to help inform the monitoring network expansion." Please display the data from sampling that has already occurred. If you haven't done any sampling, please use available funds to do so in order to inform this version of the GSP rather than waiting until a future time and future version of the GSP.	FP-029
3		661	"Groundwater Levels as Proxy for Stream Depletion Monitoring – not suitable": While that may be true for Scott River, it is not true for the lower reaches of major tributaries in Scott Valley which are dewatered for longer periods as a result of the DWR documented 20 year decline in groundwater levels. To comply with SGMA, the GSA must use the best available scientific information to determine and disclose how groundwater extraction declines over the past 20 years have impacts major tributary flows as well as Scott River flows. Additional stream gauges are likely needed to be able to assess how management changes are impacting lower tributary flows. The SVIHM should	FP-030

		not be used to assess impacts to streamflow for the reasons explained elsewhere. Comparison to other methodologies indicates the SVIHM is biased against streamflow, that is, it predicts lower streamflow consistently than is actually the case. The GSA should use actual stream measurements rather than any model whenever possible.	FP-030 contd.
3	724 et seq	"Streamflow as Proxy for Stream Depletion Monitoring – not suitable": The argument for not using streamflow as an indicator for stream depletion is nonsensical. Any and all conditions are the result of multiple-factors. However, because the factors impacting streamflow other than ground and surface water extraction are the same no matter how much groundwater is extracted, observed changes in streamflow are likely all or nearly all the result of groundwater extraction and surface water diversion. Because the amounts of surface diversion are now known and must be measured and reported to SWRCB, it is entirely possible to isolate the impact to streamflow resulting from groundwater extraction. This again is an example of the GSA sticking its collective head in the sand in hopes of not having to deal with impacts it claims not to see. The GSP is rife with examples of GSA management avoidance schemes and scams.	FP-031
3	743-746	"The legal requirements for the minimum threshold allow for the use of a numerical groundwater and surface water model to quantify ("monitor" or "measure") the amount of surface water depletion due to groundwater pumping and to set the minimum threshold using the model." While the statement may be true it is also true that actual measurements are preferable to model results where the actual results can be obtained. It is feasible to monitor changes in streamflow and to adjust those for levels of precipitation and snowpack. That is the correct approach rather than using a model that is highly sensitive and unvalidated.	FP-032

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3	748 et seq	"Quantifying Stream Depletion due to Groundwater Pumping with SVIHM": is unacceptable because the model is too sensitive and has not been validated. Y'all need to use a different method, one that has been proven to be accurate in other basins.	FP-033
3	792 et seq	"Measuring" as used in SGMA means measuring; it does not mean modeling. Modeling runs are not measurements. You keep trying to use the SVIHM for purposes for which it is not suitable or is not the best, that is, the most accurate and reliable, measurement tool. You can't get away with it and will loose the privilege of managing if you keep trying.	FP-034
3		Because you seek to use the SVIHM in some many critical ways and in lieu of actual measurements, it is critical that you obtain and publish as an appendix an independent expert evaluation of the model and its suitability for each of the many purposes for which y'all are proposing to use it.	FP-035
3		Y'all should use DWR groundwater and other data and data from other agencies, rather than using the SVIHM whenever possible. Actual measurements are always preferable to modeling, particularly when the model is so highly sensitive and not validated. The GSA's consultants have a material and professional interest in the SVIHM; is that why it is being proposed for so much use when better information is available by other means and from other sources?	FP-036
3	1098	Figure 6 shows that the draft GSP proposes allowing further lowering of groundwater levels before any action to reverse undesirable results is taken. That is unacceptable because it does not reverse or even prevent further increases in undesirable results. Depth to groundwater are too low (in elevation) for the minimum threshold range, trigger and measurable objective. They violate SGMA because they will produce and exacerbate undesirable results on	FP-037

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		streamflow. Give us the range, trigger and measurable groundwater objectives that will keep the Scott River and major lower tributaries running at key periods for salmonids.	FP-037 contd.
3	1117 et seq	Use of the word "excessive" without defining what constitutes excessive or how that criteria was developed is patently unscientific and unacceptable.	FP-038
3	1306 et seq	The GSP asserts that "Historical water levels indicate that there is no overdraft and no long-term decline in water levels." As we have pointed out, the statement is false as shown by the 20 year decline in groundwater levels in Scott Valley found by DWR and displayed in their SGMA Tracker interactive map. The GSA uses this false claim to justify setting minimum thresholds at levels that will sustain and augmented undesirable results while allowing current rates of extraction to continue. They do this in order to maintain current levels of extraction. But the reality is that current extraction amounts cannot be maintained without producing undesirable results in violation of SGMA.	FP-039
3	1930	"No additional undesirable results have occurred since January 1, 2015 (Section 2.2.1.6)." The statement is false as shown by DWR's groundwater measurement and change database. As detailed in DWR's 2020 Groundwater Update, groundwater levels in Scott Valley have declined over the period 2000-2020, the period 2005-2020, 2010- 2020 and 2015-2020. What is it about this data that y'all don't get? The GSP is required to use the best available information. In this case that is DWR's groundwater data.	FP-040

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3	1950	"The portion of the Scott Valley Basin within the area included in the Scott River Stream System is not subject to SGMA." While the statement is true it is also true that Siskiyou County, the GSA, has the authority to manage groundwater anywhere within the county, including the Scott Adjudicated Groundwater Zone. Furthermore, SGMA instructs SisCo/the GSA to use that authority to prevent undesirable results. You have the ability and authority to manage groundwater, all y'all lack is the will.	FP-041
3	1989 et seq	The county seeks to avoid identifying target flows needed to avoid undesirable results to streamflow so that it can avoid responsibility for managing groundwater in order to meet those target flows. However, SisCo/the GSA has an affirmative responsibility to manage ground and surface water to meet the Forest Service right to flows in Scott River. The County/GSA has not met its responsibility but that does not negate the responsibility. SGMA requires use of the best information available to evaluate undesirable results to streamflow. Y'all have not done that and so major revision is needed in this section.	FP-042
3	2048	While its SGMA enforcement responsibilities are narrowly focused on groundwater extraction outside of the Adjudicated Zone, the GSA nevertheless has the authority to regulate all Scott Valley groundwater and can choose to do so in order to reverse undesirable results. Not managing for that purpose is, therefor, not a result of SGMA but rather a choice by SisCo, which is the GSA, to not manage groundwater to reverse the destruction of the beneficial uses of our river other and streams. Sad.	FP-043
3	2054	"For the sustainability indicator of Interconnected Surface Water (ISW), this GSP makes a distinction between Undesirable Result (which must be attributable to groundwater use outside of the Adjudicated Zone) and overall challenges related to insufficient environmental flows in Scott River." The	FP-044

		distinction does not prevent SisCo, which is the GSA, from managing all groundwater in order to avoid and reverse undesirable results of groundwater extraction. The decision not to manage is a free will choice that is an insult to those of use who love and depend on living rivers and streams.	FP-044 contd.
3	2065 et seq	Defining getting back to a healthy river as an "aspirational goal" is, as explained above, unnecessary, cynical and insulting. By it, the GSA shows its lack of concern for those citizens who depend on healthy stream ecosystems. Sad.	FP-045
3	2087 et seq	"The exact quantification of stream depletion that constitutes the Undesirable Result depends on a balancing test between public interest considerations and environmental improvements; that is, what is an "unreasonable" amount of stream depletion, which could be reframed as: what is a "reasonable" amount of avoided groundwater use?" While it "could" be reframed in that manner, it should not be reframed in that manner because that approach is backward. The amount of water necessary to maintain stream ecosystems and the fish within them in "good condition" is what "reasonable" and any amount less is "unreasonable." You must rely on the expert agency – DFW – to define minimum streamflow needs and they have done that. Y'all must manage to meet those flow or, alternately, the adjudicated flows. SisCo is the GSA and has the authority to manage in that manner. Trying to escape the responsibility will result in State Water Board taking over, that is, loss of local control.	FP-046
3	2174 et seq	"Due to the climbing-path, the minimum threshold of 15% stream depletion reversal only becomes enforceable under SGMA in 2042 and thereafter, when sustainable conditions must be achieved." Deferring addressing undesirable results to streamflow until 2042 is unacceptable because by then the salmon will be extirpated.	FP-047

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3		2211-2213	The GSA proposes to reverse undesirable results to streamflow "by the 'guiding' minimum PMA, Managed Aquifer Recharge and In-Lieu Recharge (MAR and ILR)." However, there is no analysis which indicates whether these means are capable of achieving the hoped-for result even by 2042. In fact, data and conclusions from the UCD/SVID MAR experiment indicate that those methods will not be effective in meeting the flow target. The GSA needs to take a close look at the UCD/SVID experiment and adjust its thinking in accord with the findings and conclusions drawn by the experts. MAR and ILR will not get the job done. What will? That is the question you are required to answer in the GSP.	FP-048
3		2210	We want a more rapid reversal of undesirable results to streamflow from groundwater extraction than is shown in Table 7. Needed changes are needed now; they have already been deferred for far too long.	FP-049
3	3.4.5.4		You are required to use the best available information to Establish Minimum Thresholds and Measurable Objectives. In the case of Scott flows that would be the most recent DFW streamflow needs assessment. Those must be the target flows and the GSA is required to manage in a manner that will achieve those flows as soon as possible but no later than 2042.	FP-050

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Scott Groundwater Sustainability Plan

Reviewer name: Felice Pace
Submission date:
GSP sections reviewed: Chapter 4 and 5

Chapter	Page	Section	Line/Table/Figure #	Comment (*please delete example text below once you submit*)
4			116-122	The draft states: "In Scott Valley, the PMAs are designed to achieve two major objectives related to the SMC: • to achieve the thresholds and objectives for the interconnected surface water sustainability indicator (Section 3.4.5); • to prevent the lowering of groundwater levels to protect wells from outages; • to preserve ground-water dependent ecosystems; and • to avoid additional stresses on interconnected surface water and their habitat." Because the SMCs are not in compliance with SGMA and its regulations, the PMAs defined in this chapter will not lead to sustainable management. Furthermore, the PMAs are not adequately defined and many are voluntary or not under the control of the GSA. Therefore, they are inadequate to achieve even the Draft GSA SMCs. The PMAs are so poorly defined that it is impossible to tell if implementing them would result in achieving even the inadequate SMCs. FP-051
4			172-174	The Draft states: "Using the Scott Valley Integrated Hydrogeological Model (SVIHM), the effectiveness of some projects, or a combination of projects, was assessed to identify FP-052

			those projects that, if implemented, will most likely bring the Basin into sustainability." For reasons noted in general comments, the SVIHM cannot be relied upon to properly evaluate PMAs. Therefore, the final GSP should use other, more reliable and proven criteria to recalculate the effectiveness of PMAs in meeting SMCs.	FP-052 contd.
4		178-179	"The ability to secure funding is an important component in the viability of implementing a particular PMA." The GSA has the responsibility of faithfully implementing SGMA whether or not "funding' is available to implement PMAs. Therefore, a compliant final GSA will identify those actions which are under the GSA's control which, based on good analysis, are likely to result in meeting the SMCs.	FP-053
4	8		"Avoiding Significant Increase of Total Net Groundwater Use from the Basin" This PMA means nothing because "significant" is not defined. That provides a loophole which SisCo and the GSA will use to allow increases in groundwater withdrawal for irrigation. Instead, to reverse the twenty year decline in groundwater levels and provide for additional domestic wells as the population grows, no new irrigation withdrawals should be allowed in the future.	FP-054
4		224	Table 1 PMA Summary Table: The PMAs in this table either have been tried already and failed to reduce groundwater declines or they rely on "voluntary' actions which can not be reasonably expected to occur. They are also, in the main, actions by other entities not controlled by the GSA. There is little or nothing in here that would allow the GSA to manage groundwater in a manner that reverses undesirable results. Therefore, the PMAs are not adequate and do not comply with SGMA and its regulations. The GSA must define PMAs	FP-055

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		which it can implement to address undesirable results and meet reasonable and SIGMA-compliant SMCs	FP-055 contd.
4	224	Upslope Water Yield Projects: This section ignores best science that finds that older forests protect and sustain favorable conditions of flow, that is, lower flood flows and greater baseflows. Instead, the PMAs the GSA contemplates would open the forest and lead to extensive sprouting and regeneration of small trees and brush. This will not only increased fire risk it will also increase flood flows and decrease base flows because it will lead to more and thirstier vegetation, except in the very shorty term (5-8 years). The GSA needs to rely on good science, not its political beliefs, to properly manage groundwater and comply with SGMA.	FP-056
4	224	The GSA proposes to "Reduce water use through voluntary managed land repurposing activities including term contracts, crop rotation, irrigated margin reduction, conservation easements, and other uses." Reducing groundwater use is needed but is very unlikely to happen through "voluntary" action. Therefore, this PMA is pie-in-the-sky. Voluntary land repurposing will not work; therefore, the GSA should define a PMA that is likely to be effective in significantly reducing groundwater use.	FP-057
4	224	Many of the proposed PMA's are unlikely to ever occur. An example is raising the level of wilderness lakes. It is not in compliance with the wilderness act and it is not going to happen. By listing PMAs that have already been tried and have not reduced water use or which, like irrigation efficiency, have already been implemented and can not save more water and others which are highly unlikely to occur, the GSA seeks to avoid providing what is needed: real regulatory action to reduce extraction and reverse undesirable results.	FP-058

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4	224	PMA's which have either already been tried and have proven not effective in reducing water use, increasing supply and reversing undesirable results include: MAR & ILR, Irrigation Efficiency Improvements, Beaver Dam Analogues, etc. The proposed PMAs are either already proven to be ineffective, infeasible for technical or legal reasons or contemplate vegetation management that will decrease water supplies, except in the very short term.	FP-059
4	224	The one action which could reduce groundwater extraction the most would be to ban those very large rainbirds on the end of center pivot irrigation equipment. Those big rainbirds wipe out the efficiency gains from the misters. The government should never have funded irrigation efficiency equipment that does not result in water savings or more efficient irrigation on balance. Make them reimburse the feds for the equipment if they refuse to remove the wasteful rainbirds that often end up irrigating the roads.	FP-060
4	297	TIER II: Planned Projects and Management Actions are all actions and activities which have either been in effect and have failed to reign in groundwater extraction or they are unlikely to ever occur for technical, cost and legal reasons. The rest are "voluntary." It is fine to ask for voluntary action but the GSA must also define other management actions which will effectively limit groundwater extraction if "voluntary" action continues to not get the job done.	FP-061
4	399-400	"A dynamic equilibrium already exists between the recharge across the Basin, groundwater pumping, and net discharge to the Scott River." This is a false statement. DWR data shows a decline in groundwater levels and storage over the past 20 years, the past ten years and the past five years. What is it about this data that the GSA does not get? It is clear. You've also continued to	FP-062

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			dewater streams. Maintaining the status quo does not comply with SGMA because it will continue and intensify undesirable results.	FP-062 contd.
4		413	It is good that the GSA is finally admitting what the data clearly show, that is, "Decreasing Recharge in or Runoff from the Surrounding Watershed" which is likely due to climate change and which the basin is already experiencing. But the draft GSP fails to address the future reality, preferring to stick its head in the sand so it will not have to act to restrain groundwater extraction. That meets the GSA's anti-government ideology but it does not comply with SGMA. If the GSA won't manage properly, the State Water Board will step in. Give us a responsible GSP so that we can retain local control.	FP-063
4		316	"Avoiding Significant Increase of Total Net Groundwater Use from the Basin": This is the main PMA but the discussion in the draft makes clear that the GSA has not and will not develop and use the mechanisms necessary to get the job done.	FP-064
4		444	"Collaboration with Permitting and Regulatory Agencies" is used in the draft GSP to attempt to cover the GSA's refusal to take regulatory action when needed to reverse undesirable results that have already occurred and to stem increases in undesirable results. Collaboration used as an excuse for inaction is despicable.	FP-065
4		640	PMA: "Scott Valley Managed Aquifer Recharge Project": both the limited experiment that has been conducted and the SVIHM show that this PMA has a very limited ability to reduce or prevent undesirable results. Those facts ought to be acknowledged in the GSA.	FP-066

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4	995-1042	Raising wilderness lakes and building a new dam and reservoir in the Scott River Basin face regulatory, political and funding challenges that render them highly unlikely or infeasible. Therefore they should be dropped. The GSA should stop indulging its pie-in-the-sky ideological hopes and get down to the business of regulating groundwater extraction.	FP-067
4	1052	"Strategic Groundwater Pumping Curtailment": curtailment is needed now to reverse the groundwater declines of the past 20 years which have dewatered streams and domestic wells. This should be done in an equitable manner. Delay, as proposed in the draft GSP, is not acceptable.	FP-068
4	1135	"Voluntary Well Metering": this is just one among the many "voluntary" PMAs. Like the others it is unlikely to be effective and the GSA knows ity. Therefore, this is just an attempt to use "voluntary" to avoid responsibility under SGMA. It will not work. Instead it will result in loss of local control, the State Water Board taking over groundwater management.	FP-069

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Review Form

Scott Groundwater Sustainability Plan

9/23/21

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Comments on the DRAFT Scott Valley Groundwater Sustainability Plan

Mr. Parker,

DATA CONCERNS

- The GSP lacks information (specifically wells, location, and area of use) delineating adjudicated from non-adjudicated groundwater use. WF-001 Choropleth maps are insufficient. Why is this important? SGMA specifically excludes the GW adjudicated area from the requirements. This lack of accurate information will incur the following significant challenges for GSA/GSP implementation and support:
    - True water balance and impacts from implementing certain PMAs cannot be accurately calculated.
    - Permitting of wells will be difficult for Environmental Health if there is a question of adjudicated vs. non-adjudicated use. A parcel layer that corresponds to the adjudication map should be an incorporated GIS layer.
    - The county cannot accurately annually report for the adjudicated area (as required by water code) without accurate data.
    - The GSP does incorporate the gw basin in form but not from a legal perspective. The reality of addressing use and assessment of PMAs will require accurate data to measure compliance and effectiveness of both the adjudicated and non-adjudicated areas as delineated by SGMA and the adjudication itself. Lack of accurate data inevitably puts the entire adjudication at risk of being challenged by a third party.

- Accurate data for the gw adjudicated area would allow the users that are legally separate from GSA oversight to better utilize the GSP as an accurate information tool in the event of a third-party legal challenge or grant/water trust actions that may become useful in the future.
- Since the GSP plans on using a "step up approach" as per incorporating PMAs that actually differentiate the adjudicated and non-adjudicated areas this data inclusion is relevant now and cannot be pushed to the five year evaluation/revision.

- Recent curtailments by the SWRCB should demonstrate to all water users in Scott Valley and the GSA the use of both surface and groundwater is intertwined both figuratively and regulatorily. Incorporating surface water data with diversions and use into the GSP will permit better modeling and successful recharge projects. WF-002
- Both gw and surface water use GIS layers could have been easily developed as described in comments submitted over two years ago. The same process will work today. Eventually the GSA and adjudicated users will recognize why this data is needed. The GSP can be a tool for proactive problem solving rather than reactive if sufficient data is available.
- In this day and age data is going to be developed with or without you. At least if you do it a better degree of accuracy can be maintained.

FINANCIAL CONCERNS

- From the start no economic analysis has ever been done by the county for acceptance of GSA responsibilities. This has resulted in no truth in cost of implementation of the GSP and potential incurred financial responsibilities for groundwater users. WF-003 This oversight deafened the GSP development outreach process since the beginning. The county recognized the potential legal and financial risk posed by becoming a GSA and implementation of the GSP thus has separated the Flood Control District (essentially the GSA) from financial support from the general fund by resolution. This severance puts the operation of the GSA grant dependent and/or fee supported. Reliance on grant funding for the operational support of the GSA is risky financial

planning which will inevitably result in fee development. This financial separation and lack of financial planning will result in problems:

- In the event the GSA needs to charge fees for operational support the fees will be easily subject to a legal challenge due to a lack of direct correlation between fees and performed services.
- How does the county justify potentially incurring GSA operational cost to a small number of water users for programs/actions that are not directly connected or wholly responsible of the rate payer? For example: The county moved the CASGEM program to the GSA from Environmental Health. This action is fine, but the CASGEM legislation prevented the charging of fees for implementation. Without general fund support an inequity exists if this cost will be passed on to a handful of water users via a fee through the GSP implementation process.
- How is the county going to justify the GSA reporting water use for the adjudicated area (which is a service) at no cost? The continued reporting for the adjudicated area is fine if funding is not fee supported.
- No Flood Control District bylaws or policies have been developed that separates or incorporates financial responsibility between groundwater basins. For example, if a legal suit challenged the Tulelake GSP, who is responsible? Tulelake water users? TID? Modoc County? As written or lack of, maybe all water users regulated by the responsible GSAs will be responsible? Siskiyou County has a great amount of experience with the cost of litigation revolving around water. There is no way a small number of water users in an entirely different GW basin under the same GSA could cover those cost. Financial structure and responsibility needs addressed at the county and GSA level. Looking ahead, locally in the Scott Valley, how is any challenge to the adjudication going to be covered? The GSP describes the lack of authority of the adjudicated gw area to great extent. Is this really the best approach for the entire adjudication and the basin as a whole? The future adjudicated gw area may regret not getting a legislation amendment for coverage of the GSP.

WF-004

- The financial challenges are real and not easy to predict but some form of financial planning should have taken place and still needs to be addressed prior to submittal to the State. Good financial policies/bylaws should be determined for future guidance and risk aversion to potential litigation. This also creates a platform for transparency in the event fees are required. WF-005

MONITORING

- Groundwater water quality data should have the option for field instrumentation for nitrate and specific conductivity rather than lab use every time. A simple threshold could require lab testing. Otherwise, field instrumentation is adequate and cost effective. Nothing in SGMA prevents this option for water quality monitoring. WF-006
- Concern that the GSA will be required to compile multiple water quality results from many different entities. This is duplicative, costly, and inefficient. A solution would be to ask entities that take water samples forward them to the GSA upon exceedance of an MCL from an identified constituent of concern. To much data from too many locations, from different times, will be noisy data and provide little useful information as relevance to the GSP. It is important to note that a handful of users should not bear the burden of excessive data collection to satisfy other water quality programs. WF-007
- The plan identifies areas such as "livestock unloading" for potential monitoring areas. Where is the correlation from groundwater extractor (thus fee payer) and livestock land use correlating to water quality? The data desire is there, but don't mix program requirements to the extent it becomes cost prohibitive or lacks other funding presenting a Prop 218 issue. WF-008
- The GSP doesn't explain well enough how gw elevation data is not useful as a tool for stream interaction from gw extraction. Further explanation is needed. Chapter three rather jumps to PMAs and pumping curtailments outside the adjudicated zone from surface flow measurements a great distance away (miles in most cases). A previous presentation to the Board of Supervisors surrounding the Public Trust Doctrine issue and well permitting talked about a model (developed by Larry Walker and Associates and Laura Foglia) that augmented an integrated hydrologic model of the WF-009

Scott River area and created a Stream Depletion Function Map of the Scott Valley. This model is not perfect but why is this not utilized in chapter three? Chapter three is quick to penalize non-adjudication zone pumpers that are miles from the point of a surface water measure in the river. The stream depletion methodology will at least allow a decision matrix based on distance thus potentially achieving a measurable result from a required curtailment. In fact, this should be a tool that should be utilized by the SWRCB for the current late season curtailments that will have NO measurable impact to down river instream flows that are miles away. This plan should not emulate the SWRCB decision making tree and create a one size fits all standard based on a single downstream measurement that most do not significantly impact.

WF-009 contd.

OPERATION

- The GSP lacks an operational component. It appears to be set in a fashion that will continuously require hired consultation to update and operate. No mention of training, GIS requirements, or staff qualifications.
- Does the GSA have the capability to use, update, and modify the SVIHM? In other words, is it an open GIS platform?

WF-010

WF-011

Sincerely,

Warren Farnam

COUNTY OF SISKIYOU

Flood Control & Water Conservation District

Please send your comments no later than COB September 26, 2021.

Reviewer name: Theodora Johnson, Paul Sweezey, Lauren Sweezey, Dave Johnson, Paul Dowling, Taylor Dowling, Karin Newton, Everett Dowling, Allen Dowling, Sam Thackeray, Jennifer Thackeray, Doug Jenner, Gail Jenner, Shelene Johnson, Lynda Beverlin, Mark Johnson, Roy Johnson, Tom Hayden, Alan Piersall, Melissa Johnson, Clara Johnson, Jim Johnson, Matt Johnson, John Burrone, Charles Martin, Charlie Hayden, Frank Hayden, Connor Martin, Rick Hayden, Cheryl Hayden, Bernard Dowling, Beverly Dowling, Tim Johnson, Michele Johnson, Carl Hammond, Jr., Robert Bartnek, Curtis Sweezey, Brittney Sweezey, Jaclyn Boyce, Carolyn Pimentel, Tim McNames, Judy McNames

Submission date:
GSP sections reviewed: Ch 1-4

Chapter, Page & Line number	Suggested revision
Comment overview	Please note, comments were submitted on the first draft of the GSP by the abovementioned 42 commentors. Most of these individuals are Scott Valley farmers and ranchers who will be directly affected by this GSP. Yet, our comments were largely ignored in the latest iteration of the GSP. The below comments are largely copied and pasted from the original comments. One thing, however, is different in this draft: our name. Scott Valley is called just that—Scott Valley, not "Scott River Valley." Please remove all such references. Renaming our valley is an insult to our residents and an erasure our history. A primary goal of this GSP should be to preserve and protect agriculture. The people who live in Scott Valley love it. Why is this place so special? It's beautiful, clean, rural, and safe. We know our neighbors because we've been able to establish deep roots in agriculture. Without agriculture, what would Scott Valley be? We have an obligation to allow our kids the opportunity to pursue the productive and honorable trade of agriculture, just as we have. The importance of agriculture to our nation's health and security need not be explained. Yet we must recognize that, on a local level, agriculture is just as crucial. We must protect it in order to preserve Scott Valley as we know and love it. Benefiting agriculture and fish can be done by increasing our water supply—or, more appropriately, holding onto our water supply. **During 7 to 10 days of high spring flows, enough water flows out of the valley to supply all of Scott Valley's farmers and ranchers with the water they need for the**

TJ-001

whole irrigation season. We must implement water storage projects, both above- and below-ground, in order to hold onto that water. This will benefit ALL beneficial users in Scott Valley.

Any project that puts increased regulatory burden on agriculture should not be considered in this plan. SGMA does not require punitive measures; the law simply asks the GSA to address groundwater quality and supply issues. Water storage measures are included in SGMA and therefore are attainable. TJ-001 contd.

Proposals to turn off pumps and repurpose land away from agriculture will do damage to our economy, culture, and environment. Fallowed fields generally make bad neighbors: hotbeds for noxious weeds and fire danger. The more we discourage farmers and ranchers from being productive, the more we invite subdivisions and urban sprawl. Also, by discouraging above-board productivity, we inadvertently encourage below-board, illegal activities such as marijuana cultivation, which is dangerous to our citizens and damaging to our environment--including water quality.

Furthermore, adding damaging regulations will invite a "snitch" culture where people turn in their neighbors for trying to be productive, care for their land, and provide for their families. Regulations that go against human nature will only cause conflict. We who live in Scott Valley must stand firm against any proposals to divide us and transform our landscape and culture away from agriculture.

Again, SGMA allows for a wide variety of projects and management actions and does not mandate the use of punitive regulations.

Please see the attached flyer that has been circulating with Scott Valley residents since mid-April. It encourages water storage, groundwater recharge, fish-friendly structures, and other projects and opposes well metering, fees and fines for water use, and forced pump turn-off dates.

It's been stated by more than one member of the Advisory Committee that this GSP development process "felt like a runaway train." Productive ideas that have had support from almost the entire committee—if not the entire committee—have been given very little attention by the Tech Team. It's time to put this plan back on track so that it suits the needs of Scott Valley.

Detailed comments:	
Executive Summary p 8	**As noted above, we lose most of our water as flow down the river and to the ocean:** "Annual outflow from the Basin occurs largely as Scott River flow exiting the Basin to the northwest (ranging -689 to -85 TAF, median of -292), though a significant portion leaves as ET (-130 to -90 TAF, median of -112)." TJ-002

Exec Summ p 11	This GSP relegates our most promising water storage projects to "Tier III" implementation—meaning "Additional PMAs that may be implemented in the future, as necessary 284 (initiation and/or implementation 2027–2042)." Meanwhile, "Tier II" projects have concrete plans to start right away. One of those projects, "voluntary managed land repurposing," is problematic for Scott Valley. Removing ag land from the equation means our kids will have lower chances of continuing our farming and ranching tradition. What will take its place?
Ch 1 p 6	"Consensus building is a foundational principle of all committee discussions, and membership is intended to reflect the diversity of beneficial groundwater uses and users in Scott Valley." **Comment: It can't be said that every PMA listed has consensus among AC members. On numerous occasions, members of the irrigation ad hoc committee have voiced their disapproval of proposals to turn off pumps, yet that option remains in the plan.** **Furthermore, the Tech Team held separate "ad hoc" committee meetings but never provided the full AC with an opportunity to meet in-person to find common ground. The subcommittees seemed to be working in silos.** **To the question of whether the AC represents the diversity of Scott Valley, it should be noted that cattle producers are not represented on the Committee, even though they represent a sizeable portion of the valley's economy, affected land area, and culture.**
Ch 1 p 7	"The final section of the C&E Plan describes outreach strategies which the local GSA employs to effectively advance SGMA implementation. Specific tools and forums include the following: • Advisory committee meetings • Constituent briefings with local organizations • Tribal engagement • Public meetings and workshops • GSA Board meetings • Coordination with local resource conservation districts • Coordination with state and federal agencies • Integration of relevant studies and materials • Interested parties list • Informational materials • County SGMA website • Local media and public service announcements" **Comment: The listed public outreach goals have, unfortunately, not been met. A very important group of stakeholders—landowners who use enough water to be affected by SGMA regulations—has been largely unaware of the GSA's activities to date, and until very recently has not been educated about SGMA. "Broad stakeholder input and feedback" has not been happening, at least among Scott Valley's farmers and ranchers.**

TJ-003

TJ-004

TJ-005

	The excuse of "COVID" should not prevent our affected stakeholders from having meaningful engagement in this process. Zoom meetings led by the Tech Team do not constitute an open, accessible forum for most farmers and ranchers. Most of the "meetings" were held in the middle of the work day. In-person meetings should be held, at times convenient for farmers and ranchers.
Ch 2 p 37	"The [Scott Valley Area Plan] includes multiple goals and policies that align with those in the GSP. Specifically, the focus on managing growth in a sustainable way while protecting priority agricultural lands and natural resources is an overarching theme in both the SVAP and the GSP." **Comment: The SVAP is explicit about protecting agricultural land. The GSP draft should explicitly protect ag, as well. (This comment was also made in the first draft, which means "agriculture" was deliberately left out. Why?)**
Ch 2 p 42	"The Valley and headwater tributaries of the mountains surrounding Scott Valley provide key spawning and rearing habitat for native anadromous fish species, including Oncorhynchus tschawytscha (Chinook salmon), Oncorhynchus kisutch (coho salmon) and Oncorhynchus mykiss (steelhead trout). Coho salmon in the Southern Oregon Northern California Coast Evolutionary Significant Unit (SONCC ESU) are listed as threatened at both the federal and state levels (NCRWQCB 2005)." **Comment: It should be noted that the Scott has never been prime habitat for coho. We are at the very bottom of the coho's natural range. Coho are harvested in great numbers off the coast of Alaska. This assertion is supported by the Shasta Indian tribe, which has stated that the Klamath (and by extension the Scott) is, "since time immemorial," historically unfit for coho. Additionally, a CDFW publication from 2007 refers to coho as a coastal fish that doesn't like to spawn farther than 20 miles inland (California Finfish and Shellfish Identification Book - a companion guide to the California Fishing Passport, California Department of Fish and Game, 2007).** **It should further be noted that the Chinook is also harvested commercially in the northern Pacific.** **Both Coho and Chinook populations are affected by many factors, such as gill netting (some Yuroks say they "don't know how a single fish gets up the river"); predation at the mouth of the Klamath; oceanic decadal oscillation; and more. This SGMA process must not be used as a weapon to target groundwater pumping when in fact many variables affect these species.**

TJ-005 contd.

TJ-006

TJ-008

Ch 2 p 76	"Identification of Groundwater Dependent Ecosystems". This section is troubling. No agricultural members of the Advisory Committee were invited to join the "Surface Water" subcommittee that helped create this section. Nor were ag members given a very clear picture of what the Surface Water subcommittee was doing. TJ-009 Meanwhile, the Surface Water subcommittee was doing some pretty major things: "The group was created to assist with the identification of high-priority habitat, define a healthy hydrologic system in the Basin, and define metrics indicative of ecosystem health to assist in the definition of measurable objectives, undesirable results, and associated monitoring activities." Clearly, these important aspects should have had the entire Advisory Committee's consultation. This does not appear to have been the case. It seems the drafters of the GSP expected some blowback on this. On page 81, the GSP states, "A total of seven meetings [of the Surface Water subcommittee] were held between February 2020 and March 2021." No other subcommittee meetings were documented this way in the GSP. This seems to be an attempt to legitimize the somewhat cover-of-darkness process by which this section was developed. Some details about GDEs that should be addressed are: - Maps: Presence of a GDE on one's property seems as though it could have real ramifications. The GDE map on p 81 lacks any detail. Landowners should be able to see whether they are a target of extra scrutiny. - In two instances (western pond turtle and yellow-legged frog, p 85), the language points explicitly to "groundwater pumping" as potentially damaging. This is inappropriate. The main threat is drought. Placing blame on pumping implies the GSA's intent to curtail pumping. This is not necessary; we should pursue supply-side projects, which would alleviate the potential threats to these species.
Ch 2 p 131	"For the Scott Valley, the sustainable yield is equal to the 28 year average groundwater pumping of 42 thousand acre-feet per year minus any future reduction in groundwater pumping resulting from the implementation of project and management actions (see Chapter 4)…" **This should be removed. Reductions of groundwater pumping should not be part of the GSP. As noted in numerous instances, there is no overdraft of water in Scott Valley, unlike some other basins developing GSPs. (Example: "Historical** TJ-010

	water levels indicate that there is no overdraft and no long-term decline in water levels" in Scott Valley (Ch 3 p 41).)	TJ-010 contd.
Ch 3 p. 25	"The GSA plans to collaborate with other entities to add monitoring locations to fill data gaps." **Comment: The GSA should make clear that it will only accept verifiable data. Trust could become an issue for the public with the GSA accepting data from third parties.**	TJ-011
Chr. 3 p 59	"that is, what is an "unreasonable" amount of streamflow depletion, which could be reframed as: what is a "reasonable" amount of avoided groundwater use?" **Comment: The latter question is flawed. Streamflow depletion reversal should be achieved by <u>adding water</u> to the equation, not by cutting back on current use (unless voluntary irrigation efficiencies are made).**	TJ-012
Ch. 3 p. 60	"The MAR-ILR scenarios, once fully implemented, provide a relative streamflow depletion reversal that averages 19% during September–November…" **Comment: I support this PMA but I am concerned 19% may be a high estimate. How many of the landowners in the proposed areas have been contacted to see if it will work for them? Also, more detailed maps than what's available in Appendix 4a would be helpful.**	TJ-013
Ch. 3 p. 61	"The average relative stream depletion reversal of the implemented PMAs during September–November must exceed 15% of the depletion caused by groundwater pumping from outside the adjudicated zone in 2042 and thereafter." **Comment: Since this self-imposed percentage is in bold and is so specific, the GSP should give a brief explanation of how it was arrived at.**	TJ-014
Ch 3 p 61	**These five-year goals for stream depletion reversal (5% by 2027, 10% by 2032, 15% by 2037) may need to be revised in order to accommodate the less expedient but more beneficial supply-side projects, such as reservoir-building and MAR/ILR.**	TJ-015
Ch. 3 p 64	"This explicit linkage between the measurable objective with the aspirational watershed goal also provides flexibility for compliance with potential future regulations or actions, in an integrated water management approach." **Comment: Agreed. As such, we should be proposing projects related to water storage, groundwater recharge, and instream structures to slow the flow. Regulatory hurdles, while inevitable, should not be used as a reason not to pursue these worthy projects. They are they only projects that will help achieve our groundwater goals without doing economic harm to a large swath of Scott Valley's farmers and ranchers.**	TJ-016
Ch 3 p 66	"Seasonal pumping restrictions in the non-Adjudicated Zone. • Voluntary pumping restrictions in the Adjudicated Zone. • Conservation easements that would limit irrigation in some or all water years."	TJ-017

	Comment: These demand-side "solutions" will likely have undesirable results for Scott Valley's economy and environment and should be removed. Pumping restrictions will result in economic hardship, which could result in the forced sale of farms and ranches. Those properties would be divided into the smallest possible acreages, resulting in a denser population. Pressure would inevitably mount to revise the SV Area Plan to allow prime ag land to be subdivided into smaller pieces. TJ-017 contd. **Fields that are not watered will be overtaken by invasive weeds (dyer's woad, star thistle, etc). Therefore, ranches with conservation easements for non-irrigation will become bad neighbors: weed factories and fire hazards. (Note: language throughout Appendix 4a indicates that non-irrigated land will return to "native vegetation." This is not accurate. Circumstances have changed over the past 100 years: we have more drought and better drainage. "Native" vegetation will not reestablish itself. Without irrigation, invasive weeds will replace crops.)**
Ch. 4 p 5	"Under the Sustainable Groundwater Management Implementation Grant Program Proposition 68, grants can be awarded for planning activities and for projects with a capital improvement component. As such, state funds for reimbursing landowners for implementation of PMAs, including land fallowing and well-shut offs, currently cannot be obtained under this program." **Comment: This funding issue speaks to the point that productive projects such as water storage should be pursued, while land fallowing and well shut-offs should be avoided.** TJ-018
Ch 4 p 7	Table I PMA Summary Table. **Comment: Many promising ideas were proposed to the Tech Team to be included as Tier II or Tier III projects, with strong support from a sound majority of the Advisory Committee. Instead of including them in this table, those ideas were relegated to the last page of this report, with the reasoning that they "have not yet been investigated." Those proposals include: a study of the tailings for groundwater storage; recharge weirs; fish-friendly structures to decrease flow rates in Scott River and its tributaries; construction of a clay dam or permeable plug at the lower end of Scott Valley; and direct addition of water to the river during periods of low flow.** TJ-019 **It's hard to believe that none of these proposals have been investigated enough to put in the Tier II or III categories.** **Other PMAs listed in this table are addressed below.**

Ch 4 p 13	"Avoiding Significant Increase of Total Net Groundwater Use from the Basin." **Comment: Although this MA does propose significant regulations on new wells, it may be appropriate to avoid overdrafts in the Valley. It embodies the principle of "first in time, first in right," which has long been used in California water law.**	TJ-020
Ch 4. P 13 line 350	"[No net increase in groundwater use] can be achieved through exchanges, conservation easements, and other voluntary market mechanisms." **The GSA should be mindful of unintended consequences. For example, a market exchange, which is explored in more detail on p 19, could in fact encourage urban development of ag ground.**	TJ-021
Ch 4. P 19 cutout	"Market instruments" cutout. **Comment: This troubling passage seems to encourage the conversion of ag land to urban development, because urban land uses less water. The example in the cutout even goes so far as to allow development of "natural lands" after a city buys out ag land—because now the city has "credits" for using less water than the ag land did. This entire section epitomizes tone-deafness and should be removed.**	TJ-022
Ch. 4 p 21	"Beaver Dam Analogues." **Comment: this section should be expanded to include other fish-friendly structures to slow the flow of the mainstem and tributaries for aquifer recharge. This concept has the support of many landowners along the river. I am told that BDAs (in some form) were used on the mainstem of the Scott several years ago and that the project successfully raised the water table. This is not mentioned in the draft.** **Other fish-friendly structures could include inflatable bladders: rubber dams that can quickly be inflated or deflated as needed. Thousands of these are used all over the world, with decades of success. In some cases, aquifer recharge is the sole purpose (e.g., the Santa Ana Inflatable Rubber Dam Project, which supplies 100,000 Orange County residents with water each year.)** **Recharge weirs, while more permanent and potentially damaging to surrounding fields during high water events, are also used around the world to recharge aquifers. They can be designed to allow fish passage.**	TJ-023
Ch 4 p 22	Upslope water yield projects. **The "Green infrastructure" proposal is good and could be expanded. Clearing conifers, juniper, and brush all has potential to do good for the watershed, on both private and public land. By including such projects in this proposal, the GSA can encourage and partake in federal and private projects.**	TJ-024
Ch 4 p 23	"Irrigation Efficiency Improvements". **Comments: As this PMA is fleshed out, the GSA should take care not to punish those who have already**	TJ-025

	upgraded and invested in efficient systems, while antiquated systems get the grants. Perhaps the only fair way to go is a "First come, first serve" application system. **This section merits more attention. While it claims that stream depletion is reversed by 4, 12 and -2 percent based on different scenarios, it doesn't describe what those scenarios are (nor does Appendix 4-A, which is referenced for more info). While irrigation efficiencies could hold potential for depletion reversal, this PMA seems to be glazed over when compared to more punitive options, such as pump turn-offs.**	TJ-025 contd.
Ch 4 p 28	"Voluntary Land Repurposing". **Comment: This PMA should be used with extreme caution. From the perspective of a cattle producer, set-aside programs restrict the availability of pasture. Some would characterize term contracts, easements, etc. as "private decisions" by landowners. However, when government is offering incentives for such decisions, the concept of "free-market decisions" doesn't apply. Our local economy and culture will be affected in unforeseen ways when productive ag ground is set aside**.	TJ-026
Ch 4 p 28	"Irrigated Margin Reduction." **Comment: This is another example of a program that will require enforcement, and will likely result in citizen-police who turn in their neighbors for following their natural instinct of trying to be productive.**	TJ-027
Ch 4 p 29	"Crop Support: To support crop rotation, particularly for grain crops, access to crop support programs may be important to ensure that this option is economically viable." **Comment: This seems to rely on a federal program over which the GSA has no control. Rather than focusing on such weak possibilities, the GSP should focus on local, on-the-ground supply-side projects to increase the water table.**	TJ-028
Ch 4 p 29 line 841	"For example, a corner of a field may be well suited for wildlife habitat, or solar panels or water storage." **Comment: The concept of pivot corners as reservoirs was brought up by a local rancher and merits attention. "Wildlife habitat" is more likely to be noxious weeds, which farmers will have to try to beat back from encroaching on their crops. Solar panels would require considerable infrastructure at great expense. Ponds, on the other hand, are relatively inexpensive to build and could contribute to groundwater recharge.**	TJ-029
Ch 4 p 30	"Tier III: Potential Future Project and Management Actions". **Comment: Some of these PMAs should not be relegated to Tier III. "Potential future" PMAs sends the clear message that these projects are not priorities, even though they are the least damaging and most promising for actually increasing the water table. Although they may take time to implement, these PMAs should be acted on immediately. (Examples: High mountain lake storage; MAR/ILR; reservoirs)**	TJ-030

Ch 4 p 30	"Alternative, lower ET crops." **This section may have some potential; however, funding dedicated to research on this topic should be minimal. Farmers and ranchers are quite aware of which crops have a market in our region. Assuming grants are in limited supply, we have plenty of other supply-side projects that merit funding.**	TJ-031
Ch 4 p 31	"Floodplain reconnection/expansion." **This section ties in with the concept of slowing the river/tributaries. For willing landowners, this holds potential to slow the flow and increase the water table. Conversations with landowners should be pursued. In this case, limited conservation easements may be appropriate.**	TJ-032
Ch 4 p 32	"High Mountain Lakes - This potential project class supports the restoration or modification of high-altitude lakes…." **Comment: Rather than referring to this PMA as "potential," it should be pursued immediately. Also, is it possible to include what percentage of depletion reversal would be gained from the 3,500 AF of storage? Using the metric used on other PMAs would be helpful.**	TJ-033
Ch 4 p 33	"Reservoirs….Still in the conceptualization phase, details of a reservoir project have not yet been confirmed." **Comment: This sentence insinuates a lack of interest in this PMA on the part of the GSA. This is perhaps the most promising PMA when it comes to benefits to all, and yet the topic is given one-half of one page in this chapter. Meanwhile, there are empty ponds and reservoirs that already exist in the valley, which could be used right away (albeit permitting may be required). As for potential future reservoirs, has anyone asked the landowners in those areas for their opinions? Why has this project been relegated to "Tier III" when all the most damaging options – turning off irrigation and repurposing ag ground—have had reams of research done on them?** **Several landowners have indicated they have ponds available. A survey should be conducted to assess how many existing ponds there are, and how many landowners would be willing to have new ones built on their land. Several locals have talked about using the dredger tailings and ponds to store even more water than they do now.**	TJ-034
Ch 4 p 33	"Strategic Groundwater Pumping Curtailment" **Comment: This section should be removed. This valley is not in an overdraft, and the GSP is on course to prevent that from happening without implementing any pump turn-offs. Including pump shut-offs as a potential future tool will result in pressure to use that tool. The mechanism should be removed entirely.**	TJ-035

Attachment C – Scott Valley Groundwater Sustainability Plan Comment and Comment Response Matrix

Author	CIN	Group	Sub- Category	Description	Code/ Regulation	Chapter	Page	Section	Line/ Table/ Figure #	Comment	Response / Recommended Action (MCR only)	Response/ Recommended Action
Bernard and Beverly Dowling	BBD-001	C	GE	General Comment		Overview				Please note, we were among 42 farmers and ranchers who submitted comments on the first draft. Our comments were largely ignored in the latest iteration of the GSP. The below comments are largely copied and pasted from the original comments.	MCR-26	Noted. No response needed.
Bernard and Beverly Dowling	BBD-002	C	GE	Basin Name		Overview				One thing, however, is different in this draft: our name. Scott Valley is called just that—Scott Valley, not "Scott River Valley." Please remove all such references. Renaming our valley is an insult to our residents and an erasure our history.		Scott River Valley Groundwater Basin is the name used by DWR in Bulletin 118. The in-text references have been changed to "Scott Valley" and the name used by DWR in Bulletin 118 is included in a footnote.
Bernard and Beverly Dowling	BBD-003	C	GE	GSP Goal		Overview				A primary goal of this GSP should be to preserve and protect agriculture. The people who live in Scott Valley love it. Why is this place so special? It's beautiful, clean, rural, and safe. We know our neighbors because we've been able to establish deep roots in agriculture. Without agriculture, what would Scott Valley be? We have an obligation to allow our kids the opportunity to pursue the productive and honorable trade of agriculture, just as we have. The importance of agriculture to our nation's health and security need not be explained. Yet we must recognize that, on a local level, agriculture is just as crucial. We must protect it in order to preserve Scott Valley as we know and love it.	MCR-26	Noted. No response needed.
Bernard and Beverly Dowling	BBD-004	C	PM	Projects and Management Actions		Overview				Benefiting agriculture and fish can be done by increasing our water supply—or, more appropriately, holding onto our water supply. **During 7 to 10 days of high spring flows, enough water flows out of the valley to supply all of Scott Valley's farmers and ranchers with the water they need for the whole irrigation season.** We must implement water storage projects, both above- and below-ground, in order to hold onto that water. This will benefit ALL beneficial users in Scott Valley.	MCR-26	Noted. No response needed.
Bernard and Beverly Dowling	BBD-005	C	PM	Management Actions		Overview				Any project that puts increased regulatory burden on agriculture should not be considered in this plan. SGMA does not require punitive measures; the law simply asks the GSA to address groundwater quality and supply issues. Water storage measures are included in SGMA and therefore are attainable.	MCR-1	Water storage measures will be considered under the proposed GSP.
Bernard and Beverly Dowling	BBD-006	C	GE	General Comment		Overview				Proposals to turn off pumps and repurpose land away from agriculture will do damage to our economy, culture, and environment. Fallowed fields generally make bad neighbors: hotbeds for noxious weeds and fire danger. The more we discourage farmers and ranchers from being productive, the more we invite subdivisions and urban sprawl. Also, by discouraging above-board productivity, we inadvertently encourage below-board, illegal activities such as marijuana cultivation, which is dangerous to our citizens and damaging to our environment--including water quality.	MCR-2	GSP language includes measures to prevent stated concerns.
Bernard and Beverly Dowling	BBD-007	C	GE	General Comment		Overview				Furthermore, adding damaging regulations will invite a "snitch" culture where people turn in their neighbors for trying to be productive, care for their land, and provide for their families. Regulations that go against human nature will only cause conflict. We who live in Scott Valley must stand firm against any proposals to divide us and transform our landscape and culture away from agriculture.	MCR-26	Noted. No response needed.
Bernard and Beverly Dowling	BBD-008	C	PM	Management Actions		Overview				Again, SGMA allows for a wide variety of projects and management actions and does not mandate the use of punitive regulations.	MCR-26	Noted. No response needed.
Bernard and Beverly Dowling	BBD-009	C	GE	General Comment, Public Outreach, Projects and Management Actions		Overview				Please see the attached flyer that has been circulating with Scott Valley residents since mid-April. It encourages water storage, groundwater recharge, fish-friendly structures, and other projects and opposes well metering, fees and fines for water use, and forced pump turn-off dates.	MCR-26	Noted. No response needed.
Bernard and Beverly Dowling	BBD-010	C	GE	General Comment, Advisory Committee Process		Overview				It's been stated by more than one member of the Advisory Committee that this GSP development process "felt like a runaway train." Productive ideas that have had support from almost the entire committee—if not the entire committee—have been given very little attention by the Tech Team. It's time to put this plan back on track so that it suits the needs of Scott Valley.	MCR-26	Noted. No response needed.
Bernard and Beverly Dowling	BBD-011	C	GE	General Comment		Executive Summary				**As noted above, we lose most of our water as flow down the river and to the ocean:** "Annual outflow from the Basin occurs largely as Scott River flow exiting the Basin to the northwest (ranging -689 to -85 TAF, median of -292), though a significant portion leaves as ET (-130 to -90 TAF, median of -112)."	MCR-26	Noted. No response needed.
Bernard and Beverly Dowling	BBD-012	C	PM	Management Actions - Implementation and Prioritization		Executive Summary	11			This GSP relegates our most promising water storage projects to "Tier III" implementation—meaning "Additional PMAs that may be implemented in the future, as necessary 284 (initiation and/or implementation 2027–2042)." Meanwhile, "Tier II" projects have concrete plans to start right away. One of those projects, "voluntary managed land repurposing," is problematic for Scott Valley. Removing ag land from the equation means our kids will have lower chances of continuing our farming and ranching tradition. What will take its place?	MCR-2	MCR-2
Bernard and Beverly Dowling	BBD-013	C	GE	GSP Development, public outreach		1	6			"Consensus building is a foundational principle of all committee discussions, and membership is intended to reflect the diversity of beneficial groundwater uses and users in Scott Valley." **Comment: It can't be said that every PMA listed has consensus among AC members. On numerous occasions, members of the irrigation ad hoc committee have voiced their disapproval of proposals to turn off pumps, yet that option remains in the plan.** **Furthermore, the Tech Team held separate "ad hoc" committee meetings but never provided the full AC with an opportunity to meet in-person to find common ground. The subcommittees seemed to be working in silos.** **To the question of whether the AC represents the diversity of Scott Valley, it should be noted that cattle producers are not represented on the Committee, even though they represent a sizeable portion of the valley's economy, affected land area, and culture.**		PMAs were reviewed with the entire committee at multiple Advisory Committee meetings and Advisory Committee members had an opportunity to review and provide feedback on Chapter 4 of the GSP prior to the public draft version. Opposition to pumping curtailments has been voiced and it has been discussed and decided that this action should be prioritized as a "final result" type action and only implemented if all other defined PMAs have been implemented and groundwater management thresholds can still not be met. Ad hoc committees were formed as stipulated in the Scott Valley Advisory Committee Charter. Outcomes and action items from Ad hoc committee meetings were reported out to the Advisory Committee.
Bernard and Beverly Dowling	BBD-014	C	PO	C&E Plan, Public Outreach		1	7			"The final section of the C&E Plan describes outreach strategies which the local GSA employs to effectively advance SGMA implementation. Specific tools and forums include the following: • Advisory committee meetings • Constituent briefings with local organizations • Tribal engagement • Public meetings and workshops • GSA Board meetings • Coordination with local resource conservation districts • Coordination with state and federal agencies • Integration of relevant studies and materials • Interested parties list • Informational materials • County SGMA website • Local media and public service announcements" **Comment: The listed public outreach goals have, unfortunately, not been met. A very important group of stakeholders—landowners who use enough water to be affected by SGMA regulations—has been largely unaware of the GSA's activities to date, and until very recently has not been educated about SGMA. "Broad stakeholder input and feedback" has not been happening, at least among Scott Valley's farmers and ranchers.** **The excuse of "COVID" should not prevent our affected stakeholders from having meaningful engagement in this process. Zoom meetings led by the Tech Team do not constitute an open, accessible forum for most farmers and ranchers. Most of the "meetings" were held in the middle of the work day. In-person meetings should be held, at times convenient for farmers and ranchers.**		Noted. No response required.
Bernard and Beverly Dowling	BBD-015	C	GE	Suggested edit to plan		2	37			"The [Scott Valley Area Plan] includes multiple goals and policies that align with those in the GSP. Specifically, the focus on managing growth in a sustainable way while protecting priority agricultural lands and natural resources is an overarching theme in both the SVAP and the GSP." **Comment: The SVAP is explicit about protecting agricultural land. The GSP draft should explicitly protect ag, as well. (This comment was also made in the first draft, which means "agriculture" was deliberately left out. Why?)**		Correct, specific reference to protection of prime agricultural land, as identified in the development goals of the SVAP, has been added.

Bernard and Beverly Dowling	BBD-016	C	GD	Affected species, beneficial users		2	42			"The Valley and headwater tributaries of the mountains surrounding Scott Valley provide key spawning and rearing habitat for native anadromous fish species, including Oncorhynchus tschawytscha (Chinook salmon), Oncorhynchus kisutch (coho salmon) and Oncorhynchus mykiss (steelhead trout). Coho salmon in the Southern Oregon Northern California Coast Evolutionary Significant Unit (SONCC ESU) are listed as threatened at both the federal and state levels (NCRWQCB 2005)." **Comment: It should be noted that the Scott has never been prime habitat for coho. We are at the very bottom of the coho's natural range. Coho are harvested in great numbers off the coast of Alaska. This assertion is supported by the Shasta Indian tribe, which has stated that the Klamath (and by extension the Scott) is, "since time immemorial," historically unfit for coho. Additionally, a CDFW publication from 2007 refers to coho as a coastal fish that doesn't like to spawn farther than 20 miles inland (California Finfish and Shellfish Identification Book - a companion guide to the California Fishing Passport, California Department of Fish and Game, 2007).** **It should further be noted that the Chinook is also harvested commercially in the northern Pacific.** **Both Coho and Chinook populations are affected by many factors, such as gill netting (some Yuroks say they "don't know how a single fish gets up the river"); predation at the mouth of the Klamath; oceanic decadal oscillation; and more. This SGMA process must not be used as a weapon to target groundwater pumping when in fact many variables affect these species.**		Scott River has been identified as a major salmon spawning tributary (see Knechtle 2021, as referenced in Chapter 2 of the GSP, and coho salmon numbers from Scott River Fish Counting Facilities and CDFW spawning surveys from previous years). Additionally, CDFW identifies Scott River Watershed as a priority area for coho salmon recovery (https://wildlife.ca.gov/Conservation/Watersheds/Instream-Flow/Studies/Scott-Shasta-Study). Text has been added to highlight that there are numerous factors that can effect coho and Chinook salmon populations and the list of factors discussed is not exclusive.
Bernard and Beverly Dowling	BBD-017a	B	GD	Suggested edit to plan, Comment on ad hoc committee organization		2	76			"Identification of Groundwater Dependent Ecosystems". This section is troubling. No agricultural members of the Advisory Committee were invited to join the "Surface Water" subcommittee that helped create this section. Nor were ag members given a very clear picture of what the Surface Water subcommittee was doing. Meanwhile, the Surface Water subcommittee was doing some pretty major things: "The group was created to assist with the identification of high-priority habitat, define a healthy hydrologic system in the Basin, and define metrics indicative of ecosystem health to assist in the definition of measurable objectives, undesirable results, and associated monitoring activities." Clearly, these important aspects should have had the entire Advisory Committee's consultation. This does not appear to have been the case. It seems the drafters of the GSP expected some blowback on this. On page 81, the GSP states, "A total of seven meetings [of the Surface Water subcommittee] were held between February 2020 and March 2021." No other subcommittee meetings were documented this way in the GSP. This seems to be an attempt to legitimize the somewhat cover-of-darkness process by which this section was developed.		Ad hoc committees were formed as stipulated in the Scott Valley Advisory Committee Charter. Outcomes and action items from Ad hoc committee meetings were reported out to the Advisory Committee. A full list of meetings, including public outreach activities, are listed in Appendix 1-B.
Bernard and Beverly Dowling	BBD-017b	B	GD	Suggested edit to plan, Comment on ad hoc committee organization						Some details about GDEs that should be addressed are: - Maps: Presence of a GDE on one's property seems as though it could have real ramifications. The GDE map on p 81 lacks any detail. Landowners should be able to see whether they are a target of extra scrutiny. - In two instances (western pond turtle and yellow-legged frog, p 85), the language points explicitly to "groundwater pumping" as potentially damaging. This is inappropriate. The main threat is drought. Placing blame on pumping implies the GSA's intent to curtail pumping. This is not necessary; we should pursue supply-side projects, which would alleviate the potential threats to these species.		The GSP now includes a digital D-size, high-resolution versions of this map (Appendix 2-A). Suggested edits were considered in the final GSP.
Bernard and Beverly Dowling	BBD-018	C	WB	Sustainable Yield, Future Groundwater Pumping		2	131			"For the Scott Valley, the sustainable yield is equal to the 28 year average groundwater pumping of 42 thousand acre-feet per year minus any future reduction in groundwater pumping resulting from the implementation of project and management actions (see Chapter 4)…" **This should be removed. Reductions of groundwater pumping should not be part of the GSP. As noted in numerous instances, there is no overdraft of water in Scott Valley, unlike some other basins developing GSPs. (Example: "Historical water levels indicate that there is no overdraft and no long-term decline in water levels" in Scott Valley (Ch 3 p 41).)**	MCR-15	The GSP provides a full rationale for this definition of the sustainable yield.
Bernard and Beverly Dowling	BBD-019	C	MN	Monitoring and data gaps		3	25			"The GSA plans to collaborate with other entities to add monitoring locations to fill data gaps." **Comment: The GSA should make clear that it will only accept verifiable data. Trust could become an issue for the public with the GSA accepting data from third parties.**	MCR-26	Noted. No response needed.
Bernard and Beverly Dowling	BBD-020	C	IS	streamflow depletion reversal		3	59			"that is, what is an "unreasonable" amount of streamflow depletion, which could be reframed as: what is a "reasonable" amount of avoided groundwater use?" **Comment: The latter question is flawed. Streamflow depletion reversal should be achieved by adding water to the equation, not by cutting back on current use (unless voluntary irrigation efficiencies are made).**	MCR-26	Noted. No response needed.
Bernard and Beverly Dowling	BBD-021	C	PM	Management Action		3	60			"The MAR-ILR scenarios, once fully implemented, provide a relative streamflow depletion reversal that averages 19% during September–November…" **Comment: I support this PMA but I am concerned 19% may be a high estimate. How many of the landowners in the proposed areas have been contacted to see if it will work for them? Also, more detailed maps than what's available in Appendix 4a would be helpful.**	MCR-3	The proposed action will be considered as the GSP is being implemented. It does not require the current GSP to be modified.
Bernard and Beverly Dowling	BBD-022	B	IS	SMC definition, Suggested edit to plan		3	61			"The average relative stream depletion reversal of the implemented PMAs during September–November must exceed 15% of the depletion caused by groundwater pumping from outside the adjudicated zone in 2042 and thereafter." **Comment: Since this self-imposed percentage is in bold and is so specific, the GSP should give a brief explanation of how it was arrived at.**	MCR-4	The revised plan, in chapter 3, explains in more detail than the draft plan how the minimum threshold was arrived at. Also see MCR-4.
Bernard and Beverly Dowling	BBD-023	B	IS	SMC Definiton, PMA		3	61			**These five-year goals for stream depletion reversal (5% by 2027, 10% by 2032, 15% by 2037) may need to be revised in order to accommodate the less expedient but more beneficial supply-side projects, such as reservoir-building and MAR/ILR.**	MCR-2	MCR-2
Bernard and Beverly Dowling	BBD-024	C	PM	Management Actions		3	64			"This explicit linkage between the measurable objective with the aspirational watershed goal also provides flexibility for compliance with potential future regulations or actions, in an integrated water management approach." **Comment: Agreed. As such, we should be proposing projects related to water storage, groundwater recharge, and instream structures to slow the flow. Regulatory hurdles, while inevitable, should not be used as a reason not to pursue these worthy projects. They are they only projects that will help achieve our groundwater goals without doing economic harm to a large swath of Scott Valley's farmers and ranchers.**	MCR-26	Noted. No response needed.
Bernard and Beverly Dowling	BBD-025	C	PM	Management Action		3	66			"Seasonal pumping restrictions in the non-Adjudicated Zone. • Voluntary pumping restrictions in the Adjudicated Zone. • Conservation easements that would limit irrigation in some or all water years." **Comment: These demand-side "solutions" will likely have undesirable results for Scott Valley's economy and environment and should be removed. Pumping restrictions will result in economic hardship, which could result in the forced sale of farms and ranches. Those properties would be divided into the smallest possible acreages, resulting in a denser population. Pressure would inevitably mount to revise the SV Area Plan to allow prime ag land to be subdivided into smaller pieces.** **Fields that are not watered will be overtaken by invasive weeds (dyer's woad, star thistle, etc). Therefore, ranches with conservation easements for non-irrigation will become bad neighbors: weed factories and fire hazards. (Note: language throughout Appendix 4a indicates that non-irrigated land will return to "native vegetation." This is not accurate. Circumstances have changed over the past 100 years: we have more drought and better drainage. "Native" vegetation will not reestablish itself. Without irrigation, invasive weeds will replace crops.)**	MCR-2	MCR-2
Bernard and Beverly Dowling	BBD-026	C	PM	Management Actions - Implementation and Prioritization, Funding		4	5			"Under the Sustainable Groundwater Management Implementation Grant Program Proposition 68, grants can be awarded for planning activities and for projects with a capital improvement component. As such, state funds for reimbursing landowners for implementation of PMAs, including land fallowing and well-shut offs, currently cannot be obtained under this program." **Comment: This funding issue speaks to the point that productive projects such as water storage should be pursued, while land fallowing and well shut-offs should be avoided.**	MCR-26	Noted. No response needed.

Bernard and Beverly Dowling	BBD-027	B	PM	Management Actions - Implementation and Prioritization		4	7			Table I PMA Summary Table. **Comment: Many promising ideas were proposed to the Tech Team to be included as Tier II or Tier III projects, with strong support from a sound majority of the Advisory Committee. Instead of including them in this table, those ideas were relegated to the last page of this report, with the reasoning that they "have not yet been investigated." Those proposals include: a study of the tailings for groundwater storage; recharge weirs; fish-friendly structures to decrease flow rates in Scott River and its tributaries; construction of a clay dam or permeable plug at the lower end of Scott Valley; and direct addition of water to the river during periods of low flow.** **It's hard to believe that none of these proposals have been investigated enough to put in the Tier II or III categories.** **Other PMAs listed in this table are addressed below.**		These PMAs have been included under an "Additional PMAs" list in Chapter 4. Evaluation and prioritization of PMAs is slated to occur in the first phase of GSP implementation, as outlined in Chapter 5.
Bernard and Beverly Dowling	BBD-028	C	PM	Management action		4	13			"Avoiding Significant Increase of Total Net Groundwater Use from the Basin." **Comment: Although this MA does propose significant regulations on new wells, it may be appropriate to avoid overdrafts in the Valley. It embodies the principle of "first in time, first in right," which has long been used in California water law.**	MCR-26	Noted. No response needed.
Bernard and Beverly Dowling	BBD-029	C	PM	Management Action		4	13		350	"[No net increase in groundwater use] can be achieved through exchanges, conservation easements, and other voluntary market mechanisms." **The GSA should be mindful of unintended consequences. For example, a market exchange, which is explored in more detail on p 19, could in fact encourage urban development of ag ground.**	MCR-2	MCR-2
Bernard and Beverly Dowling	BBD-030	C	PM	Management action, Suggested edit to plan		4	19		cutout	"Market instruments" cutout. **Comment: This troubling passage seems to encourage the conversion of ag land to urban development, because urban land uses less water. The example in the cutout even goes so far as to allow development of "natural lands" after a city buys out ag land—because now the city has "credits" for using less water than the ag land did. This entire section epitomizes tone-deafness and should be removed.**		Some cities in Siskiyou County groundwater basins have expressed concerns about not being allowed to have any expansion at all. The hypothetical example stated does not suggest urbanization of a largely agricultural region.
Bernard and Beverly Dowling	BBD-031	B	PM	Management actin		4	21			"Beaver Dam Analogues." **Comment: this section should be expanded to include other fish-friendly structures to slow the flow of the mainstem and tributaries for aquifer recharge. This concept has the support of many landowners along the river. I am told that BDAs (in some form) were used on the mainstem of the Scott several years ago and that the project successfully raised the water table. This is not mentioned in the draft.** **Other fish-friendly structures could include inflatable bladders: rubber dams that can quickly be inflated or deflated as needed. Thousands of these are used all over the world, with decades of success. In some cases, aquifer recharge is the sole purpose (e.g., the Santa Ana Inflatable Rubber Dam Project, which supplies 100,000 Orange County residents with water each year.)** **Recharge weirs, while more permanent and potentially damaging to surrounding fields during high water events, are also used around the world to recharge aquifers. They can be designed to allow fish passage.**		The GSP does not exclude future expansion to the PMA list. If other structures to slow flow will be shown to be feasible, this PMA could be expanded to carry such projects.
Bernard and Beverly Dowling	BBD-032	C	PM	Management Actions		4	22			Upslope water yield projects. **The "Green infrastructure" proposal is good and could be expanded. Clearing conifers, juniper, and brush all has potential to do good for the watershed, on both private and public land. By including such projects in this proposal, the GSA can encourage and partake in federal and private projects.**	MCR-26	Noted. No response needed.
Bernard and Beverly Dowling	BBD-033	C	PM	Management Action - Implementation and Prioritization		4	23			"Irrigation Efficiency Improvements". **Comments: As this PMA is fleshed out, the GSA should take care not to punish those who have already upgraded and invested in efficient systems, while antiquated systems get the grants. Perhaps the only fair way to go is a "First come, first serve" application system.** **This section merits more attention. While it claims that stream depletion is reversed by 4, 12 and -2 percent based on different scenarios, it doesn't describe what those scenarios are (nor does Appendix 4-A, which is referenced for more info). While irrigation efficiencies could hold potential for depletion reversal, this PMA seems to be glazed over when compared to more punitive options, such as pump turn-offs.**	MCR-2	MCR-2
Bernard and Beverly Dowling	BBD-034	C	PM	Management Actions		4	28			"Voluntary Land Repurposing". **Comment: This PMA should be used with extreme caution. From the perspective of a cattle producer, set-aside programs restrict the availability of pasture. Some would characterize term contracts, easements, etc. as "private decisions" by landowners. However, when government is offering incentives for such decisions, the concept of "free-market decisions" doesn't apply. Our local economy and culture will be affected in unforeseen ways when productive ag ground is set aside**.	MCR-2	MCR-2
Bernard and Beverly Dowling	BBD-035	C	PM	Management Action		4	28			"Irrigated Margin Reduction." **Comment: This is another example of a program that will require enforcement, and will likely result in citizen-police who turn in their neighbors for following their natural instinct of trying to be productive.**	MCR-2	MCR-2
Bernard and Beverly Dowling	BBD-036	C	PM	Management Action		4	29			"Crop Support: To support crop rotation, particularly for grain crops, access to crop support programs may be important to ensure that this option is economically viable." **Comment: This seems to rely on a federal program over which the GSA has no control. Rather than focusing on such weak possibilities, the GSP should focus on local, on-the-ground supply-side projects to increase the water table.**	MCR-26	Noted. No response needed.
Bernard and Beverly Dowling	BBD-037	C	PM	Management Action, Suggested Edit to Plan		4	29		841	"For example, a corner of a field may be well suited for wildlife habitat, or solar panels or water storage." **Comment: The concept of pivot corners as reservoirs was brought up by a local rancher and merits attention. "Wildlife habitat" is more likely to be noxious weeds, which farmers will have to try to beat back from encroaching on their crops. Solar panels would require considerable infrastructure at great expense. Ponds, on the other hand, are relatively inexpensive to build and could contribute to groundwater recharge.**	MCR-27	Document has been changed per suggestion.
Bernard and Beverly Dowling	BBD-038	B	PM	Management Actions - Implementation and Prioritization		4	30			"Tier III: Potential Future Project and Management Actions". **Comment: Some of these PMAs should not be relegated to Tier III. "Potential future" PMAs sends the clear message that these projects are not priorities, even though they are the least damaging and most promising for actually increasing the water table. Although they may take time to implement, these PMAs should be acted on immediately. (Examples: High mountain lake storage; MAR/ILR; reservoirs)**	MCR-26	Noted. No response needed.
Bernard and Beverly Dowling	BBD-039	C	PM	Management action		4	30			"Alternative, lower ET crops." **This section may have some potential; however, funding dedicated to research on this topic should be minimal. Farmers and ranchers are quite aware of which crops have a market in our region. Assuming grants are in limited supply, we have plenty of other supply-side projects that merit funding.**	MCR-26	Noted. No response needed.
Bernard and Beverly Dowling	BBD-040	C	PM	Management Action		4	31			"Floodplain reconnection/expansion." **This section ties in with the concept of slowing the river/tributaries. For willing landowners, this holds potential to slow the flow and increase the water table. Conversations with landowners should be pursued. In this case, limited conservation easements may be appropriate.**	MCR-26	Noted. No response needed.
Bernard and Beverly Dowling	BBD-041	B	PM	Management Action Prioritization		4	32			"High Mountain Lakes - This potential project class supports the restoration or modification of high-altitude lakes…." **Comment: Rather than referring to this PMA as "potential," it should be pursued immediately. Also, is it possible to include what percentage of depletion reversal would be gained from the 3,500 AF of storage? Using the metric used on other PMAs would be helpful.**		The AC did not consider this to be a Tier II PMA.

Bernard and Beverly Dowling	BBD-042	B	PM	Management Action - Implementation and Prioritization		4	33			"Reservoirs….Still in the conceptualization phase, details of a reservoir project have not yet been confirmed." **Comment: This sentence insinuates a lack of interest in this PMA on the part of the GSA. This is perhaps the most promising PMA when it comes to benefits to all, and yet the topic is given one-half of one page in this chapter. Meanwhile, there are empty ponds and reservoirs that already exist in the valley, which could be used right away (albeit permitting may be required). As for potential future reservoirs, has anyone asked the landowners in those areas for their opinions? Why has this project been relegated to "Tier III" when all the most damaging options – turning off irrigation and repurposing ag ground—have had reams of research done on them?** **Several landowners have indicated they have ponds available. A survey should be conducted to assess how many existing ponds there are, and how many landowners would be willing to have new ones built on their land. Several locals have talked about using the dredger tailings and ponds to store even more water than they do now.**		Tier III projects can be initiated right away. However, any reservoir project will take a significant period of time before it is completed.
Bernard and Beverly Dowling	BBD-043	C	PM	Management Action		4	33			"Strategic Groundwater Pumping Curtailment" **Comment: This section should be removed. This valley is not in an overdraft, and the GSP is on course to prevent that from happening without implementing any pump turn-offs. Including pump shut-offs as a potential future tool will result in pressure to use that tool. The mechanism should be removed entirely.**		Without this tool, the GSA has no credible tool to address groundwater management in case other tools fail.
CalTrout	CalTrout-001	A	BR	Public Trust Doctrine						we would like to highlight our concerns that the Siskiyou County Flood Control and Water Conservation District, acting as the groundwater sustainability agency (GSA) for the Scott Valley Basin, is not complying with the Public Trust Doctrine because it has failed to develop a GSP that adequately protects the Scott River, a public trust resource.	MCR-26	Noted. No response needed.
CalTrout	CalTrout-002	A	BR	Public Trust Doctrine						the public trust doctrine requires the GSA to protect the public's interest in the Scott River (a navigable waterway and public trust resource) and its fish species when making groundwater management decisions, which include the development and implementation of the Scott Valley GSP.		We concur. The GSP is consistent with this statement.
CalTrout	CalTrout-003	A	BR	Publict Trust Doctrine						The draft Scott Valley GSP fails to meet this standard because it does not adequately protect against harm to public trust resources due to groundwater withdrawals, nor does it explain why this inadequacy should be allowed considering the public interest. Therefore, the GSP does not comply with the GSA's public trust obligations.		We disagree.
CalTrout	CalTrout-004	A	BR	SMC Definition, Public Trust Doctrine		3	57,59,64			The GSP acknowledges that the public trust doctrine requires the GSA to at least partially reverse stream depletion due to groundwater pumping, but incorrectly asserts that the public trust doctrine gives no target or threshold required for compliance. GSP Ch. 3 at 57, 59, 64. Under the public trust doctrine, the minimum threshold for the depletion of interconnected surface waters must be whatever level of reduction in streamflow depletion that will prevent harm to public trust uses in the Scott River, including impacted fish species. Nothing less is acceptable, unless the GSA can show that it is infeasible to avoid harm public trust uses in the Scott River, and that such harm is necessary and justified to further the public interest. See National Audubon, 33 Cal.3d at 446-447; ELF v. SWRCB, 26 Cal.App.5th at 862, 865. The draft GSP fails to make this showing because it proposes to reduce streamflow depletion by only 15% below existing "business as usual" levels without analyzing whether that standard is sufficient to eliminate the existing harm to public trust uses. Further, the GSP does not explain how the GSA concluded that this minimum threshold would be sufficient to meet its public trust obligation, and there is no discussion of the biological effects that would result from the proposed minimum threshold, or of whether a 15% reduction would avoid adverse impacts to fish species in the river.	MCR-4	
CalTrout	CalTrout-005	A	BR	Public Trust Doctrine						The GSA must set a minimum threshold for depletion of interconnected surface waters that will ensure the continued viability of the Scott River for the migration and spawning of anadromous fish, which is an essential public trust use of the Scott River. That these fish species were already impacted by streamflow depletions prior to SGMA's 2015 benchmark is irrelevant under the public trust doctrine. The fact that groundwater extraction is not the only cause of streamflow depletion in the Scott Valley does not affect the GSA's obligation to reduce groundwater pumping until harm to public trust resources is avoided. Rather, the public trust requires that groundwater extraction not harm public trust uses, regardless of when the harm began or whether there are other contributing factors.	MCR-4	We concur. The GSP is consistent with this statement. We disagree with the remedy. See MCR-4
CalTrout	CalTrout-006	A	BR	Public Trust Doctrine						This means that the GSP must fully eliminate harm to public trust uses unless the GSA can demonstrate with substantial evidence that the public interest demands otherwise. Here, the GSA has failed to meet this standard because the GSP offers nothing more than an arbitrary determination that its proposed minimum threshold for the depletion of interconnected surface waters constitutes a "reasonable" amount of avoided groundwater use, with no explanation of how this determination was made or substantial evidence to support this claim.	MCR-4	The revised GSP has added a description of that determination in chapter 3. Also see MCR-4.
CalTrout	CalTrout-007	A	BR	SMC Timeline, Public Trust Doctrine						Although consistent with SGMA, the GSP's proposed timeframe for meeting the 15% minimum threshold for depletion of interconnected surface waters is insufficient to meet the GSA's public trust obligations because delaying enforcement of GSP thresholds for decades risks irreparable harm to public trust uses in the Scott River .	MCR-4	MCR-4
CalTrout	CalTrout-008	A	BR	SMC Timeline, Public Trust Doctrine						the GSA has not demonstrated why it would be infeasible to achieve minimum thresholds on a more expeditious timeframe than that allowed under SGMA to ensure the trust uses are not irreparably harmed.	MCR-4	MCR-4
CalTrout	CalTrout-009	A	BR	PMAs, Public Trust Doctrine						The GSP does not meet public trust doctrine requirements because it does not evaluate whether its proposed mitigation measures would be sufficient to eliminate harm to the Scott River's public trust uses, including coho, Chinook, and steelhead fisheries impacted by streamflow depletion.	MCR-4	MCR-4
CalTrout	CalTrout-010	A	BR	Groundwater pumping, Public Trust Doctrine						the GSA must limit current groundwater pumping until it can provide substantial evidence that the other proposed mitigation measures are enough to protect public trust uses in the Scott River.	MCR-4	MCR-4
CalTrout	CalTrout-011	B	IS	Suggested edit to plan	Cal. Water Code §10721(x)(6)	ES	3	ES-2	102-105	SGMA mandates an assessment of the location, timing, and magnitude of ISW depletions, and to demonstrate that projected ISW depletions will not lead to significant and unreasonable results for beneficial uses and users of surface water~~groundwater~~. The standard for determining undesirable results due to depletions of ISW is whether those depletions have adverse effects on the users of the ISW, *not* on users of groundwater, per the definition of undesirable results under SGMA, Cal. Water Code §10721(x)(6): "Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the *surface water*" (emphasis added).	MCR-27	Document has been changed per suggestion
CalTrout	CalTrout-012	C	GE	Suggested edit to plan		ES	6	ES-2	129-130	Citations would be helpful when quoting statutory or regulatory language. Here, SGMA is quoted, but the language comes from the regulations, 23 C.C.R. § 351(m).	MCR-27	MCR-27
CalTrout	CalTrout-013	C	GE	Mapped jurisdictions, suggested edit to plan		2	7	2.1.1.1	Figure 2	Why is SVID shown on a map of jurisdictional areas that also includes the Quartz Valley Indian Reservation and National Forest? Is SVID responsible for groundwater management? Also, a demarcation of the Adjudicated Zone should be included on this figure.		SVID is a water district. The adjudicated zone is illustrated in a previous figure but has been added to this figure for clarity.
CalTrout	CalTrout-014	A	BR	Public Trust doctrine, suggested edit to plan		2	14	2.1.2	340-341	Litigation proceeds regarding ~~public trust impact of new well permits on surface water~~ Siskiyou County's duty to consider the Public Trust when taking action that affects groundwater that is interconnected with the Scott River (a public trust resource). The original wording confuses the issue of the case, which was not what the impacts of well permits were on surface water, but rather (a) whether the County had a duty to consider the Public Trust before issuing such permits; and (b) whether SGMA absorbed this duty (the court found that it did not). *See Environmental Law Foundation v. State Water Resources Control Board* , 26 Cal.App.5th 844, 859-870 (2018) (ELF).	MCR-27	MCR-27
CalTrout	CalTrout-015	A	BR	Public Trust Doctrine		2	29	2.1.3	786	The GSP states that "[t]he public trust doctrine [PTD] was considered throughout development of the GSP." Clarification about how the GSA considered the PTD is necessary. What specific actions did the GSA take in considering the Public Trust?	MCR-4	
CalTrout	CalTrout-016	C	GE	General Comment		2	33, 37, 41	2.1.3. 2.14, 2.15	994, 1137, 1305, 1307	Is this feedback still needed? If so, why haven't these questions been answered during the GSP development process?	MCR-27	Text has been removed and GSP has been modified accordingly.
CalTrout	CalTrout-017	C	GE	General Comment, Suggested edit to plan		2	39	2.1.5.2	1245	Appendix [ ] → Which Appendix does this refer to?	Appendix reference in error and has been removed.	Appendix reference has been removed.

CalTrout	CalTrout-018	C	GE	Suggested edit to plan		2	73	2.2.1.6	1960-1971	The figure described in this paragraph–Figure 18–does not match the Figure 18 provided on page 72.	MCR-27	Thank you for flagging this oversight. We have corrected this to include the stream-aquifer flux heatmap in the GSP.
CalTrout	CalTrout-019	B	HM	Model data		2	75	2.2.1.7	2038	Why is only the date range modeled from September-October? Why not include the entire irrigation season?		September-October has the lowest flows and is the most critical season with respect to fall-run Chinook and coho migration. We added a reference to the Digital Appendix 2-A (i.e. two csv files) that has the complete data set.
CalTrout	CalTrout-020	B	GD	Environmental Beneficial Users		2	76	2.2.1.8	2088	The GSP acknowledges that "identifying [environmental] users and uses of surface water is the first step to address undesirable results due to surface water depletions," yet fails to identify/discuss these users. The plan discusses groundwater dependent ecosystems (GDEs) and groundwater dependent species; what about environmental users such as Tribes, anglers, birdwatchers, and other recreators? i.e., (See Cal. Water Code § 1243(a): "The use of water for recreation . . . is a beneficial use of water;" see also SWRCB's definition of beneficial use, which includes both water contact recreation and non-water contact recreation."* * Available at https://www.waterboards.ca.gov/about_us/performance_report_1314/plan_assess/docs/bu_definitions_012114.pdf	MCR-4	Recreational users have been added. The full list of beneficial uses and users is included in Chapter 1.
CalTrout	CalTrout-021	C	GE	Mapping, Suggested edit to paln		2	77	2.2.1.8	2097	Is this the correct citation? 23 C.C.R. §354.8(a)(3) describes requirements for maps that are included in the Description of the Plan Area.		Correction made. Document has been changed per the suggestion.
CalTrout	CalTrout-022	B	WB	IHM, Water Budget		2	113	2.2.3.1	3090-3091	"Agricultural irrigation is calculated based on daily crop demand. Perfect farmer foresight is assumed." Does the model assume that the amount of water used for irrigation is limited to the amount of water that the plants need? How does the water budget account for irrigators that over-irrigate?		Simulated applied water amounts are consistent with other modeling approaches used by DWR, USGS, and local agencies: The amount of water applied is a function of daily ET, soil moisture storage, surface water availability (where farmers use surface water before pumping groundwater), and irrigation effficiency. Irrigation efficiency is a function of irrigation type, which have been mapped for Scott Valley. Details are described in Foglia et al., 2018.
CalTrout	CalTrout-023	B	WB	IHM, Water Budget		2	113	2.2.3.1	3091-3093	"The water volume is attributed to *either* diverted surface water . . . or pumped groundwater." → Are any irrigators using a combination of the two?	MCR-6	Some irrigators use surface water early in the irrigation season, then switch to groundwater. Information was provided by the Groundwater Advisory Committee and local UC Cooperative Extension. See Foglia et al., 2013, 2018.
CalTrout	CalTrout-024	C	WB	Suggested edit to plan		2	115	2.2.3.2	3148	Figure 2~~52~~ shows the water budgets of each of those three subsystems.	MCR-27	MCR-27
CalTrout	CalTrout-025	B	WB	Water Budget, requested explanation		2	118	2.2.3.2	3275-3277	"[I]n fields with access to both surface and groundwater, it is assumed that irrigators will use surface water whenever it is available." → Why is this assumption made?	MCR-6	MCR-6
CalTrout	CalTrout-026	B	WB	Water Budget, requested explanation		2	118	2.2.3.2	3278-3279	Some clarification would be helpful to understand why "surface water diversion for irrigation is considered an inflow to the Basin, not a diversion from the streams within the Basin," especially since not all applied irrigation water makes it into the Land (Soil) Zone.		The model effectively diverts all irrigation water from a virtual location just upstream of the model domain. In other words, the known (or estimated) streamflow just upstream of the basin is divided into the flow entering the model within the stream (stream subsystem) and diversions, entering the model as surface water irrigation (land/soil subsystem).
CalTrout	CalTrout-027	C	GE	Suggested edit to plan, citations		3	3	3.1	111	Is this the correct citation? 23 C.C.R. §354.28(c)(1)-(6) provides minimum threshold requirements. 23 C.C.R. §354.26 addresses Undesirable Results, which are defined under Cal. Water Code §10721(x) (SGMA).		Citation has been corrected in the document.
CalTrout	CalTrout-028	C	GE	Suggested edit to plan		3	7	3.3	253	Per 23 C.C.R. Section 351(l)		Specific location (l) added.
CalTrout	CalTrout-029	C	MN	Data access		3	10	3.3.1.1	393-394	"The remaining wells are privately owned and data gathered to date from these wells have been provided voluntarily." → Are there access agreements in place to assure continued access to these wells/data?		Text has been updated: "Access agreements are currently only available for wells with transducers maintained by LWA. The current UCANR county representative, in coordination with the GSA, is planning to seek access agreements with well owners not currently signatories to access agreements."
CalTrout	CalTrout-030	C	GE	Suggested edit to plan, citations		3	15	3.3.3.1	541	The footnote for Table 3 references monitoring schedules from EPA's Safe Drinking Water Information System but does not provide a link to this specific data. Instead, only a link to the SDWIS search engine is provided. Citation to the referenced Fort Jones monitoring schedule would be helpful.	MCR-27	Footnote has been updated.
CalTrout	CalTrout-031	B	GD	Environmental Beneficial Users, Undesirable Results		3	31	3.4.1.1	1102	"Chronic lowering of groundwater levels is considered significant and unreasonable when a significant number of private, agricultural, industrial, or municipal production wells can no longer pump enough groundwater to supply beneficial uses." → What about environmental concerns related to groundwater levels? Line 1123 refers to groundwater-dependent ecosystems, but these are not considered when defining "significant and unreasonable" for this Undesirable Result.		Document has been changed per the suggestion.
CalTrout	CalTrout-032	B	IS	Undesirable results, surface water depletion	Cal. Water Code §10721(x)(1).	3	32	3.4.1.1	1117-1124	Lines 1117-1124 refer to different scenarios as potential "undesirable results," which is inappropriate given that here "undesirable result" is a term of art meaning the "chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon." Cal. Water Code §10721(x)(1). Were these scenarios instead used to define what is a "significant and unreasonable depletion of supply?"		The text in line 1115 has been changed: "potential undesirable results" has been replaced with "significant and unreasonable depletion of supply". In line 1126 and 1131 "undesirable results" has been replaced with "conditions".
CalTrout	CalTrout-033	B	IS	SMC definition, undesirable results, requested explanation		3	35	3.4.1.2	1219-1222	How does having a minimum threshold below current historic lows prevent an undesirable result? Further explanation/clarification would be helpful.	MCR-27	A reference to the Scott Dry Well Risk Analysis (Appendix 3-C) has been added to the text.
CalTrout	CalTrout-034	C	GE	Suggested edit to plan		3	38	3.4.1.4	1279	Figure 9	MCR-27	The document has been changed per the suggestion.
CalTrout	CalTrout-035	B	GL	Susggested edit to plan, SMC		3	38	3.4.1.4	1289-1290	Where the cause of groundwater level decline is unknown, the GSA will ~~may choose to~~ conduct additional or more frequent monitoring or initiate additional modeling. □ What use is a GSP if the GSA may (but is not required to) act in a situation that could lead to an undesirable result?	MCR-27	The document has been changed per the suggestion.
CalTrout	CalTrout-036	B	IS	IHM, SMC definiton	23 C.C.R. §354.28(b)(2)	3	40-41	3.4.1.6	1355-1362	23 C.C.R. §354.28(b)(2) states that "the description of minimum thresholds shall include . . . the relationship between the minimum thresholds for each sustainability indicator, including an explanation of how the Agency has determined that basin conditions at each minimum threshold *will avoid undesirable results for each of the sustainability indicators* (emphasis added)" The GSP's discussion of the groundwater level MT's relation to Depletions of Interconnected Surface Water does not meet the required standard. Instead of explaining the relationship between groundwater level and the chosen MT for ISW, the plan merely states that groundwater levels are not a suitable proxy for surface water depletion and says that "additional analysis during GSP update will be used to determine if the current groundwater level minimum thresholds would have a negative impact on depletions of interconnected surface water." Given that the MT for interconnected surface water is obtained using the SVIHM, why can't this be determined now?		The MT is set minimally lower than lowest observed water levels prior to 2015. The additionall 10% lowering (relative to deepest observed water level depth) allows for a sufficient margin of operational flexibility. Note that the MT does not refer to average conditions. Effectively, managing this MT will prevent water levels from being lower than historically observed, given the seasonal and interannual variability of water levels.
CalTrout	CalTrout-037	B	WQ	Undesirable results, requested explanation		3	43	3.4.3.1	1487-1488	"Groundwater quality changes that occur independent of SGMA activities do not constitute an undesirable result."→ Clarification of what constitute "SGMA activities" is needed. Does this mean that there are instances in which groundwater can be significantly degraded without being considered an undesirable result? If so, how does this affect the GSP's compliance with other applicable laws as required by SGMA?		SGMA activities are projects and management actions implemented by the GSA or its partners (see Chapter 4). Non-SGMA activities impacting water quality are subject to the regulatory control of the North Coast Regional Water Board and other state agenices.

CalTrout	CalTrout-038	A	BR	Public Trust doctrine, suggested edit to plan		3	57	1977	1977	~~A recent court decision on the public trust doctrine (PTD)~~*Environmental Law Foundation v. State Water Resources Control Board* , 26 Cal.App.5th 844 (2018) (ELF) identifies the County of Siskiyou as a subdivisionn ~~extension~~ of the State of ~~SWRCB with~~California with ~~administrative~~ responsibilities for protecting the public trust when taking action that could impact public trust resources.~~issuing groundwater well permits.~~ The current language of the GSP understates the County's responsibilities under the public trust doctrine, as the court's ruling on the County's public trust duties was not limited to the issuance of well permits. Rather, "the dispositive issue is not the source of the activity, or whether the water that is diverted or extracted is itself subject to the public trust, but whether the challenged activity allegedly harms a navigable waterway." (ELF at 860). Therefore, the County has a duty to consider the public trust whenever taking an action that could adversely impact a public trust resource, like the Scott River. Interestingly, the language about issuing groundwater well permits was not included in previous draft versions of chapter 3 (see GSP Chapter 3 Draft – April 23 public comment Draft, line 1776).* * Available at https://www.co.siskiyou.ca.us/sites/default/files/fileattachments/natural_resources/page/27332/scottvalleygsp_chapter_3_publicreviewdraft_4-23-21.pdf	MCR-26	
CalTrout	CalTrout-039	A	IS	SMC and Undesireable Result definition, Entire Basin	Cal. Water Code §10721(x),23 CCR § 354.26(a);	3	57	3.4.5.1	2014-2017	"The undesirable result that is relevant to SGMA is the stream depletion that can be attributed to groundwater pumping *outside of the adjudicated zone* to the degree it leads to significant and unreasonable impacts on beneficial uses of surface water" (emphasis added). Limiting the definition of undesirable results to the proportion of depletion attributable to groundwater extraction outside of the adjudicated zone is inconsistent with the requirements of SGMA, which define undesirable results as "effects caused by groundwater conditions throughout the *basin* ." Cal. Water Code §10721(x) (emphasis added). Here, the "basin," as defined by Bulletin 118, includes the entire Scott Valley Basin, including the adjudicated zone. (GSP, Chapter 2 at p.5). Although the GSA does not have direct regulatory control over the adjudicated zone, nothing in SGMA permits the GSP to ignore the effects of pumping within the adjudicated zone when defining an undesirable result (see 23 CCR § 354.26(a): "[u]ndesirable results occur when significant and unreasonable effects for any of the sustainability indicators are caused by groundwater conditions *throughout the basin* " (emphasis added)). To be consistent with SGMA, the undesirable result for the depletion of interconnected surface water must consider depletions caused by groundwater pumping in both the adjudicated and non-adjudicated zones. For the GSA to do otherwise is in direct violation of the law.	MCR-8	
CalTrout	CalTrout-040	A	IS	Legal Citations		3	58	3.4.5.1	2025-2034	Neither the referenced section of the California Constitution nor the cited cases are on point. Article 10, section 2 applies to the diversion of water and water rights. Likewise, all the cited cases pertain to controversies between water rights holders, and what amounts and/or water diversion practices are considered reasonable.* * Gin Chow v. Santa Barbara, 217.Cal. 673, 705-706 (1933) determined that the doctrine of Reasonable Use as it applied to riparian rights was also applicable in controversies between a riparian right holder and an appropriator. Peabody v. City of Vallejo, 2 Cal.2d 351 (1935) (in bank) affirmed the ruling in Gin Chow, interpreting Article 10 § 2 of the California Constitution to require the application of the reasonable use doctrine to all water rights. City of Lodi v. East Bay Mun. Utility Dist., 67 Cal.2d 316, 339-341(1936) involved a controversy between appropriative rights holders: the City of Lodi, which held a senior right to groundwater supplied by the Mokelumne River, and the East Bay Municipal Utility District, a junior appropriative right holder that sought to impound and divert water from the Mokelumne. The case was remanded back to the lower court to determine the levels that the City of Lodi's supply wells could be lowered without substantial danger to the city's water supply. Josin v. Marin Mun. Water Dist., 67 Cal.2d 132, 141 (1967) settled a dispute between riparian landowners (plaintiff) claiming a property interest in rock and gravel deposits and an appropriative rights holder (defendant) operating a dam upstream of the riparian landowners. The plaintiff claimed that defendant had no right to collect and store the flood water that transported and deposited rock and gravel onto plaintiff's property (which the plaintiffs then sold). The court found that the plaintiff had no property interest in the rocks and gravel, and therefore using flood flows to transport sediment was not a reasonable use. Erikson v. Queen Valley Ranch Co., 22 Cal.App.3d 578, 585-586 (1971) concerned the forfeiture of appropriative water rights.		The cited cases are instructive when evaluating the reasonableness of competing uses of water. For example, City of Lodi v. EBMUD provides that a certain reduction in groundwater levels resulting from the upstream impoundment and diversion of water is reasonable.
CalTrout	CalTrout-041	A	IS	Environmental Beneficial Users, Undesirable Results	Cal. Water Code § 10721(x)(6)	3	58	3.4.5.1	2032	Line 2032 discusses the "reasonableness of groundwater use that may contribute to stream depletion." However, the reasonableness of groundwater use is not what SGMA tasks the GSA with defining for this undesirable result. Rather, the GSA must determine what is constitutes significant and unreasonable adverse impacts on beneficial uses of surface water; or put otherwise, what is the amount of depletion that can occur before these significant and unreasonable impacts occur (*see* Cal. Water Code § 10721(x)(6)).		In order to assess the reasonableness of an impact on beneficial uses of surface water, it is necessary to assess the reasonableness of the causes of those impacts. In some circumstances, some adverse impacts may be reasonable given the benefits obtained from the cause of those impacts. Thus, in the context of setting the ISW SMC, it is appropriate to consier the reasonableness of the impacts on surface water associated with groundwater pumping outside the adjudicated zone.
CalTrout	CalTrout-042	B	IS	SMC definition		3	59	3.4.5.1	2076-2077	What is meant by substantial streamflow depletion reversal? The GSP sets a goal of 15% by 2037, which does not seem adequate to avoid undesirable results.	MCR-4	MCR-4
CalTrout	CalTrout-043	A	IS	Undesirable Result definiton		3	59	3.4.5.1	2087-2097	This discussion about the "reasonableness" as it relates to the ISW undesirable result is convoluted at best. First, the GSP states that the "exact quantification of stream depletion that constitutes the Undesirable Result depends on a balancing test between public interest considerations and environmental improvements;" where does this test come from? If the GSA is using this test to determine what constitutes a significant and unreasonable adverse impact, then the GSP should contain a description of the public interest and environmental factors that were balanced. Further, what about the environmental improvements that are in the public interest?	MCR-4	MCR-4
CalTrout	CalTrout-044	A	IS	Undesirable Result definition		3	59	3.4.5.1	2087-2097	Second, the GSP reframes the question of "what is an 'unreasonable' amount of stream depletion?" as "what is a 'reasonable' amount of avoided groundwater use?" (Lines 2089-2090). Given that these two questions are not equivalent, does this mean that the GSA is defining "reasonableness" in terms of the economic impact to groundwater users instead of environmental impact on the river system? While the GSA is permitted to consider the cost of compliance when defining what is "reasonable," it must also account for the costs to the public, tribes, and commercial fisheries for the loss of fish populations resulting from depletion of streamflow.	MCR-4	
CalTrout	CalTrout-045	A	IS	Undesirable Result definition and approach		3	59	3.4.5.1	2087-2097	Third, line 2092 states that "the only way to answer these questions was to simultaneously evaluate the flow benefits and public interest impacts of various PMAs." This statement is confusing as PMAs are intended to prevent undesirable results, not define them.	MCR-26	Noted. No change needed in the GSP. The information provided in the GSP is sufficient.
CalTrout	CalTrout-046	C	IS	SMC and Undesireable result definition		3	59	3.4.5.1	2087-2097	Lastly, the discussion concludes with "it would be reasonable to undertake some combination of PMAs to reduce stream depletion while exposing stakeholders to reasonable economic costs." Admittedly, this statement is true because it is what SGMA requires. Implementing PMAs to avoid undesirable results is not discretionary under the law, and it is curious that the Advisory Committee spent any time debating the reasonableness of doing so.	MCR-26	Noted. No change needed in the GSP. The information provided in the GSP is sufficient.
CalTrout	CalTrout-047	A	IS	SMC definition, Environmental beneficial users	3 C.C.R. §354.26(b)(2)	3	59	3.4.5.1	2087-2097	Ultimately, this GSP fails to explain what is considered a significant and unreasonable adverse impact on beneficial uses of surface water, which is inconsistent with the law (see 23 C.C.R. §354.26(b)(2) ("the description of undesirable results shall include . . . the criteria used to define when and where the effects of the groundwater conditions cause undesirable results for each . . . sustainability indicator")).	MCR-4	MCR-4

CalTrout	CalTrout-048	C	IS	Undesirable result definiton Shasta		3	59	3.4.5.1	2087-2097	In contrast, the Shasta Valley Draft GSP--developed by the same GSA-- clearly states that "the depletion of interconnected surface water is considered significant and unreasonable when there is a significant impact to environmental and agricultural uses of surface water in the Basin. Potential impacts and the extent to which they are considered significant and unreasonable include inadequate flows to support riparian health and ecosystems; [and] diminished agricultural surface water diversion, beyond typical reductions for any given water year type." (Shasta Valley Draft GSP, Ch.3, pg. 41 at lines 751-756)* * Available at https://www.co.siskiyou.ca.us/sites/default/files/fileattachments/natural_resources/page/27336/shasta_gsp_draft_chapter_3.pdf		Undesirable results for environmental uses and users are documented in this GSP in the same way they are in the Shasta GSP, see subsection "Effects of Undesirable Results on Beneficial Uses and Users"
CalTrout	CalTrout-049	C	IS	SMC definition		3	60	3.4.5.1	2107-2215	The GSP once again fails to comply with the law by setting an inadequate Minimum Threshold (MT) for the depletion of interconnected surface waters. After an incoherent discussion, the GSP defines this minimum threshold as "any portfolio of PMAs that achieves an individual monthly stream depletion reversal similar to, but not necessarily identical to, the stream depletion reversal achieved by the specific MAR-ILR scenario presented to the Advisory Committee. The average stream depletion reversal of the implemented PMAs during September-November must exceed 15% of the depletion caused by groundwater pumping from outside the adjudicated zone in 2042 and thereafter" – whatever that means.	MCR-26	Noted. No response needed.
CalTrout	CalTrout-050	A	IS	SMC definition	23 C.C.R. § 354.28(a), 23 CCR § 354.28(c)(6)	3	60	3.4.5.1	2107-2215	This definition for the MT is problematic: (1) The regulations require minimum thresholds to be numeric values that "represent a point in the basin that, if exceeded, my cause undesirable results." 23 C.C.R. § 354.28(a). Instead of providing such a numerical value, the GSA has chosen to provide a narrative description of what it claims to be a MT. (2) The 15% of stream depletion reversal proposed as a MT violates the regulations, which clearly state that the minimum threshold for the depletion of interconnected surface water "shall be the rate or volume of surface water depletions caused by groundwater use that has adverse impacts on beneficial uses of the surface water and may lead to undesirable results." 23 CCR § 354.28(c)(6)(emphasis added). Understandably, setting a numeric MT for the depletion of interconnected surface waters is not an easy task, as conditions in the watershed are constantly changing. However, this is exactly what the GSA has been tasked with doing. (3) Even if a percentage of streamflow depletion reversal was an acceptable metric for the MT, without defining an amount of depletion that can occur without causing an adverse impact (or put another way, without setting a minimum streamflow necessary to avoid undesirable results), this percentage is meaningless as a metric for achieving sustainability. What if the overall amount of depletion is so great that significant and unreasonable adverse impacts to beneficial uses of the surface water will still occur despite achieving a 15% depletion reversal rate? (4) Again, the GSA defines a standard for sustainability in terms of PMAs. How does making the MT dependent on the implementation of the very PMAs for which it is supposed to act as a trigger for ensure sustainable management of the basin's groundwater?		Re (1) (2): The location, quantity, and timing of the minimum threshold for depletions of interconnected surface water are defined numerically through the simulation results documented in Appendix 4-A. Re (3)(4): MCR-4
CalTrout	CalTrout-051	B	IS	SMC definition, suggested edit to plan - requested explanation		3	60	3.4.5.1	2107-2215	Some of the confusion surrounding this MT may be alleviated if the GSP did a better job of discussing the process and considerations used to select this MT (why percentage of reversal was chosen over defining quantities of depletion, feasibility of achieving certain levels of reversal, economic factors, etc.).		Using the percent depletion reversal as means to describe the minimum threshold is an adequate communication tool to convey the more complex description of the associated monthly flows documented in Appendix 4-A. The process by which the MT was arrived at is described in the fourth paragraph, under "Minimum Threshold". Also see MCR-4.
CalTrout	CalTrout-052	A	BR	Public Trust doctrine, ISW SMC		3	60	2110-2111	3.4.5.1	The GSP incorrectly states that PTD requirements would be met with "some reversal of existing undesirable results" The PTD demands more, requiring harm to public trust resources to be avoided "whenever feasible." (*See National Audubon*, 33 Cal. 3d at 446-447; *ELF v. SWRCB*, 26 Cal.App.5th at 862, 865).	MCR-4	MCR-4
CalTrout	CalTrout-053	A	IS	IHM, SMC definition, Environmental Beneficial Users	23 C.C.R. §354.28(c)(6)	3	60	2113-2117	3.4.5.1	The GSA attempts to justify the use of an insufficient Minimum Threshold for the depletion of ISW by referencing 23 C.C.R. §354.28(c)(6): " This framework for the minimum threshold is consistent with [the regulation] which (A) specifies the use of models to measure stream depletion, (B) implies that consideration of impacts on beneficial uses and surface water flows is necessary, but (C) does not require that streamflow itself is used to set the minimum threshold, triggers, or interim targets." However, this refence is a misleading and inaccurate statement of the law. 23 C.C.R. §354.28(c)(6) states that "[t]he minimum threshold for depletions of interconnected surface water *shall be the rate or volume of surface water depletion caused by groundwater use that has adverse impacts on beneficial uses of the surface water* and may lead to undesirable results." (Emphasis added). Therefore, while a model can be used to "measure" streamflow depletion, the regulation requires that the GSA consider impacts on beneficial uses of surface water when setting a MT that is, in turn, a quantifiable rate or volume of surface water depletion.	MCR-7	The location, quantity, and timing of the minimum threshold for depletions of interconnected surface water are defined numerically through the simulation results documented in Appendix 4-A.
CalTrout	CalTrout-054	C	IS	SMC definition		3	63-64	2217-2265	3.4.5.2	The same issues that exist with the GSP's proposed Minimum Threshold exist with its Measurable Objective, which is similarly insufficient and inconsistent with the law.	MCR-7	MCR-7
CalTrout	CalTrout-055	C	PM	Suggested edit to plan		4	3	107-109	4.1	"[P]riorities for consideration include effectiveness toward maintaining the sustainability of the Basin (including the amount of environmental benefit to be gained through implementation of the PMA); minimizing impacts to the Basin's economy; seeking cost-effective solutions for external funding; and prioritizing voluntary and incentive-based programs over mandatory ones."	MCR-27	Document has been changed per suggestion.
CalTrout	CalTrout-056	C	PM	Suggested edit to plan	Cal. Water Code § 10721(j)	4	4	143-144	4.1	The GSA has more than an "obligation to oversee progress towards groundwater sustainability." Rather, the GSA is responsible for implementing the plan and achieving sustainability within 20 years of its adoption. (*See* Cal. Water Code § 10721(j) defining "groundwater sustainability agency" as "one or more local agencies that *implement* the provisions of this part (emphasis added)."	MCR-27	Document has been changed per suggestion.
CalTrout	CalTrout-057	C	PM	Management actions - implementation and prioritization		4	10-Jul	224	Table 1	Many of the Project and Management actions are contingent on other groups¬–primarily environmental conservation groups–acting. What happens if these groups cannot/will not continue their efforts? Will the GSA step in to implement the necessary projects? Where will the funding for such implementation come from? Also, the actions put a lot of emphasis on increasing the amount of water available through environmental improvements, rather than on regulating the users of groundwater–regulating the use of/curtailment of groundwater is only mentioned once, as a tier 3 action. This seems to put the burden of sustainability on environmental users of water, rather than sharing the responsibility between all the watershed's interest groups.		It is not clear that the PMAs put the burden of sustainability on environmental uses of water. The GSP identifies pumping curtailments as a potentially effective tool that may need to be used in the future to achieve sustainability.
CalTrout	CalTrout-058	B	PM	Management actions, GSA		5	10	5.1.2	299-305	The only management actions that the GSA commits to taking are "coordination" and "outreach." What are the other actions the GSA is going to take to ensure that the basin reaches its sustainability goal?		Tier II projects will be evaluated and implemented, as necessary, between 2022-2027.
CDFW	CDFW-001	C	GD	GDES, ISW, ESA, Public Trust Doctrine						The Draft GSP raises significant concerns about potential impacts of groundwater pumping on GDEs, ISWs, and species within its jurisdiction. The Department urges the GSA to plan for and engage in responsible groundwater management that minimizes or avoids these impacts to the maximum extent feasible as required under applicable provisions of SGMA and the Public Trust Doctrine.	MCR-26	Noted. No response needed.
CDFW	CDFW-002	A	GD	Environmental Beneficial Users						GSPs must consider the interests of all beneficial uses and users of groundwater, including environmental users of groundwater. (Water Code § 10723.2.) GSPs must also **identify and consider potential effects on all beneficial uses and users of groundwater**. (23 CCR §§ 354.10(a), 354.26(b)(3), 354.28(b)(4), 354.34(b)(2), and 354.34(f)(3).) The Draft GSP does not adequately identify all the environmental users in the Basin, their locations, the groundwater dependent habitat they depend on at certain life stages, and how the Draft GSP will meet their needs.	MCR-26	Noted. No response needed.

CDFW	CDFW-003	A	GD	Special status species, Groundwater dependent species		2			11	In Table 11 of Chapter 2, the Draft GSP identifies species prioritized for management in the first column, and other species that depend on the same ecosystems as the species prioritized for management in the second column. However, the Draft GSP does not indicate where these species arefound in the Basin and how these individual species could be impacted by groundwater. The Draft GSP also does not include consideration of other special status species (such as fully protected raptor species) or species of greatest conservation need found within the Basin and how they might be dependent upon or impacted by groundwater.	MCR-26	Noted. No response needed.
CDFW	CDFW-004	A	GD	GDEs and environmental beneficial users mapping and identification						GSPs must **consider impacts to GDEs**. (Water Code § 10727.4(l); see also 23 CCR § 354.16(g).) The Department is uncertain whether the Draft GSP accurately identifies all GDEs in the Basin. Specifically, the Draft GSP does not provide sufficient detail when describing the methods used for GDE classification and mapping included in the Draft GSP and the rationale for the methods used. The Draft GSP mentions an evaluation, inventory, and mapping exercise (Section 2.2.1.8, lines 2136-2137) but does not provide any information on methods, types of remote sensing used, field data collection, field verification, or quality assurance/quality control measures employed. Without these means of verification, the Department cannot evaluate or comment on the accuracy of the GSP's GDE classification or mapping. However, the Department recommends that GDE mapping be informed by science-based vegetation classification or similar methods, such as the Department's Survey of California Vegetation Classification and Mapping Standards.* The Draft GSP's classification and mapping should be revised if necessary after utilizing these methods. Classification and mapping methods should be thoroughly described so that GDE classification and mapping can be verified by stakeholders or repeated during future GSP updates and effectiveness monitoring. * https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=102342&inline	MCR-26	Noted. No response needed.
CDFW	CDFW-005	B	GD	GDE identification						Table 8 of the Draft GSP illustrates another significant concern with the GDE inventory. Fremont cottonwood (Populus fremontii) is characterized as occurring in the Basin. However, a review of available location and herbarium information indicates that Fremont cottonwood is likely to be rare or possibly non-native tothe Basin. (Fremont cottonwood is a popular landscaping tree around ranches and homesteads). The Draft GSP cites the restoration analysis for Scott River riparian vegetation (Siskiyou RCD, 2009) as an information source. However, the RCD analysis does not include Fremont cottonwood and instead lists a very different species, black cottonwood (Populus trichocarpa). Although Calflora.org lists a single record of Fremont cottonwood in the Scott River Watershed (Moffett Creek), the Department recommends that the Draft GSP use more commonly occurring groundwater dependent species for its analysis, such as black cottonwood, western (water) birch, white alder, or other species known to occur in the basin.	MCR-27	MCR-27
CDFW	CDFW-006	B	GD	GDE identification						Valley oak (Quercus lobata) also appears in Table 8. According to Calflora.org, there are zero occurrences of valley oak in the Basin and none in Siskiyou County. This species should be removed from the GDE discussion and replaced with a native species in the Basin.	MCR-27	MCR-27
CDFW	CDFW-007	C	GD	suggested edit to plan, citations						The GSA should also note that vegetation types are not listed pursuant to CESA (Section 2.2.1.8, line 2121), but sensitive natural communities are classified by the Department.* The Department recommends removing the reference to CESA in the context of vegetation communities. * https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities#sensitive%20natural%20communities	MCR-27	MCR-27
CDFW	CDFW-008	B	HM	IHM description						SGMA regulations require each GSP to include a descriptive hydrogeologic conceptual model (HCM) of the basin based on technical studies and qualified maps that characterizes the physical components and interaction of the surface water and groundwater systems in the basin. (23 CCR § 354.14.) The HCM must include a description of data gaps and uncertainty within the HCM. (Id. at § 354.14(b)(4)(5).) While the Draft GSP includes an HCM, it is not clear that the HCM accurately characterizes the physical components and surface water-groundwater interactions in the Basin.	MCR-26	Noted. No response needed.
CDFW	CDFW-009	B	HM	IHM, Basin Characteristics						the HCM in the Draft GSP does not properly identify and characterize the principal aquifers and aquitards within the Basin as required by applicable SGMA regulations. (23 CCR §354.14(b)(4)(B) and (C).) The Draft GSP provides a regional description of the aquifer system(s) within the Basin without specifying the principal aquifer system is collectively within the Basin. The Draft GSP indicates, "The predominant water-bearing strata units in Scott Valley are the Quaternary stream channel, floodplain, and alluvial deposits…" but does not classify them as the principal aquifer system within the Basin and does not characterize the vertical and lateral extent of these assemblages in relation to one another.		The requested information is contained in the model documentation.
CDFW	CDFW-010	B	SC	Basin Characteristics description						the Draft GSP does not adequately characterize associated aquifer parameters (i.e., hydraulic connectivity, specific yield and storativity of the unconfined aquifer system) of each of the forementioned aquifer assemblages. The Draft GSP should characterize or define the lateral and vertical extent of existing aquitards/confining layers within the basin. In Figures 12 and 13 in Chapter 2 of the Draft GSP it provides two geologic cross sections that only show a generalized visualization of the aquifer system within the basin but does not clearly indicate the depths and lateral extents at which the aforementioned aquifer assemblages are located.		The requested information is contained in the model documentation.
CDFW	CDFW-011	B	SC	Basin Characteristics description, IHM						the included cross sections do not clearly identify the depths and lateral extents of the other geologic assemblages listed within the HCM (i.e., older alluvial deposits). In addition, theDraft GSP does not clearly identify a definable bottom of the basin as required by applicable SGMA regulations. (23 CCR §354.14(b)(3).) The Draft GSP provides a discussion of the geologic units from oldest to youngest within the Basin but does not identify a definable base between the alluvial material and deeper hard rock material in the basin.	MCR-27	Additional clarifying text, briefly describing the lateral extent of the older alluvial deposits and the base of the water-bearing units, has been added to Section 2.2.1.3.
CDFW	CDFW-012	B	SC	Basin characteristics definition						SGMA requires that the Draft GSP describe historic and current water level trends within the Basin. Pursuant to that requirement, the Draft GSP needs to provide groundwater level elevation contour maps depicting the groundwater table or potentiometric surface associated with current seasonal highs and seasonal lows and hydraulic gradients between principal aquifers. The Draft GSP only provides groundwater elevation contour maps for the spring and fall of 2015 but does not provide any additional groundwater contour maps in compliance with SGMA regulations requiring characterization of current seasonal highs and lows of the principal aquifer within the Basin. (23 CCR §354.16 (a)(1).)		The comment is not completely clear; we understand the comment to be requesting the inclusion of generic "seasonal high" and "seasonal low" contour maps based on aggregated water level data over multiple seasons. We belive the regulations do not specify this, and assert that a 1) contour maps are commonly based on water levels collected within 1 week, to provide an accurate snapshot of hydrogeologic conditions; 2) contour maps based on multiple seasons of aggregated data are generally a poor representation of features such as hydraulic gradients; and 3) a generalized groundwater contour map in the Scott Valley would not have significant utility in the GSP beyond the two example periods selected, the spring and fall of 2015. Water levels over a greater time period are included in Appendix 2-B, Well Hydrographs.
CDFW	CDFW-013	C	GE	Sustainability goal, SMCs, Water Budget						GSPs must **establish sustainable management criteria that avoid undesirable results** within 20 years of the applicable statutory deadline, including **depletions of ISW that have significant and unreasonable adverse impacts on beneficial uses of the surface water**. (23 CCR § 354.22 et seq. and Water Code §§ 10721(x)(6) and 10727.2(b).) The Draft GSP concludes that sustainability will be achieved by 2042 and undesirable results will be avoided, but the underlying analysis and data do not fully support these conclusions. The goal of sustainability cannot be achieved by 2042 without an accurate water budget and clearly-defined sustainable management criteria, including minimum thresholds, measurable objectives, and interim milestones		A complete water budget is included in the GSP
CDFW	CDFW-014	B	GE	SMC, Interim milestones, requested explanation						The GSP must describe "a reasonable path to achieve and maintain the sustainability goal", including a description of interim milestones for each relevant sustainability indicator, which must be provided at increments of five years (i.e., at 5, 10, 15, and 20 years from GSP adoption). (23 CCR § 354.30(e).) While the Draft GSP provides interim milestones are provided, it is unclear how these milestones will provide a "reasonable path" to achieving sustainability because they are framed in terms of equations and percentages without relation to a specific value to ensure sustainability.		The use of numerical tools is consistent with the GSP regulations for monitoring depletion of interconnected surface water (CCR 354.28(6)).

CDFW	CDFW-015	B	GE	Sustainability indicator definitions, requested explanation						For each relevant sustainability indicator, the GSP must describe quantitative measurable objectives to achieve the sustainability goal for the basin by 2042 and maintain sustainable management thereafter. (23 CCR § 354.30(a).) SGMA regulations also require the GSP to include numeric minimum thresholds to define and avoid undesirable results, which must be explained and justified based on basin-specific information and other data or models as appropriate, with appropriate accounting for any uncertainty in the understanding of the basin setting. (Id. at § 354.28(a)-(b).) The GSP must explain the relationship between the minimum thresholds and the relevant sustainability indicator, how the minimum thresholds will avoid causing undesirable results, how the minimum thresholds may affect the interests of beneficial uses and users of groundwater, and how each minimum threshold will be quantitatively measured consistent with SGMA monitoring network requirements. (Id.)		The requested information can be found in Chapter 3 of the GSP.
CDFW	CDFW-016	A	IS	SMC definition, GDEs and special species, requested explanation						SGMA regulations require minimum thresholds related to depletions of interconnected surface water to be "the rate or volume of surface water depletions caused by groundwater use that has adverse impacts on beneficial uses of the surface water and may lead to undesirable results." (23 CCR § 354.28(c)(6).) These minimum thresholds must be supported by the "location, quantity, and timing of depletions of interconnected surface water" and "a description of the groundwater and surface water model used to quantify surface water depletion." (Id. at § 354.28(c)(6).) If a numerical groundwater□surface water model is not used to quantify surface water depletion, the GSP must identify and describe an equally effective method, tool, or analytical model to be used for this purpose. The Draft GSP does not meet these requirements because it does not set minimum thresholds based on the rate or volume of surface water depletions caused by groundwater use, and it does not utilize a basin-wide groundwater-surface water model or equally effective method, tool, or model to quantify such depletions. Instead, the Draft GSP states that its analysis has considered measured groundwater contributions and the protection of GDEs through equations and numbers identifying the minimum thresholds and measurable objectives. The Draft GSP's limited explanation and justification do not demonstrate how the equations and numbers will ensure adequate protection of fish and wildlife resources and habitat. More specifically, these equations and general numbers do not clearly articulate how they will affect beneficial users' needs. The numbers and equations do not relate to flows needed to support species and habitat, and the equations do not appear to produce specific quantitative metrics protective of resource needs.	MCR-7	MCR-7
CDFW	CDFW-017	A	IS	SWRCB FASS						In addition, the GSA's assumptions regarding surface flows may be unrealistic. The State Water Resources Control Board (SWRCB) has declared Scott River a fully appropriated stream system (FASS) during part of the year, meaning insufficient supply is available for new water right applications at this time (Water Right Order 98-08). The FASS determination was based on numerous water rights decisions and orders that determined that allocated water likely exceeds available supplies from April 1 to November 30 each year (i.e., supplies are likely over-allocated at this time). SWRCB's determination was made based on multiple judgments of the Siskiyou County Superior Court, including Decree No. 13775 for Shackleford Creek and its tributaries (1950), Judgment No. 14478 for French Creek (1958), and Decree No. 30662 for the Scott River Stream System (1980) related to surface water rights. Scott River Decree No. 30662 also included provisions governing rights to certain groundwater recognized to be interconnected with the mainstem Scott River as delineated in that Decree. The Draft GSP anticipates that surface water users, the Scott Valley and Shasta Valley Watermaster District (SSWD), and SWRCB will be able to maintain sufficient flows instream. Thus, the GSA does not analyze issues regarding likely over-allocation of supplies and potential surface water depletions from groundwater pumping.		SVIHM reflects the actual usage of surface water and groundwater, based on computing daily climate-specific crop water needs using place-based, high resolution information about soil water conditions, crop, and irrigation equipment. Water rights reflect potential, but not actual (less than potential) water use.
CDFW	CDFW-018	B	IS	SMC definition						the Draft GSP fails to incorporate best available science that could be used to inform appropriate criteria for instream flows. In Chapter 2, the draft GSP states that the interim instream flow recommendations presented by the Department "have not been reviewed and adopted by the State Water Resources Control Board and do not constitute a regulatory instream flow requirement at the time when this Plan was adopted." The Draft GSP provides an equation to describe the sustainable management criteria for interconnected surface waters. The equation without the context of instream flow values at a location like the Fort Jones gage makes it difficult to assess if aquatic resources needs are being met by the minimum thresholds.		Unclear to which equation this comment refers.
CDFW	CDFW-019	B	IS	SMC definition						During Advisory Committee meetings, the Department's interim flow recommendations have been categorized as an "aspirational watershed goal" provided in Chapter 5. The GSA should utilize the best available science in determining and implementing sufficient instream flows. The Department has provided best available science that should be used to answer this question now rather than referring to an "aspirational watershed goal." Please see the Department's previous March 26, 2020, letter for details on this best available science and the needs of other special-status species that require attention beyond salmonids.		This issue has been discussed at length by the AC and the resulting GSP design is consistent with the consensus among AC members.
CDFW	CDFW-020	A	IS	SWRCB emergency regs, environmental beneficial users, SMC defintion						On August 17, 2021, SWRCB also adopted emergency instream flow requirements (discussed more fully below) that inform the minimum flow needs for survival of Chinook Salmon and Coho Salmon in the present drought emergency. This information and any further information that becomes available regarding the needs of beneficial users should be considered when developing and implementing the Draft GSP. The Department recommends that the GSA establish sustainable management criteria based on the best available science that meets the needs of all beneficial users.		This issues is discussed at length in Chapter 3 of the GSP.
CDFW	CDFW-021	B	WB	IHM, available data						Per SGMA regulations, each GSP "shall rely on the best available information and best available science to quantify the water budget for the basin in order to provide an understanding of historical and projected hydrology, water demand, water supply, land use, population, climate change, sea level rise, groundwater and surface water interaction, and subsurface groundwater flow." (23 CCR § 354.18 (e).) The water budget is a product of the Scott Valley Integrated Hydrologic Model (SVIHM). CDFW acknowledges that Department of Water Resources (DWR) allows the use of models to prepare Water Budget in Basins; however, DWR also stresses the importance of using reliable data sets when available to increase the accuracy of the models output. The GSP identifies no extraction information was available for wells within the Basin at the time of preparing the model. As a result, the Draft GSP provides a discussion on utilizing evapotranspiration (ET) estimates to determine rates of aquifer pumping specific to crop type to quantify groundwater extraction values for development of the water budget. CDFW understands that this method may be the best available science at present but suggests the GSA considers remedying the issues regarding lack of accurate well information and groundwater usage data sets needed to adequately characterize groundwater levels and groundwater in storage within the Basin.	MCR-26	Noted. No response needed.
CDFW	CDFW-022	B	SC	IHM, Basin Characteristics, requested explanation						The geologic descriptions presented within the HCM section of the Draft GSP, and information presented within the SVIHM description and Appendix 2C indicates that there is no regional definable confining layer within the Basin. However, as previously mentioned it does indicate that there may be local clay layers or clay lenses that are relatively broad in extent. In areas within the model domain, where suspected confinement exist, correct calculations should be considered to estimate the storativity of the confined assemblages described within the geologic facies analysis. The locations and vertical extents of these confining units need to be described and characterized within the HCM section of the document and if applicable, should be used to refine storativity estimates in areas where confined aquifer assemblages are present.		"The presence and/or extent of confining or semi-confining layers" has been added as a data gap in the Geology section of Appendix 3-A, Scott Data Gaps.

CDFW	CDFW-023	B	HM	IHM, Basin Characteristics, requested explanation						discussions related to the observed seasonal water levels used to calibrate specific yield and storativity estimates modeled by the SVIHM would be helpful to the Reader and should be included in the Draft GSP. Potentially this information might be found in well logs that contain lithologic data sets that indicate the occurrence of these confining units. If well data exists that indicates the presence of confining layers in the Basin, or well construction information exists that validates groundwater level information specific to these zones under confinement, this information should be added to the HCM section of the Draft GSP.		The reference by Tolley et al., 2019, in Appendix 2C explains the use not only of water level data, but also of stream flow observations to calibrate specific yield and storativity, among other parameters. A sentence was added to the description of the aquifers in the geology section of chapter 2 to summarize the finding of "Foglia, L., A. McNally, C. Hall, L. Ledesma, R. J. Hines, and T. Harter, 2013. Scott Valley Integrated Hydrologic Model: Data Collection, Analysis, and Water Budget, Final Report. University of California, Davis, http://groundwater.ucdavis.edu, April 2013. 101 p.". They digitized and analyzed over 500 well logs. The analysis did not indicate the presence of laterally very extensive confining units. The aquifer is described as highly heterogeneous.
CDFW	CDFW-024	C	WB	Basin Characteristics, Water budget,						The GSA should also conduct more detailed investigations to more accurately describe the hydrogeologic setting within the Basin. Once the GSA clarifies its understanding of these issues, the water budget should be adjusted accordingly and the Draft GSP should identify sustainable management criteria that prevent adverse impacts to beneficial users, such as dewatering of GDEs, and strive for long term groundwater sustainability with PMAs.	MCR-3	MCR-3
CDFW	CDFW-025	A	WB	Adjudicated zone, water budget, annual reporting						The Draft GSP improperly excludes the adjudicated areas of the Basin in the Scott River Stream System (Adjudicated Zone) from its water budget and definition of undesirable results. The Draft GSP states that Water Code section 10720.8 provides that the Adjudicated Zone is exempt from SGMA. Section 10720.8(a) merely states that the adjudicated basins set forth in this subdivision (including the Adjudicated Zone) are not subject to Part 2.74 of SGMA, whichincludes requirements to develop a GSP. These adjudicated basins are still subject to other requirements under SGMA, including annual reporting requirements under Water Code section 10720.8(f).		This statement is erroneous. The water budget includes the adjudicated zone.
CDFW	CDFW-026	A	GE	Adjudicated zone, water budget, SMCs						SGMA's exemption of adjudicated basins from GSP requirements does not override other SGMA provisions indicating that where a GSP is required, it must account for the entire basin, including impacts to adjudicated areas. For purposes of SGMA, "basins" are defined as basins or subbasins identified in DWR's Bulletin 118. (23 CCR § 341(g).) In Bulletin 118, DWR defines the Scott Valley basin to include the Adjudicated Zone. (see Scott River Valley Groundwater Basin Description, DWR 2003.) SGMA statutes require a GSP to be developed and implemented for each DWRdesignated medium- and high-priority basin, and requires those GSPs to be either "a single plan covering the entire basin" or "multiple plans...coordinated pursuant to a single coordination agreement that covers the *entire basin* ." (Water Code § 10727.) In addition, SGMA statutes and regulations are clear that a GSP's water budget and sustainability criteria must be developed to account for the *entire basin* : · Water Budgets: SGMA regulations require each GSP to include a water budget that accounts for "the total annual volume of groundwater and surface water entering and leaving the *basin* , including historical, current and projected water budget conditions, and the change in the volume of water stored." (23 CCR § 354.18(a), emphasis added.) The water budget must also include "[a]n estimate of sustainable yield for the *basin* ." (Id. at (b)(7), emphasis added.) · Sustainability Criteria: SGMA regulations indicate that sustainable management criteria are "criteria by which [a GSA] defines conditions in its [GSP] that constitute sustainable groundwater management for the basin." (23 CCR § 354.22.) GSPs must establish "a sustainability goal for the basin that culminates in the absence of undesirable results within 20 years of the applicable statutory deadline", including measures that will be implemented to "ensure that the basin will be operated within its sustainable yield." (Id. at § 354.24, emphasis added.) · Undesirable Results: Undesirable results are defined as effects "caused by groundwater conditions throughout the basin." (Water Code § 10721, subd. (x), emphasis added; see also 23 CCR § 354.26(a).)	MCR-8	MCR-8
CDFW	CDFW-027	B	MN	ISW, SMCs, requested explanation						GSPs must describe monitoring networks that can identify adverse impacts to beneficial uses of ISWs. (23 CCR § 354.34(c)(6)(D).) The GSA should clarify how it plans to develop a monitoring network capable of collecting sufficient data to demonstrate short-term, seasonal, and long-term trends in groundwater and related surface water conditions as required by SGMA regulations. (23 CCR §354.34.)	MCR-11	This statement is erroneous. Chapter 3 of the GSP includes detailed description of monitoring needed to assess depletion of surface water due to groundwater pumping.
CDFW	CDFW-028	C	MN	Well identification						The Draft GSP references Appendix 3A, Table 1, which includes a list of wells that were reviewed for potential use in the Basin's evaluation. However, the Draft GSP does not clearly identify the wells used for monitoring, the locations of these wells, or specific well construction information for the wells used.		This statement is erroneous. Chapter 3 identifies the wells used in the representative monitoring network. Well construction information is a known data gap.
CDFW	CDFW-029	C	MN	Well identification, mapping						Within Appendix 2, the Draft GSP provides Hydrographs for 85 wells but only provides a small map of the well location at the top of the hydrograph, which is illegible and uninformative. These hydrographs do not indicate or clarify what aquifer unit is being monitored. The Draft GSP only provides minimal well construction information (i.e., well completion depth) for a few wells.	MCR-9	The Well Outage Appendix 3C indicates that little information is currently availble to match wells with water level data to well construction information available from DWR. This has been identified as a data gap.
CDFW	CDFW-030	C	MN	Well identificaiton, mapping		3			Table 2	In Chapter 3, Table 2 identifies wells designated for potential inclusion in the groundwater level monitoring and storage monitoring network as Representative Monitoring Points (RMPs). However, the map provided for these wells does not provide any designation (well identification) for the points shown on the map. The Draft GSP should include the well ID and associated information needed to assist in evaluating the proposed observation point for its potential to accurately characterize groundwater occurrence at that location. The data set should include the ground surface elevations for each well, reference point elevations for water level measurements, or important well construction information (i.e., well screen perforation intervals).	MCR-9	MCR-9
CDFW	CDFW-031	B	HM	IHM, Basin-wide analysis, environmental beneficial users						Per SGMA regulations, the Draft GSP must identify reasonable measures and schedules to eliminate data gaps. (23 CCR § 355.4(b)(2).) The Draft GSP does not contain a basin-wide groundwater-surface water model, analysis of the surface water depletion rate, or basin-wide groundwater monitoring, all of which are necessary to assess potential surface water depletions and impacts to beneficial surface water users, including Chinook Salmon, Coho Salmon, and Pacific Lamprey.		This statement is erroneous. The GSP provides detailed information on the use of an integrated hydrologic model. CDFW, which participated in most AC meetings, has never mentioned Pacific Lamprey as a known fish species of concern in Scott Valley.
CDFW	CDFW-032	C	IS	SMC definition, available data						The Draft GSP also lacks quantitative criteria for instream flows (discussed more fully below), which are needed to assess compliance with SGMA and avoid significant and unreasonable depletions of ISW. The Department acknowledges data gaps may initially exist and may make development of certain criteria more challenging. However, the Draft GSP must set forth a reasonable pathway and timeline for addressing these data gaps and developing sustainable management criteria as required under SGMA, supplementing with models and other data if needed to address uncertainties in basin-specific data.	MCR-4	MCR-4
CDFW	CDFW-033	A	IS	SMC definition						The Draft GSP characterizes instream flows as "aspirational watershed goals" within sustainable management criteria. This characterization ignores the plain language of SGMA, which clearly indicates sustainable management criteria and objectives must be developed to avoid undesirable results within the planning and implementation horizon. (23 CCR §§ 354.24, 354.26, and 354.28.) In addition, SGMA requires the assumptions, criteria, findings, and objectives of a GSP to be reasonable and supported by the best available information and best available science. (23 CCR § 355.4(b)(1).)		SGMA explicitly requires the GSA to address undesirable results that occurred after 2014. The GSP is well equipped to prevent further reductions in daily streamflow than those observed prior to 2015. The aspiration watershed goal goes much further than that SGMA requirement: it reverses undesirable results that already existed in 2014.
CDFW	CDFW-034	B	HM	IHM, SMC, basin-wide approach, groundwater pumping						the GSP lacks consideration of current versus historic surface water extractions, agriculture ditch losses and gains, agricultural use of stockwater, new or improved wells in the interconnected zone, and the stream annually disconnecting. These deficiencies in the analysis suggests the model may not be considering all relevant groundwater pumping and related impacts in the Basin. Since SGMA requires sustainable management of the entire Basin, the sustainable management criteria must take a basin-wide approach.		SVIHM meets some of the most stringent integrated groundwater-surface water modeling standards in the industry. Multiple peer-reviewed publications are available. It is a well-calibrated model.
CDFW	CDFW-035	C	PM	Management actions - implementation and prioritization						GSPs must include projects and management actions that are feasible and likely to prevent undesirable results and ensure that the basin is operated within its sustainable yield. (23 CCR § 355.4(b)(5).) The Department encourages and will make best efforts to support PMAs anticipated to address both immediate and long-term fish and wildlife resource needs. Not recognizing the role of the GSA to ensure sustainable management and deferring nearly all PMAs through an "integrative and collaborative approach" will make it difficult to achieve sustainability even by 2042 as contemplated under SGMA. The Department encourages the GSA to start working on PMAs like the high mountain lake storage sooner than described.	MCR-26	Noted. No response needed.

CDFW	CDFW-036	A	BR	Public Trust Doctrine						The Department urges the GSA to consider its duties under the Public Trust Doctrine while developing its Draft GSP. While the SGMA sustainability requirements must be met within the 20-year planning and implementation horizon, Public Trust Doctrine requirements apply independently of SGMA, are not preempted by SGMA, and are applicable at all times. Under the Public Trust Doctrine, the GSA has the responsibility to consider potential impacts of its groundwater planning decisions on navigable interconnected surface waters and their tributaries, and ISWs that support fisheries and ecological uses, including the level of groundwater contribution to those waters.* The GSA has "an affirmative duty to take the public trust into account in the planning and allocation of water resources, and to protect public trust uses whenever feasible." (*National Audubon Society v. Alpine County Superior Court* (1983) 33 Cal. 3d 419, 446.) * 3 See, e.g., *People v. Truckee Lumber Co.* (1897) 116 Cal. 397, *National Audubon Society v. Alpine County Superior Court* (1983) 33 Cal. 3d 419, and *Envionmental Law Foundation v. State Water Resources Control Board* (2018) 26 Cal. App. 5th 844	MCR-26	Noted. No response needed.
CDFW	CDFW-037	A	BR	Public Trust Doctrine						Chapter 3 of the Draft GSP states that Public Trust Doctrine case law allows the GSA to balance public trust resource needs against public interest concerns. The GSA also states that appropriate protections for public trust resources depend on many factors, including public interest concerns about PMAs. It is not clear that the GSA has undertaken the analysis and consideration required under the Public Trust Doctrine to support its proposed PMAs and management criteria.	MCR-4	MCR-4
CDFW	CDFW-038	A	BR	Public Trust Doctrine						Under *Audubon and Environmental Law Foundation* , the GSA must conduct a robust analysis that considers the needs of public trust resources and impacts to those resources due to the proposed groundwater management practices, and that clearly explains why protection of public trust resources is infeasible due to inconsistency with the public interest. As explained above, the GSA has yet to resolve significant data gaps relevant to the surface water depletion rate, basin-wide groundwater levels, and the presence and needs of GDEs and beneficial users of interconnected surface waters. These issues must be addressed to ensure appropriate consideration of the needs of public trust resources as required under the Public Trust Doctrine.		We agree with the fact that the GSA "must conduct a robust analysis... due to inconsistency with public interest". The final GSP now also addresses this point: it now includes an economic analysis to explain why protection of public trust resources is infeasible due to inconsistency with public interests (also see MCR-4). However, the comment is incorrect in its further assessment of the GSP: The GSP demonstrably includes a) a proper data gap identification, b) a proper analysis of basin-wide groundwater levels, c) an appropriate analysis of the presence and needs of GDEs and of beneficial uses and users of interconnected surface waters.
CDFW	CDFW-039	A	BR	Public Trust Doctrine						Based on an accurate understanding of public trust resource needs and impacts, the GSA will need to assess a range of potential protective measures to address impacts of groundwater extractions. These measures may need to go beyond the PMAs identified in the Draft GSP and may include pumping limits or alternative supply options to address existing, new, and expanded extractions. Given overallocation and ongoing drought, it is critical to plan for such eventualities in the Draft GSP. Before rejecting such measures, the GSA will need to engage in a balancing of competing interests that shows that protecting species and habitat though contingent pumping limits, use of supply alternatives, or equivalent protective measures would be infeasible.		The statement appears to ignore large sections of the GSP. The GSP includes PMAs that allow the GSA to impose, if necessary, pumping restrictions or alternative supply options. The GSP explicitly includes PMAs to prevent any expansion of consumptive use in the basin (new and expanded extractions). The GSP's analysis finds the basin not be in overdraft. The GSP now also includes an eonomic analysis to explain why protection of public trust resources is infeasible due to inconsistency with public interests (also see MCR-4).
CDFW	CDFW-040	A	BR	CESA						Most critically, the GSA should consider the implications of its GSP development and implementation on species listed under the California Endangered Species Act (CESA). As previously identified in our March 26, 2020, letter, the highest priority recovery actions for protection of CESA threatened Coho Salmon include increasing instream flows and reducing overall water temperatures. It is unclear whether the current Draft GSP will support all beneficial users including aquatic species like salmonids since its sustainable management criteria do not appear to account for the needs of these species and its PMAs are deferred to a future date.	MCR-4	MCR-4
CDFW	CDFW-041	A	GD	Public Trust, GDEs, Environmental Beneficial Users, TMDL						In addition to the Department, the North Coast Regional Water Quality Control Board (Regional Water Board) identified groundwater inflows as a primary driver of stream temperatures in the Scott River. The Total Maximum Daily Load (TMDL) indicates groundwater drives temperature through the direct contribution of cold groundwater to surface flows, changing stream volume, and changing transit time. (Regional Water Board, 2005. Staff Report for the Action Plan for the Scott River Watershed Sediment and Temperature Total maximum Daily Loads. Chapter 4. Temperature.) Additionally, the TMDL indicates that groundwater elevation affects the ability of riparian tree species to thrive and reproduce, which indirectly affects stream temperatures by impacting exposure of surface water to solar radiation. Both of these groundwater-supported processes are critical for temperature TMDL compliance and for supporting the most sensitive beneficial uses the Regional Water Board identified in their analysis, which include cold freshwater habitat, reproduction, and/or early development of aquatic species. The TMDL analysis provides clear evidence that these beneficial uses depend on supporting conditions provided by groundwater dependent ecosystems which are currently threatened by unsustainable groundwater use. Actions may need to go beyond SGMA minimum requirements to meet Public Trust Doctrine requirements.		We appreciate and agree with the analysis of the NCRWB TMDL. The regulation and its implications are in fact explained in chapter 2 of the GSP and again in the rationale for the ISW SMC in chapter 3. As for the last sentence in this comments, the GSP now also includes an eonomic analysis to explain why protection of public trust resources is infeasible due to inconsistency with public interests (also see MCR-4).
CDFW	CDFW-042	A	IS	SMC definiton, Public Trust Doctrine, Interim milestones						The GSA suggests that implementation of PMAs to protect public trust resourcescan be deferred, "developed as part of program implementation", in the future. (Chapter 3, p. 57.) For example, the GSP sets a first milestone for minimum thresholds for surface water depletions in 2027, targeting only a 5% reversal of stream water depletions by this date. Without further analysis as described above, it is not clear that this proposal would be consistent with the Public Trust Doctrine. The GSA has an obligation to consider the impacts of groundwater pumping on public trust resources and ensure adequate protections in the immediate term. Deferring implementation of PMAs for five years after GSP adoption is not likely to be an effective way to ensure protection of public trust resources, particularly since ongoing groundwater pumping is causing significant adverse impacts to those resources. The GSA's proposal to spend the next 5 years increasing monitoring and fleshing out the outstanding sections of the GSP unduly delays tangible actions needed in the immediate term for protection of public trust resources.	MCR-10	The GSA operates under the regulations of the SGMA. SGMA clearly outlines a staged process to full compliance with sustainability criteria by 2042. Furthermore, a transition period for PTD actions is not unprecedented: Several decades separate the Mono Lake court decision (National Audubon Society v. Superior Court (Supreme Court of California, 1983, 33 Cal.3d 419) from achieveing its management (i.e., sustainability) goal, which has yet to be reached (https://www.monolake.org/learn/stateofthelake/). In the interim period, the GSA may refer to the county and the SWRCB for further actions under the PTD, which SWRCB has already initiated under its Emergency Order of August 30, 2021, (23.5 CCR 875).
CDFW	CDFW-043	A	IS	SMC definiton, SWRCB emergency regulations						Per SGMA regulations, GSP minimum thresholds must be consistent with existing regulatory standards absent clear justification for differences. (23 CCR § 354.28(b)(5).) Emergency regulations approved by SWRCB on August 17, 2021, and effective on August 30, 2021, set forth minimum instream flows needed to avoid extirpation of certain fish species in the Scott and Shasta rivers during the current drought emergency. Per the SWRCB's Informative Digest, these emergency regulations are intended to preserve minimum instream flows for migration, rearing, and spawning of fall-run Chinook and SONCC coho salmon in the Scott and Shasta rivers during the current drought emergency. (pp. 21-22.) These regulations must be accounted for in the draft GSPs for the Scott and Shasta basins.	MCR-10	MCR-10
CDFW	CDFW-044	A	BR	Public Trust Doctrine, Environmental Beneficial Users						However, the minimum instream flows set forth in the SWRCB emergency regulations are not intended to preserve all aquatic species in the Scott and Shasta rivers during all life stages, seasons, and water year types. The regulations merely set forth minimum instream flows that are needed to avoid extirpation of certain fish species to survive during the current drought emergency. The Public Trust Doctrine requires the GSA to manage groundwater pumping in the basin to ensure instream flows in interconnected surface waters (e.g., the Scott and Shasta rivers) are maintained at levels that fully support all life stages of all fish species during all seasons and water year types when feasible. In certain seasons and water year types, this may require maintenance of additional flow beyond the minimum instream flows set forth in the SWRCB emergency regulations.	MCR-10	MCR-10

Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-001	C	GL	Groundwater levels						The Draft GSP denies the reality that groundwater levels and groundwater storage have been declining in the Scott Valley for two decades. This can clearly be seen in the DWR SGMA Data Viewer, and in DWR's Spring 2020 Update, including the map to the right which shows "groundwater level trend" from 2000 until 2020. Like most of the state, DWR's Scott Valley groundwater monitoring wells shows the groundwater level decreased year-to-year up to 2.5 feet since 2000. More recent trends, in line with climate expectations, are much more dire.	MCR-12	The statement is a scientifically indefensible analysis that is inaccurate, misleading, and a gross misinterpretation of the excellent data available on the DWR SGMA Data Viewer. The GSP as well as analysis of water level data by UC Davis (2006-2018: https://ucanr.edu/sites/groundwater/files/153816.pdf; 2006 - current: https://ucanr.edu/sites/groundwater/Research/ScottValley/) clearly demonstrate a lack of year-to-year decline in groundwater levels, let alone year-to-year declines on the order of up to 2.5 feet. Water levels in Scott Valley are demonstrably seasonal and long-term stable, responding to long-term water-year type conditions (lower water levels during drought years and higher water levels in wet years). The extend of water level measurements - monthly measurements over a 12-year period in a monitoring network that achieves a density of more than 1 well per 3 square miles - far exceed the standards set by DWR and represent among the best characterized groundwater storage monitoring networks in the state.
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-002	C	GE	Total basin approach, adjudication						Managing all groundwater in the basin is necessary to achieve sustainability as defined in SGMA and its implementing regulations. Therefore, if the GSA believes it cannot manage a significant amount of groundwater and that will prevent it from realizing the promised benefits of SGMA, it should refer the basin to the State Water Board for a full groundwater adjudication.	MCR-4	MCR-4
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-003	C	GE	IHM						model results must be complemented by actual measurements and metrics, and compared to alternative results from other models and approaches, in order to properly guide management and evaluate results.	MCR-11	MCR-11
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-004	C	GE	Upland management, GSP update						The GSP must look to upland management's impact on water supplies and streamflow using the best available science and, at minimum, commit to addressing upland management at the first GSP revision:	MCR-26	Noted. No response needed.
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-005	C	GE	Suggested edit to plan		2			1292 et seq	This section should disclose all purposes of the SVID groundwater recharge experiment and the results. The intent was also to evaluate impact of groundwater recharge on flows in Scott River. The conclusion was that recharge on the eastside of Scott Valley can help flows but only in early summer, not critical fall and late summer flows	MCR-26	Noted. No response needed.
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-006	C	WB	Climate Scenarios, suggested edit to plan		2		Climate	2.2.1.2	This section should discuss relevant climate change predictions and how those changes are likely to impact surface and groundwater supplies, flows, groundwater levels, etc. because all that is critical information for managing water going forward.		See Subsection "Future Water Budget" in Chapter 2 for complete information on this issue.
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-007	C	SC	Irrigated acreage		2			1701-1703	The increase in irrigate acreage since 1964 is 6500 acres which is a 20% increase and not "similar to today's irrigated acreage." This is another among many places the draft downplays the increase in agricultural water use increases. That is wrong and should change.		The amount of irrigated acreage in Scott Valley between 1958 and 2000 fluctuated between 31,664 and 33,795 (see Table 3.1-6 in the 2009 FEIR, linked below). Current irrigated acreage is 37,195, which constitutes a 4,972-acre (15.4%) increase from the 1958 value of 32,223. The text has been updated to mention these numbers at this point in the document. FEIR link: http://www.ourstreamsflow.org/documents/Vol%201_Scott%20River%20Watershed%20Program%20FEIR.pdf).
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-008	C	SC	Land use, water budget		2			1736 - 1747	The section on Land Use fails to note how much more water alfalfa uses as compared to small grains. That should be fixed and the total increase in groundwater use due to the transition from small grains to alfalfa should be quantified and displayed because that is important information to inform management decisions.		This is incorrect. Appendix 2C clearly identifies the lower water use of small grains when compared to alfalfa. It is fully accounted for in SVIHM.
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-009	C	SC	tributary decrees, wateruse		2			1759 et seq	Y'all do not mention the Shakleford and french Adjudication Decrees. That should be fixed and the season of irrigation for each should be included. Also, there should be a discussion of diversion for stockwatering.		The Shackleford and French decrees are mentioned at the bottom of the "Scott River Adjudication and Interconnected Groundwater Zone" section. This section header has been amended to "Scott River Adjudication, Interconnected Groundwater Zone, and Previous Surface Water Adjudications" for clarity.
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-010	C	SC	Basin characteristics - alluvial springs		2			1795, et seq	The discussion of westside alluvial fans fails to mention the major springs which emerge within these fans and which are a major source of flows for the Valley section of Scott River. This section should also mention that these springs dry up as the groundwater level declines.		The periodic dewatering of streams and the "Discharge Zone" on the western side of the Scott Valley is described under "Aquifers" in section 2.2.1.3 (Geology). A reference to this section has been added to Section 2.2.1.6.
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-011	C	HM	SVIHM		2			1994 - 2001	The Scott Valley Integrated Hydrologic Model (SVIHM) is a highly sensitive model that has not been validated. These facts and their implications need to be noted here where and anywhere its use is described. Because highly sensitive models can give widely wrong results, the model should not be used alone but in combination with (or with results compared to) the results from other models including the SWRCB E Flows Framework methodology and the TNC natural flows database. Wherever possible actual measurements, rather than models, should be used to guide management. **The model has built in bias and as a result its predictions understate the impact of groundwater extraction on streamflow. That should be corrected.**	MCR-13	The SWRCB EFlows Framework and the TNC Natural Flows database are valuable resources. They are based on statewide statistical analyses. Scott Valley data from these models have not been calibrated against independently measured data obtained in Scott Valley. In contrast, SVIHM is a physically based model that honors the extensive range of data available for Scott Valley on land use, land management, hydrology, geography, climate, etc. Model development, calibration and sensitivity analysis has been documented, peer-reviewed, and published in well-respected scientific journals. The final GSP now includes validation information (see Appendix 2D). Model uncertainties have been clearly identified. The main simulation findings provide valuable guidance and decision-support and are the best suited instrument for the assessments necessary to develop SMCs and PMAs. The SVIHM methodology conforms with a high scientific standard that fully conforms to SGMA requirements.
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-012	C	HM	SVIHM		2			2002 et seq	This section discloses some of the assumptions that are made by the SVIHM. It is the large number of assumptions that make it a poor tool to guide management. Until it can be improved, it alone can not be relied upon to guide management decisions. Real data should guide management, not models.	MCR-13	MCR-13
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-013	B	GDEs	Basin characteristics, GDEs, environmental beneficial users		2			2309 et seq	In the section on Priority Habitat Identified in the Basin: Y'all need to consult the maps which show where Critical Habitat for Coho have been designated by NOAA NMFS. It would be good to include a map of Coho designated CH because intrinsic habitat was used to designate it. Y'all need to at least mention that dataset: designated Coho CH and why it was not used, if indeed it is not used. Table 10 is a good summary.		Thank you for this comment. Critical Habitat was designated as "all accessible reaches of rivers (including estuarine areas and tributaries) between Cape Blanco, Oregon, and Punta Gorda, California (64 FR 24049, May 5, 1999)" (NMFS 2014, SONCC Coho Recovery Plan). Thus, all accessible reaches in the Scott River watershed are included in this critical habitat designation. A statement to this effect has been added to the section "Priority Habitat Identified in the Basin" in Section 2.2.1.8.

Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-014	B	GDEs	GDES, environmental beneficial users		2			2426 et seq	The section on “Threats to Prioritized Fish and Aquatic Species in the Basin” is grossly inadequate. It fails to identify the problem of low flows and stream dewatering that impacts and kills juvenile Coho and Chinook Salmon and Steelhead trout and impedes outmigration. It fails to mention temperature and nutrients as water quality problems, which they are. This section needs to reference and extensively quote from the Basin Plan and other documents which detail the water quality problems and impairments in the basin and how those impairments impact beneficial uses. In addition, how flows, and in particular low flows, impact water quality and the specific Scott CWA-designated impairments needs to be disclosed and discussed. This section needs major revision.		The Basin Plan is summarized and referenced in Chapter 2 as required by SGMA regulations.
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-015	B	GL	Groundwater Levels		2			2499 et seq	Y’all continue to assert that “groundwater levels in Scott Valley remained relatively consistent, with seasonal cycling of lowered groundwater levels in the summer followed by increases in the winter months (Harter and Hines 2008)”. That is a false statement. It contrasts with what DWR has found, that is, recent declines in minimum annual groundwater level and failure to fully recover historic maximum elevation levels. DWR is the expert agency in this regard so you need to consult and cite their information which finds a trend of decline in groundwater levels in Scott Valley wells, some going back to 2010. Here is the link to DWR’s latest groundwater report which includes historic trend data and maps: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Data-and-Tools/Files/Maps/Groundwater-Level-Change/DOTMAP_Reports/Spring-2020-Groundwater-DOTMAP-Report.pdf. Y’all need to admit that groundwater has been declining over the most recent decade and is predicted to decline farther if groundwater extraction is not cut.	MCR-12	The is a scientifically false, grossly misleading statement about the excellent data presented in the referenced report. Figure 6 of the report shows that for 5 of 6 wells in Scott Valley, water level changes were "insignificant" (yellow). One of 6 wells has a water level decline of "0 - 2.5 ft/yr". Also see further resources discussed in MCR-12
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-016	C	GL	Groundwater levels		**2**			2517 - 2520	The draft states “Historic and recent water level data do not indicate overdraft or long-term declines in groundwater data. However, the past 22 years have seen a higher frequency of dry years and more frequent occurrence of low fall water levels than has been observed on few wells during the previous 40 years. The argument is that, while declines in max and min levels have been observed, that is the result of “dry years”, not excessive extraction. The assertion is false. Extraction is lowering groundwater levels in dry years and, because the number of dry years has and is predicted to increase, extraction has and can be expected to continue to decrease groundwater levels and groundwater storage, that is, unless and until extraction is managed and restrained in dry years.	MCR-12	MCR-12
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-017	C	MN	Water Quality Monitoring		**2**			2817 et seq	NITRATE: The assessment of nitrate levels in groundwater is inadequate because data has not been collected from the areas most at risk for nitrate groundwater contamination. At minimum, y'all must obtain and cite monitoring data from Hale Dairy required as part of their CWA permit and housed at the NCRWQCB. That data can be used as a proxy for the most at risk sites for nitrate contamination in Scott Valley. However, you MUST establish an adequate network of wells that are regularly tested for groundwater quality in order to comply with SGMA going forward. That means specifying an adequate groundwater quality monitoring network in the GSP. It is wrong to seek to just rely on those two community drinking water wells cited in the draft and call all OK with water quality throughout the Basin.		The data from the Hale Dairy wells from 2013, 2014, and 2015 were well below 10mg/L. Data collected under the current dairy permit (https://www.waterboards.ca.gov/northcoast/board_decisions/adopted_orders/pdf/2019/19_0001_Dairy_GWDR.pdf), for which the first samples werwes colleced in the fall of 2020, are required to be uploaded to Geotracker but have not been as of October 2021. Hale Dairy monitoring well(s) are targeted in the expansion of the water quality monitoring network in the first five years of implementation.
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-018	B	HM	SVIHM, Requested explanation		**2**		2.2.3.1		Summary of Model Development: The sensitivity of the model and how that sensitivity can impact the range and magnitude of error results needs to be disclosed and discussed. The limitations of the model need to be discussed and also, how limitations and errors can be checked over time using other means and other models. The lack of model validation and how that will be addressed needs to be discussed here and not relegated to an appendix.		This information is contained in Appendix 2C.
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-019	C	HM	SVIHM - assumptions		**2**			3193 et seq	Surface Water Inflow: The Model predictions of inflow should be compared to actual gauge data (see Figure 15) where we have actual gauges and discrepancies noted going forward.		This information is contained in Appendix 2C. All actual stream gage data have been used for the months available during the simulation period.
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-020	C	WB	SVIHM, future water budget		**2**		2.2.4		Future Water Budget: If one looks at Figure 30, the future basecase scenario has annual rainfall that is greater than any of the actual historic periods. That seems to be highly unlikely. Is it not more likely that future precipitation will be lower on average as compared to the past? If so, that should be reflected in the basecase. Is the basecase a model output? If so, it appears that the model is not a very good predictor of future reality.	MCR-16	The climate models were prepared by DWR and used in accordance with DWR guidance.
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-021	C	WB	Sustainable Yield		**2**		2.2.5		Sustainable Yield: This section assumes that “The Basin is not in overdraft.” As noted above, the assertion is not supported by groundwater data and trends collected by DWR. Please consult with DWR about the question of whether or not the basin is in overdraft and include/quote that response in this section.	MCR-12	MCR-12
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-022	C	GE	Sustainable Yield, GDEs, ISW		**2**			3572 et seq	“For the Scott Valley, the sustainable yield is equal to the 28 year average groundwater pumping of 42 thousand acre-feet per year minus any future reduction in groundwater pumping resulting from the implementation of project and management actions (see Chapter 4) to meet the milestones and, after 2042, the minimum threshold and measurable objectives for the interconnected surface water indicator and for the water level indicator.” This is an error. In order to maintain current levels of extraction, y’all have made unrealistic assumptions about the future climate and therefore the future water supply. You have also chosen to delay rectifying “undesirable results” to streamflow until 4042 and based streamflow restoration on unrealistic pie-in-the-sky “projects”. That is not acceptable and, if allowed, is likely to result in extirpation of Coho and Chinook salmon from the basin. The Scott is already producing less salmon than it should and loosing more juveniles than other Klamath sub-basins. The Scott GSP should rectify that situation, not make it worse as you are proposing. This extinction GSA will not pass muster with DFW because it does not comply with SGMA but it will serve to further alienate those who depend on Klamath River Basin salmon.	MCR-15	MCR-15
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-023	C	PM	Projects and Management Actions		**2**		2.2.5		Sustainable Yield; The draft GSP relies on future “projects and management actions” to address undesirable results and achieve what it calls sustainability. However, the future projects and management actions are only generally described and many of them are either not realistic or their feasibility has not been assessed. This reliance on unspecified, untested and unassessed future actions and projects is not realistic, likely to result in additional and continuing “undesirable results” and, therefore, does not comply with SGMA and its implementing regulations. At best y’all propose kicking the can down the road. But SGMA requires that you deal with groundwater management and undesirable results now, in the GSP.	MCR-15	The PMA chapter fully complies with SGMA regulations and DWR guidelines for preparing a GSP. See MCR-15
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-024	C	IS	SMC definiton		3				This chapter seeks to improperly define past conditions in order to allow continuation of current extraction levels. But the increase in groundwater extraction over the past 20 years has already resulted in undesirable results to streamflow, GDEs and domestic well owners that are unacceptable and which must be reversed. We need SMCs that will do that job. If the GSA won’t give them to us we will push to have the State Water Board take over management of groundwater.	MCR-4	MCR-4
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-025	B	MN	Water quality Monitoring Network		3			227- 228	Table 1: Summary of monitoring networks, metrics, and number of sites for sustainability indicators: 3 sites is not a sufficient network to monitor groundwater quality. The network needs to be expanded to cover all sections of Scott Valley and those areas most at risk for groundwater contamination which are the areas of former beaver dams in the lower Etna and Kidder Creek Areas .		The GSP clearly states that the representative monitoring network needs to be expanded and a timeline is in place for this expansion to add 5 additional wells to the network, for a total of 8 wells. (see Table 3).
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-026	B	IS	Groundwater pumping, GDEs		3			227-228	“Stream depletion due to groundwater pumping” has already occurred and not just on the main Scott River. The GSA is responsible for reversing the dewatering that has already damaged and destroyed some of the beneficial uses of water in these waterbodies. The GSA proposes unnecessary delays in action to revere those declines. That violates SGMA and is unacceptable. Restrict extraction now to restore the beneficial uses of our streams….and not just the River but all the Valley sections of major tributaries as well. Failure to do this will involve “take” of Coho salmon and will prompt citizen action to force the GSA to comply with all applicable laws.	MCR-4	MCR-4

Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-027	B	MN	Monitoring network		3			251	"Identification and Evaluation of Potential Data Gaps": The draft fails to recognize the groundwater quality network as deficient and therefore to plan to expand that network as needed. That should be changed. Wells that are monitored for groundwater level should also be monitored for groundwater quality.		The proposed network meets and exceeds the regulatory requirements set by the State of California.
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-028	C	MN	Monitoring Network		3		3.3.3.		Groundwater Quality Monitoring Network: Here y'all do call for expansion of the network. However, at least until the network is adequately expanded, the GSA must use the best available information in constructing the GSP and that includes groundwater monitoring data for beneath the Hale Dairy which is in the possession of the North Coast Water Board.	MCR-14	MCR-14
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-029	C	MN	Monitoring network		3			554-555	"Funding has been made available through NCRWQCB for sample analysis and results of this sampling will be used to help inform the monitoring network expansion." Please display the data from sampling that has already occurred. If you haven't done any sampling, please use available funds to do so in order to inform this version of the GSP rather than waiting until a future time and future version of the GSP.	MCR-26	Noted. No response needed.
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-030	C	IS	SVIHM		3			661	"Groundwater Levels as Proxy for Stream Depletion Monitoring – not suitable": While that may be true for Scott River, it is not true for the lower reaches of major tributaries in Scott Valley which are dewatered for longer periods as a result of the DWR documented 20 year decline in groundwater levels. To comply with SGMA, the GSA must use the best available scientific information to determine and disclose how groundwater extraction declines over the past 20 years have impacts major tributary flows as well as Scott River flows. Additional stream gauges are likely needed to be able to assess how management changes are impacting lower tributary flows. The SVIHM should not be used to assess impacts to streamflow for the reasons explained elsewhere. Comparison to other methodologies indicates the SVIHM is biased against streamflow, that is, it predicts lower streamflow consistently than is actually the case. The GSA should use actual stream measurements rather than any model whenever possible.	MCR-12	MCR-12
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-031	C	IS	SMC approach		3			724 et seq	"Streamflow as Proxy for Stream Depletion Monitoring – not suitable": The argument for not using streamflow as an indicator for stream depletion is nonsensical. Any and all conditions are the result of multiple-factors. However, because the factors impacting streamflow other than ground and surface water extraction are the same no matter how much groundwater is extracted, observed changes in streamflow are likely all or nearly all the result of groundwater extraction and surface water diversion. Because the amounts of surface diversion are now known and must be measured and reported to SWRCB, it is entirely possible to isolate the impact to streamflow resulting from groundwater extraction. This again is an example of the GSA sticking its collective head in the sand in hopes of not having to deal with impacts it claims not to see. The GSP is rife with examples of GSA management avoidance schemes and scams.	MCR-13	MCR-13
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-032	C	HM	SVIHM, Monitoring		3			743-746	"The legal requirements for the minimum threshold allow for the use of a numerical groundwater and surface water model to quantify ("monitor" or "measure") the amount of surface water depletion due to groundwater pumping and to set the minimum threshold using the model." While the statement may be true it is also true that actual measurements are preferable to model results where the actual results can be obtained. It is feasible to monitor changes in streamflow and to adjust those for levels of precipitation and snowpack. That is the correct approach rather than using a model that is highly sensitive and unvalidated.	MCR-13	MCR-13
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-033	C	HM	SVIHM, ISW		3			748 et seq	"Quantifying Stream Depletion due to Groundwater Pumping with SVIHM": is unacceptable because the model is too sensitive and has not been validated. Y'all need to use a different method, one that has been proven to be accurate in other basins.	MCR-13	MCR-13
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-034	C	Ge	SVIHM		3			792 et seq	"Measuring" as used in SGMA means measuring; it does not mean modeling. Modeling runs are not measurements. You keep trying to use the SVIHM for purposes for which it is not suitable or is not the best, that is, the most accurate and reliable, measurement tool. You can't get away with it and will loose the privilege of managing if you keep trying.	MCR-13	MCR-13
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-035	C	HM	SVIHM		**3**				Because you seek to use the SVIHM in some many critical ways and in lieu of actual measurements, it is critical that you obtain and publish as an appendix an independent expert evaluation of the model and its suitability for each of the many purposes for which y'all are proposing to use it.	MCR-13	MCR-13
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-036	C	HM	SVIHM		**3**				Y'all should use DWR groundwater and other data and data from other agencies, rather than using the SVIHM whenever possible. Actual measurements are always preferable to modeling, particularly when the model is so highly sensitive and not validated. The GSA's consultants have a material and professional interest in the SVIHM; is that why it is being proposed for so much use when better information is available by other means and from other sources?		Under Chapter 3.3.5, see sub-section on Assessment and Improvement of Monitoring Networks, which lists in detail the numerous monitoring and research data used in the GSP approach to monitor surface water depletions due to groundwater pumping.
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-037	C	GL	SMC definiton		**3**			1098	Figure 6 shows that the draft GSP proposes allowing further lowering of groundwater levels before any action to reverse undesirable results is taken. That is unacceptable because it does not reverse or even prevent further increases in undesirable results. Depth to groundwater are too low (in elevation) for the minimum threshold range, trigger and measurable objective. They violate SGMA because they will produce and exacerbate undesirable results on streamflow. Give us the range, trigger and measurable groundwater objectives that will keep the Scott River and major lower tributaries running at key periods for salmonids.		This is a false statement. The GSP states that action is taken when water levels fall to trigger levels. The implementation of PMAs will ensure that water levels meet the MO and, even under extreme conditions, do not fall below the MT.
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-038	C	GE	Comment on plan language		**3**			1117 et seq	Use of the word "excessive" without defining what constitutes excessive or how that criteria was developed is patently unscientific and unacceptable.		The description of Undesirable Results meets and exceeds the standards set by DWR regulations. See, for example, GSPs already approved by DWR.
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-039	C	GL	Groundwater levels		**3**			1306 et seq	The GSP asserts that "Historical water levels indicate that there is no overdraft and no long-term decline in water levels." As we have pointed out, the statement is false as shown by the 20 year decline in groundwater levels in Scott Valley found by DWR and displayed in their SGMA Tracker interactive map. The GSA uses this false claim to justify setting minimum thresholds at levels that will sustain and augmented undesirable results while allowing current rates of extraction to continue. They do this in order to maintain current levels of extraction. But the reality is that current extraction amounts cannot be maintained without producing undesirable results in violation of SGMA.	MCR-12	MCR-12
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-040	B	GL	Groundwater levels		**3**			1930	"No additional undesirable results have occurred since January 1, 2015 (Section 2.2.1.6)." The statement is false as shown by DWR's groundwater measurement and change database. As detailed in DWR's 2020 Groundwater Update, groundwater levels in Scott Valley have declined over the period 2000-2020, the period 2005-2020, 2010-2020 and 2015-2020. What is it about this data that y'all don't get? The GSP is required to use the best available information. In this case that is DWR's groundwater data.	MCR-12	The statement is a scientifically false, grossly misleading statement about the excellent data presented in DWR's https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Data-and-Tools/Files/Maps/Groundwater-Level-Change/DOTMAP_Reports/Spring-2020-Groundwater-DOTMAP-Report.pdf. Figure 6 of that DWR report shows that for 5 of 6 wells in Scott Valley, water level changes were "insignificant" (yellow). One of 6 wells has a water level decline of "0 - 2.5 ft/yr". Also see further resources discussed in MCR-12
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-041	C	GE	Basin wide appraoch, groundwater management		**3**			1950	"The portion of the Scott Valley Basin within the area included in the Scott River Stream System is not subject to SGMA." While the statement is true it is also true that Siskiyou County, the GSA, has the authority to manage groundwater anywhere within the county, including the Scott Adjudicated Groundwater Zone. Furthermore, SGMA instructs SisCo/the GSA to use that authority to prevent undesirable results. You have the ability and authority to manage groundwater, all y'all lack is the will.	MCR-8	MCR-8
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-042	C	IS	SMC definition		**3**			1989 et seq	The county seeks to avoid identifying target flows needed to avoid undesirable results to streamflow so that it can avoid responsibility for managing groundwater in order to meet those target flows. However, SisCo/the GSA has an affirmative responsibility to manage ground and surface water to meet the Forest Service right to flows in Scott River. The County/GSA has not met its responsibility but that does not negate the responsibility. SGMA requires use of the best information available to evaluate undesirable results to streamflow. Y'all have not done that and so major revision is needed in this section.	MCR-13	MCR-13

Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-043	C	IS	Basinwide approach		**3**			2048	While its SGMA enforcement responsibilities are narrowly focused on groundwater extraction outside of the Adjudicated Zone, the GSA nevertheless has the authority to regulate all Scott Valley groundwater and can choose to do so in order to reverse undesirable results. Not managing for that purpose is, therefor, not a result of SGMA but rather a choice by SisCo, which is the GSA, to not manage groundwater to reverse the destruction of the beneficial uses of our river other and streams. Sad.	MCR-8	MCR-8
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-044	C	IS	Groundwater Management		**3**			2054	"For the sustainability indicator of Interconnected Surface Water (ISW), this GSP makes a distinction between Undesirable Result (which must be attributable to groundwater use outside of the Adjudicated Zone) and overall challenges related to insufficient environmental flows in Scott River." The distinction does not prevent SisCo, which is the GSA, from managing all groundwater in order to avoid and reverse undesirable results of groundwater extraction. The decision not to manage is a free will choice that is an insult to those of use who love and depend on living rivers and streams.	MCR-8	MCR-8
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-045	C	IS	SMC definition		**3**			2065 et seq	Defining getting back to a healthy river as an "aspirational goal" is, as explained above, unnecessary, cynical and insulting. By it, the GSA shows its lack of concern for those citizens who depend on healthy stream ecosystems. Sad.	MCR-8	MCR-8
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-046	C	IS	SMC definition		**3**			2087 et seq	"The exact quantification of stream depletion that constitutes the Undesirable Result depends on a balancing test between public interest considerations and environmental improvements; that is, what is an "unreasonable" amount of stream depletion, which could be reframed as: what is a "reasonable" amount of avoided groundwater use?" While it "could" be reframed in that manner, it should not be reframed in that manner because that approach is backward. The amount of water necessary to maintain stream ecosystems and the fish within them in "good condition" is what "reasonable" and any amount less is "unreasonable." You must rely on the expert agency – DFW – to define minimum streamflow needs and they have done that. Y'all must manage to meet those flow or, alternately, the adjudicated flows. SisCo is the GSA and has the authority to manage in that manner. Trying to escape the responsibility will result in State Water Board taking over, that is, loss of local control.	MCR-4	MCR-4
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-047	C	IS	SMC definiton		**3**			2174 et seq	"Due to the climbing-path, the minimum threshold of 15% stream depletion reversal only becomes enforceable under SGMA in 2042 and thereafter, when sustainable conditions must be achieved." Deferring addressing undesirable results to streamflow until 2042 is unacceptable because by then the salmon will be extirpated.	MCR-10	MCR-10
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-048	C	PM	ISW, Projects and Management Ations		**3**			2211-2213	The GSA proposes to reverse undesirable results to streamflow "by the 'guiding' minimum PMA, Managed Aquifer Recharge and In-Lieu Recharge (MAR and ILR)." However, there is no analysis which indicates whether these means are capable of achieving the hoped-for result even by 2042. In fact, data and conclusions from the UCD/SVID MAR experiment indicate that those methods will not be effective in meeting the flow target. The GSA needs to take a close look at the UCD/SVID experiment and adjust its thinking in accord with the findings and conclusions drawn by the experts. MAR and ILR will not get the job done. What will? That is the question you are required to answer in the GSP.	MCR-25	The PMA chapter fully complies with SGMA regulations and DWR guidelines for preparing a GSP.
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-049	C	IS	SMC definition - interim milestones		**3**			2210	We want a more rapid reversal of undesirable results to streamflow from groundwater extraction than is shown in Table 7. Needed changes are needed now; they have already been deferred for far too long.	MCR-10	MCR-10
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-050	C	IS	SMC definition		**3**		3.4.5.4		You are required to use the best available information to Establish Minimum Thresholds and Measurable Objectives. In the case of Scott flows that would be the most recent DFW streamflow needs assessment. Those must be the target flows and the GSA is required to manage in a manner that will achieve those flows as soon as possible but no later than 2042.	MCR-13	MCR-13
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-051	C	PM	Projects and management actions		4			116-122	The draft states: "In Scott Valley, the PMAs are designed to achieve two major objectives related to the SMC: • to achieve the thresholds and objectives for the interconnected surface water sustainability indicator (Section 3.4.5); • to prevent the lowering of groundwater levels to protect wells from outages; • to preserve ground-water dependent ecosystems; and • to avoid additional stresses on interconnected surface water and their habitat." Because the SMCs are not in compliance with SGMA and its regulations, the PMAs defined in this chapter will not lead to sustainable management. Furthermore, the PMAs are not adequately defined and many are voluntary or not under the control of the GSA. Therefore, they are inadequate to achieve even the Draft GSA SMCs. The PMAs are so poorly defined that it is impossible to tell if implementing them would result in achieving even the inadequate SMCs.	MCR-25	MCR-25
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-052	C	PM	Project and Management Actions - implementaiton, SVIHM		4			172-174	The Draft states: "Using the Scott Valley Integrated Hydrogeological Model (SVIHM), the effectiveness of some projects, or a combination of projects, was assessed to identify those projects that, if implemented, will most likely bring the Basin into sustainability." For reasons noted in general comments, the SVIHM cannot be relied upon to properly evaluate PMAs. Therefore, the final GSP should use other, more reliable and proven criteria to recalculate the effectiveness of PMAs in meeting SMCs.	MCR-13	MCR-13
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-053	C	PM	PMA implementation, funding		4			178-179	"The ability to secure funding is an important component in the viability of implementing a particular PMA." The GSA has the responsibility of faithfully implementing SGMA whether or not "funding' is available to implement PMAs. Therefore, a compliant final GSA will identify those actions which are under the GSA's control which, based on good analysis, are likely to result in meeting the SMCs.	MCR-25	MCR-25
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-054	C	PM	Management action		4	8			"Avoiding Significant Increase of Total Net Groundwater Use from the Basin" This PMA means nothing because "significant" is not defined. That provides a loophole which SisCo and the GSA will use to allow increases in groundwater withdrawal for irrigation. Instead, to reverse the twenty year decline in groundwater levels and provide for additional domestic wells as the population grows, no new irrigation withdrawals should be allowed in the future.	MCR-25	MCR-25
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-055	C	PM	PMA implementation		4			224	Table 1 PMA Summary Table: The PMAs in this table either have been tried already and failed to reduce groundwater declines or they rely on "voluntary' actions which can not be reasonably expected to occur. They are also, in the main, actions by other entities not controlled by the GSA. There is little or nothing in here that would allow the GSA to manage groundwater in a manner that reverses undesirable results. Therefore, the PMAs are not adequate and do not comply with SGMA and its regulations. The GSA must define PMAs which it can implement to address undesirable results and meet reasonable and SIGMA-compliant SMCs	MCR-25	MCR-25
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-056	C	PM	projects and management actions		4			224	Upslope Water Yield Projects: This section ignores best science that finds that older forests protect and sustain favorable conditions of flow, that is, lower flood flows and greater baseflows. Instead, the PMAs the GSA contemplates would open the forest and lead to extensive sprouting and regeneration of small trees and brush. This will not only increased fire risk it will also increase flood flows and decrease base flows because it will lead to more and thirstier vegetation, except in the very shorty term (5-8 years). The GSA needs to rely on good science, not its political beliefs, to properly manage groundwater and comply with SGMA.	MCR-25	MCR-25
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-057	C	PM	Projects and Management Actions		4			224	The GSA proposes to "Reduce water use through voluntary managed land repurposing activities including term contracts, crop rotation, irrigated margin reduction, conservation easements, and other uses." Reducing groundwater use is needed but is very unlikely to happen through "voluntary" action. Therefore, this PMA is pie-in-the-sky. Voluntary land repurposing will not work; therefore, the GSA should define a PMA that is likely to be effective in significantly reducing groundwater use.	MCR-25	MCR-25

Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-058	C	PM	Projects and Management Actions		4			224	Many of the proposed PMA's are unlikely to ever occur. An example is raising the level of wilderness lakes. It is not in compliance with the wilderness act and it is not going to happen. By listing PMAs that have already been tried and have not reduced water use or which, like irrigation efficiency, have already been implemented and can not save more water and others which are highly unlikely to occur, the GSA seeks to avoid providing what is needed: real regulatory action to reduce extraction and reverse undesirable results.	MCR-25	MCR-25
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-059	C	PM	Projects and Management Actions		4			224	PMA's which have either already been tried and have proven not effective in reducing water use, increasing supply and reversing undesirable results include: MAR & ILR, Irrigation Efficiency Improvements, Beaver Dam Analogues, etc. The proposed PMAs are either already proven to be ineffective, infeasible for technical or legal reasons or contemplate vegetation management that will decrease water supplies, except in the very short term.	MCR-25	MCR-25
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-060	C	PM	Projects and Management Actions		4			224	The one action which could reduce groundwater extraction the most would be to ban those very large rainbirds on the end of center pivot irrigation equipment. Those big rainbirds wipe out the efficiency gains from the misters. The government should never have funded irrigation efficiency equipment that does not result in water savings or more efficient irrigation on balance. Make them reimburse the feds for the equipment if they refuse to remove the wasteful rainbirds that often end up irrigating the roads.	MCR-25	MCR-25
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-061	C	PM	Projects and Management Actions		4			297	TIER II: Planned Projects and Management Actions are all actions and activities which have either been in effect and have failed to reign in groundwater extraction or they are unlikely to ever occur for technical, cost and legal reasons. The rest are "voluntary." It is fine to ask for voluntary action but the GSA must also define other management actions which will effectively limit groundwater extraction if "voluntary" action continues to not get the job done.	MCR-25	MCR-25
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-062	C	GL	Groundwater levels		**4**			399-400	"A dynamic equilibrium already exists between the recharge across the Basin, groundwater pumping, and net discharge to the Scott River." This is a false statement. DWR data shows a decline in groundwater levels and storage over the past 20 years, the past ten years and the past five years. What is it about this data that the GSA does not get? It is clear. You've also continued to dewater streams. Maintaining the status quo does not comply with SGMA because it will continue and intensify undesirable results.	MCR-12	MCR-12
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-063	C	GE	General Comment		**4**			413	It is good that the GSA is finally admitting what the data clearly show, that is, "Decreasing Recharge in or Runoff from the Surrounding Watershed" which is likely due to climate change and which the basin is already experiencing. But the draft GSP fails to address the future reality, preferring to stick its head in the sand so it will not have to act to restrain groundwater extraction. That meets the GSA's anti-government ideology but it does not comply with SGMA. If the GSA won't manage properly, the State Water Board will step in. Give us a responsible GSP so that we can retain local control.	MCR-16	MCR-16
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-064	C	PM	Management action		**4**			316	"Avoiding Significant Increase of Total Net Groundwater Use from the Basin": This is the main PMA but the discussion in the draft makes clear that the GSA has not and will not develop and use the mechanisms necessary to get the job done.	MCR-25	MCR-25
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-065	C	PM	Management Action		**4**			444	"Collaboration with Permitting and Regulatory Agencies" is used in the draft GSP to attempt to cover the GSA's refusal to take regulatory action when needed to reverse undesirable results that have already occurred and to stem increases in undesirable results. Collaboration used as an excuse for inaction is despicable.	MCR-25	MCR-25
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-066	C	PM	Projects and Management Actions		**4**			640	PMA: "Scott Valley Managed Aquifer Recharge Project": both the limited experiment that has been conducted and the SVIHM show that this PMA has a very limited ability to reduce or prevent undesirable results. Those facts ought to be acknowledged in the GSA.	MCR-25	MCR-25
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-067	C	PM	Projects and Management Actions		**4**			995-1042	Raising wilderness lakes and building a new dam and reservoir in the Scott River Basin face regulatory, political and funding challenges that render them highly unlikely or infeasible. Therefore they should be dropped. The GSA should stop indulging its pie-in-the-sky ideological hopes and get down to the business of regulating groundwater extraction.	MCR-25	MCR-25
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-068	C	PM	Management Action		**4**			1052	"Strategic Groundwater Pumping Curtailment": curtailment is needed now to reverse the groundwater declines of the past 20 years which have dewatered streams and domestic wells. This should be done in an equitable manner. Delay, as proposed in the draft GSP, is not acceptable.	MCR-25	MCR-25
Felice Pace North Group - Redwood Chapter-Sierra Club, Water Chair	FP-069	C	PM	Projects and Management Actions		**4**			1135	"Voluntary Well Metering": this is just one among the many "voluntary" PMAs. Like the others it is unlikely to be effective and the GSA knows ity. Therefore, this is just an attempt to use "voluntary" to avoid responsibility under SGMA. It will not work. Instead it will result in loss of local control, the State Water Board taking over groundwater management.	MCR-25	MCR-25
Karuk	Karuk-001	A	IS	ISW Depletion Minimum Threshold	Water Code§ 10727.2	3	57-60,63-64			The GSP defines these terms for interconnected surface waters in a way that fails, as the statute requires, to tie the results of over pumping to concrete effects in the basin. The GSP distinguishes between a "SGMA undesirable result" and an "aspirational 'watershed goal.'" (GSP at 3.57-59.) The former is defined as "stream depletion that can be attributed to groundwater pumping outside of the adjudicated zone to the degree it leads to significant and unreasonable impacts on beneficial uses of surface water." (GSP at 3.57.) The minimum threshold is defined as the "the amount of stream depletion reversal achieved by one or an equivalent set of multiple minimum required PMAs to meet the intent of SGMA (no additional undesirable results), and Porter Cologne and the PTO (some reversal of existing undesirable results)." (GSP at 3.60.) And the measurable objectives are defined by percentages of streamflow depletion reversed by PMAs. (GSP at 3.63-64.) * The GSP finds that the ISW undesirable result existed prior to 2015 and thus the GSP need not address it under SGMA. (GSP at 3.55-56; Wat. Code§ 10727.2.) This memo discusses this finding below.	MCR-26	Noted. No response needed.
Karuk	Karuk-002	A	GE	Definition of siginificant and unreasonable	Cal. Code Regs. tit. 23, § 354.26(a) and Asociacion de Gente Unida par el Agua v. Central Valley Regional Water Quality Control Board (2012) 210 Cal.App.4th 1255, 128	3	59			The GSP must define these "significant" and "unreasonable" effects. (Cal. Code Regs. tit. 23, § 354.26(a).) But the GSP's definition of "undesirable results" is a tautology. The GSP defines it as "significant and unreasonable stream depletion due to groundwater extraction from wells subject to SGMA (i.e., outside of the Adjudicated Zone)." (GSP at 3.59.) By including the terms "significant and unreasonable" in the definition, the GSP fails to provide a workable definition: an effect is defined as unreasonable if it is unreasonable. This is nonsensical and unworkable. In Asociacion de Gente Unida par el Agua v. Central Valley Regional Water Quality Control Board (2012) 210 Cal.App.4th 1255, 1280, the Court of Appeal disapproved a waste discharge requirement for dairy pollution where "the basis for concluding that any degradation of groundwater will be of maximum benefit to the people of California is that the Order states that it prohibits any further degradation of groundwater." The court found that this reasoning was "circular." (Ibid.) The same is true here.	MCR-27	
Karuk	Karuk-003	B	IS	SVIHM, SMC definition, monitoring						What the GSP could have done, but did not do, is establish a streamflow target that is protective of beneficial uses in the Scott. It then could have determined the relative contributions of groundwater users inside and outside the adjudication along with surface users. It could then establish the needed reductions in use by all three categories of water users. Even though the GSA lacks authority over surface users and the adjudicated zone, the exercise would inform the amount that pumpers outside the zone need to reduce by to reach a satisfactory flow rate. And making these calculations would inform the County, the State Board, the Watermaster, and potentially the courts and other agencies about the scale and nature of needed actions. This approach would also comply with SGMA by quantifying the undesirable result and minimum threshold.	MCR-4	
Karuk	Karuk-004	A	GE	Basin wide approach						Again, the regulations and the statute include the language "throughout the basin." If the legislature did not want to include consideration of effects in the adjudicated areas, it could have done so but did not. By focusing solely on pumping outside the adjudicated zone, the GSP fails to ensure, or even analyze what would be necessary to ensure that the basin as a whole reaches sustainability.	MCR-8	

Karuk	Karuk-005	A	GE	Definition of significant and unreasonable: quantification						Cal. Code Regs., tit. 23, § 354.26, subd. (b)(2) (emphasis added).) The description in the GSP is inadequate because it is not a "quantitative description." The regulations are clear that the result must be in the form of numbers tying minimum threshold exceedances to the significant and unreasonable effects. The GSP's description is entirely qualitative. In addition, the description lacks "criteria" for "when and where" groundwater conditions cause significant and unreasonable depletions. Again, SGMA and the regulations make crystal clear that ·the undesirable results analysis must be tied to physical conditions and physical locations, not solely a moqel output.	MCR-7	MCR-7
Karuk	Karuk-006	A	GD	Environmental beficial users						The GSP is required to determine whether the depletions of surface waters have "unreasonable impacts on beneficial users of surface waters." But instead of focusing its discussion on the harms to beneficial users, it focuses solely on the costs to groundwater users. This violates SGMA.	MCR-4	MCR-4
Karuk	Karuk-007	A	GE	Definition of Significant and Unreasonable; Quantifying Cost of Inaction	Water Code section 13241; City of Duarte v. State Water Resources Control Board (2021) 60 Cal.App.5th 258, 276J					The GSP fails to properly consider the "unreasonableness" of stream depletions by failing to analyze not only of the costs of compliance but of the costs to the public, tribes, and commercial fisheries of the loss of fish populations-loss which may include the incalculable consequences of extinction or extirpation. For instance, courts have held that when setting water quality objectives under Water Code section 13241, the "Water Control Boards are charged with taking into account economic considerations, not merely costs of compliance with a permit. As noted, economic considerations also include, among other things, the costs of not addressing the problems of contaminated water." (City of Duarte v. State Water Resources Control Board (2021) 60 Cal.App.5th 258, 276J The same is true here: determining whether an effect is reasonable requires looking at both costs to comply with any restrictions and also the costs to the public of over-extraction.	MCR-4	MCR-4
Karuk	Karuk-008	A	BR	Definition of Significant and Unreasonable, State Water Board Emergency Regs	Wat. Code § 1058.5; Cal. Code Regs. tit. 23, § 875 et seq; Stanford Vina Ranch Irrigation Company v. State (2020) 50 Cal.App.5th 976, 1002-1003					The analysis also misses the fact that the State Board recently adopted emergency regulations setting flow levels (embodied in the CDFW drought minimum flows) below which extractions are deemed to be unreasonable. (See Wat. Code § 1058.5. (State Board authority to adopt emergency regulations to "prevent the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion, of water"); Cal. Code Regs. tit. 23, § 875 et seq.) Rather than focusing on the cost of compliance, the GSP must revisit its significant and unreasonable analysis in light of the State Board's determination of what is "reasonable." It is within the State Board's authority to determine which uses are reasonable. (Stanford Vina Ranch Irrigation Company v. State (2020) 50 Cal.App.5th 976, 1002-1003 ("[T]he Board is charged with acting to prevent unreasonable and wasteful uses of water, regardless of the claim of right under which the water is diverted.").)	MCR-17	
Karuk	Karuk-009	A	BR	SWRCB Emergency regulations						The GSP must account for the fact the State Board has now declared flows below the CDFW drought minimum flows to be unreasonable.	MCR-17	MCR-17
Karuk	Karuk-010	A	IS	ISW Depletion Minimum Threshold						The GSP defines the minimum threshold for interconnected surface waters as "the amount of stream depletion reversal achieved by one or an equivalent set of multiple minim.um required PMAs to meet the existing undesirable results)." (GSP at 3.60.) It goes on specify: "**average stream depletion reversal** of the implemented PMAs during September-November **must exceed 15% of the depletion caused by groundwater pumping from outside the adjudicated zone in 2042 and thereafter** ... " (GSP at 3.60 (emphasis in original).) There are at least three problems with this. First, it is circular. Second, the 15% figure is arbitrary and unsupported by evidence. Last, it is not tied to a "monitoring site or representative monitoring site" as required by the regulations.	MCR-4, 18	The justification for the "15% figure" has been thoroughly vetted by the AC and documented in the GSP (also see MCR-4). Extensive monitoring is included in the GSP and implicit to the use and regular update of SVIHM (see MCR-18)
Karuk	Karuk-011	A	IS	ISW Depletion Minimum Threshold		3	60			By defining the minimum threshold as the results of simulated PMAs, the GSP creates a circle. It can define the undesirable result and achieve it without demonstrating any real-world impact on flows, fish, or the people that rely on them. This violates SOMA. In addition, the 15% figure is completely lacking in evidence. An agency's action is invalid if it is "arbitrary, capricious, or without evidentiary support." (E.g. Association of Irritated Residents v. San Joaquin Valley Unified Air Pollution Control Dist. (2008) 168 Cal.App.4th 535, 542.)	MCR-7, MCR-18	
Karuk	Karuk-012	A	IS	SMC definition, cost analysis, clarification requested		3 and 4	60-61 and 27			While the GSP implies that it was discussed at the Advisory Committee meetings, there is no justification for why 15% was chosen, and not 50%, 100%, or 5%. Indeed, although the key driver of the GSP's MT analysis is the cost of the MAR/ILR scenario, the GSP does not consider the cost of the scenario! (GSP at 3.60-61, 4.27 ("Costs and funding for [the ILR/MAR] project have not yet been explored.") Here, the failure to consider the costs of the ILR/MAR scenario-which is the only basis for the selection of the 15% reduction figure-is arbitrary and capricious because it is not based on any evidence in the record.	MCR-4	MCR-4
Karuk	Karuk-013	B	IS	SMc definition						Moreover, there is no analysis of the impacts of the 15% depletion reduction on the stream itself. Without this analysis, there is no way to know whether this level of reduction is "significant" or "unreasonable," no matter how the terms are defined. And this illustrates the problem with defining the minimum threshold in terms of a modeled output rather than, as required by the regulations, a value at a monitored site.	MCR-7	MCR-7
Karuk	Karuk-014	A	MN	Quantifying undesireable results, monitoring sites	Stanford Vina Ranch Irrigation Company v. State (2020) 50 Cal.App.5th 976, 1002-1003					The "minimum thresholds" must "quantify groundwater conditions for each applicable sustainability indicator at each monitoring site or representative monitoring site." (Cal. Code Regs., tit. 23, § 354.28(a), emphasis added.) Therefore, the definition of the undesirable result must be "quantitative" and must be tied to minimum threshold exceedances at particular monitoring sites. 2 In other words, the SOMA regulations require a GSP to express an undesirable result in terms of a real-world impact to a directly measured value, in this case, streamflow.	MCR-7, MCR 18	
Karuk	Karuk-015	B	IS	SVIHM, SMC definition, monitoring						The SVIHM model will doubtless be a useful tool and provides invaluable insights into those parameters that cannot be directly measured. But it is not a "monitoring site." The GSP must include minimum thresholds that inform the GSA and the public when physical conditions in the basin have reached the point of being "significant and unreasonable" impacts on interconnected surface waters.	MCR-7, MCR-18	
Karuk	Karuk-016	A	IS	ISW Depletion Minimum Threshold						The GSP attempts to avoid the requirement to define the minimum threshold and measurable objectives in terms of stream flow by referring to section 354.30, subdivision (b) of the regulations. The GSP states, "Choosing the aspirational watershed goal itself as MO would not meet the requirement that quantification/measurement of streamflow depletion that is used to establish the minimum threshold, Section 3.3.5.1, must also [be] used to quantify the MO."3 But this is precisely backwards. As discussed above, the minimum threshold must be defined with reference to a measured value at a monitoring site. And there is no requirement that the measured value be identical, only that the metrics and monitoring sites be the same. Again, SGMA is clear that measurable objectives, like minimum thresholds and undesirable results, be defined in terms of measurable stream flow, not as a portfolio of PMAs or solely as a model output.	MCR-7, MCR-18	
Karuk	Karuk-017	A	IS	SWRCB emergency regulations						The emergency regulation now sets a minimum flow for the Scott River. Thus, the goal of restoring adequate flows in the Scott is no longer "aspirational"-a minimum flow is now the law. The GSP must be revised to account for this.	MCR-17	MCR-17
Karuk	Karuk-018	B	IS	SMC definition - suggested edit to plan, baseline condition						This a similar situation: the stream depletions are not a continuous problem that occurred long ago and has not been corrected, like seawater intrusion or permanent subsidence. Depletions are discrete events that recur anew each year, but the GSP treats them as permanent. Indeed, the GSP claims that there is no chronic lowering of groundwater levels in the Scott. (GSP at 3.32.) The GSP should be revised to make clear that the stream depletions did not "exist" prior to 2015 because each year they are caused again.	MCR-19	This interpretation of "new" is inconsistent with SGMA regulations and DWR guidelines. For example, Figures 3, 4, 7, and 11-14 in DWR's BMP 6 guidelines (https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/BMP-6-Sustainable-Management-Criteria-DRAFT_ay_19.pdf) all clearly identify cyclical "recurring" events rather than "new" events. The interpretation given here would require all GSPs to consider stream flow and groundwater level conditions at midnight on December 31, 2014, when SGMA came into effect. In the interpretation given here, any stream flow or water level lower than at that specific point in time would be "anew". In contrast, DWR's guidance is to consider a decadal to multi-decadal baseline period that defines the basin conditions prior to 2015 in wet, average, and dry years as well as seasonal variations typical for the basin. The GSP's findings are therefore fully consistent with SGMA regulations and DWR guidance.

Karuk	Karuk-019	A	BR	Public Trust Doctrine, CWA						The GSP purports to consider other laws. But it does so in the context of doing as little as possible to comply with those laws. The GSP states that SGMA requires it to only not cause more undesirable results than "existed" in 2015 (e.g. GSP at 3.60). But it characterizes any "additional" reduction in pumping as in response to the public trust doctrine the Clean Water Act, not SGMA. As discussed above, the conclusion that SGMA does not require further reductions below the 2015 baseline is incorrect. The analysis of undesirable results and minimum thresholds needs to be revised to take into account the requirements of all other relevant laws.	MCR-4, MCR-19	MCR-4, 19
Karuk	Karuk-020	A	IS	CWA, ESA, TMDL						But the GSP does not model or account for cold water refugia, which are crucial for salmonid over-summering and rearing, especially for Coho. (GSP at 2.73.) The TMDL Action Plan reinforces that these thermal refugia are necessary for species recovery: "Where reaches of the Scott River and its tributaries are providing suitable freshwater salmonid habitat, including cold water refugia for coho and other salmonids, protection of these areas should be a priority for restoration efforts."* The GSP's failure to model and consider impacts of groundwater extraction on this crucial habitat implicates the Clean Water Act, by failing to comply with the TMDL for temperature, and the Endangered Species Act, for failing to protect critical habitat. Moreover, temperature impacts are an "effect" that the GSP wholly fails to evaluate the significance and reasonableness of when defining the undesirable result and minimum thresholds for either water quality or interconnected surface waters. The GSP should, at the very least, incorporate a plan to identify and protect these cold water refugia where they occur. * North Coast Regional Water Quality Control Board, Staff Report for the Action Plan for the Scott River Watershed Sediment and Temperature Total Maximum Daily Loads (2005) at p. 5-4.	MCR-20	The TMDL Action Plan does not specify any regulatory requirements with respect to said claim.
Karuk	Karuk-021	A	WQ	Surface water quality	Wat. Code § 10721, subd. (x)(4)					he GSP's identification of undesirable results for water quality is insufficient because it fails to consider groundwater extraction's impacts to surface water quality. SGMA provides that "[s]ignificant and unreasonable degraded water quality" is an undesirable effect required to be avoided (Wat. Code § 10721, subd. (x)(4), and SGMA does not limit this definition to degraded groundwater quality. But the GSP limits its discussion of the water quality undesirable result to groundwater quality. (GSP at 3.42) This limitation violates SGMA because it does not consider the significant effects that groundwater conditions have on surface water quality, namely, temperature-including cold water refugia. The GSP acknowledges that the Scott is listed as impaired for temperature under section 303(d) of the Clean Water Act. (GSP at 2.23) And extractions of groundwater affect flows and therefore temperature in the Scott. (GSP at 2.25.)	MCR-21	CCR 354.28(c)(4) explicitly refers to "contaminant plumes" and "supply wells", indicating that groundwater quality must be monitored ("Degraded Water Quality. The minimum threshold for degraded water quality shall be the degradation of water quality, including the migration of contaminant plumes that impair water supplies or other indicator of water quality as determined by the Agency that may lead to undesirable results. The minimum threshold shall be based on the number of supply wells, a volume of water, or a location of an isocontour that exceeds concentrations of constituents determined by the Agency to be of concern for the basin. In setting minimum thresholds for degraded water quality, the Agency shall consider local, state, and federal ater quality standards applicable to the basin."). Furthermore, in interpreting this regulation, DWR's BMP 6 guidelines (https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/BMP-6-Sustainable-Management-Criteria-DRAFT_ay_19.pdf) provide no indication that surface water quality monitoring is required where and when baseflow conditions dominate streamflow.
Karuk	Karuk-022	A	GE	Surface Water temperature as an undesirable result						The GSP must be revised to describe impacts to surface water temperature as an undesirable result and to develop minimum thresholds, measurable objectives, and projects and management actions to remedy the undesirable result.	MCR-21	MCR-21
Karin Newton	KN-001	C	GE	General Comment		Comment overview				Please note, we were among 42 farmers and ranchers who submitted comments on the first draft. Our comments were largely ignored in the latest iteration of the GSP. The below comments are largely copied and pasted from the original comments.		Comment noted. No comment response required, and no document edits have been made.
Karin Newton	KN-002	C	GE	Basin Name		Comment overview				One thing, however, is different in this draft: our name. Scott Valley is called just that—Scott Valley, not "Scott River Valley." Please remove all such references. Renaming our valley is an insult to our residents and an erasure our history.		Scott River Valley Groundwater Basin is the name used by DWR in Bulletin 118. The in-text references have been changed to "Scott Valley" and the name used by DWR in Bulletin 118 is included in a footnote.
Karin Newton	KN-003	C	GE	GSP Goal		Comment overview				A primary goal of this GSP should be to preserve and protect agriculture. The people who live in Scott Valley love it. Why is this place so special? It's beautiful, clean, rural, and safe. We know our neighbors because we've been able to establish deep roots in agriculture. Without agriculture, what would Scott Valley be? We have an obligation to allow our kids the opportunity to pursue the productive and honorable trade of agriculture, just as we have. The importance of agriculture to our nation's health and security need not be explained. Yet we must recognize that, on a local level, agriculture is just as crucial. We must protect it in order to preserve Scott Valley as we know and love it.	MCR-26	Noted. No response needed.
Karin Newton	KN-004	C	PM	Projects and Management Actions		Comment overview				Benefiting agriculture and fish can be done by increasing our water supply—or, more appropriately, holding onto our water supply. **During 7 to 10 days of high spring flows, enough water flows out of the valley to supply all of Scott Valley's farmers and ranchers with the water they need for the whole irrigation season.** We must implement water storage projects, both above- and below-ground, in order to hold onto that water. This will benefit ALL beneficial users in Scott Valley.	MCR-26	Noted. No response needed.
Karin Newton	KN-005	C	PM	Management Actions		Comment overview				Any project that puts increased regulatory burden on agriculture should not be considered in this plan. SGMA does not require punitive measures; the law simply asks the GSA to address groundwater quality and supply issues. Water storage measures are included in SGMA and therefore are attainable.		Water storage measures will be considered under the proposed GSP.
Karin Newton	KN-006	C	GE	General Comment		Comment overview				Proposals to turn off pumps and repurpose land away from agriculture will do damage to our economy, culture, and environment. Fallowed fields generally make bad neighbors: hotbeds for noxious weeds and fire danger. The more we discourage farmers and ranchers from being productive, the more we invite subdivisions and urban sprawl. Also, by discouraging above-board productivity, we inadvertently encourage below-board, illegal activities such as marijuana cultivation, which is dangerous to our citizens and damaging to our environment--including water quality.		GSP language includes measures to prevent stated concerns.
Karin Newton	KN-007	C	GE	General Comment		Comment overview				Furthermore, adding damaging regulations will invite a "snitch" culture where people turn in their neighbors for trying to be productive, care for their land, and provide for their families. Regulations that go against human nature will only cause conflict. We who live in Scott Valley must stand firm against any proposals to divide us and transform our landscape and culture away from agriculture.	MCR-26	Noted. No response needed.
Karin Newton	KN-008	C	PM	Management Actions		Comment overview				Again, SGMA allows for a wide variety of projects and management actions and does not mandate the use of punitive regulations.	MCR-26	Noted. No response needed.
Karin Newton	KN-009	C	GE	General Comment, Public Outreach, Projects and Management Actions		Comment overview				Please see the attached flyer that has been circulating with Scott Valley residents since mid-April. It encourages water storage, groundwater recharge, fish-friendly structures, and other projects and opposes well metering, fees and fines for water use, and forced pump turn-off dates.	MCR-26	Noted. No response needed.
Karin Newton	KN-010	C	GE	General Comment, Advisory Committee Process		Comment overview				It's been stated by more than one member of the Advisory Committee that this GSP development process "felt like a runaway train." Productive ideas that have had support from almost the entire committee—if not the entire committee—have been given very little attention by the Tech Team. It's time to put this plan back on track so that it suits the needs of Scott Valley.	MCR-26	Noted. No response needed.
Karin Newton	KN-011	C	GE	General Comment		Executive Summary	8			**As noted above, we lose most of our water as flow down the river and to the ocean:** "Annual outflow from the Basin occurs largely as Scott River flow exiting the Basin to the northwest (ranging -689 to -85 TAF, median of -292), though a significant portion leaves as ET (-130 to -90 TAF, median of -112)."	MCR-26	Noted. No response needed.
Karin Newton	KN-012	C	PM	Management Actions - Implementation and Prioritization		Executive Summary	11			This GSP relegates our most promising water storage projects to "Tier III" implementation—meaning "Additional PMAs that may be implemented in the future, as necessary 284 (initiation and/or implementation 2027–2042)." Meanwhile, "Tier II" projects have concrete plans to start right away. One of those projects, "voluntary managed land repurposing," is problematic for Scott Valley. Removing ag land from the equation means our kids will have lower chances of continuing our farming and ranching tradition. What will take its place?	MCR-2	MCR-2

Karin Newton	KN-013	C	GE	GSP Development, public outreach		1	6			"Consensus building is a foundational principle of all committee discussions, and membership is intended to reflect the diversity of beneficial groundwater uses and users in Scott Valley." **Comment: It can't be said that every PMA listed has consensus among AC members. On numerous occasions, members of the irrigation ad hoc committee have voiced their disapproval of proposals to turn off pumps, yet that option remains in the plan.** **Furthermore, the Tech Team held separate "ad hoc" committee meetings but never provided the full AC with an opportunity to meet in-person to find common ground. The subcommittees seemed to be working in silos.** **To the question of whether the AC represents the diversity of Scott Valley, it should be noted that cattle producers are not represented on the Committee, even though they represent a sizeable portion of the valley's economy, affected land area, and culture.**		PMAs were reviewed with the entire committee at multiple Advisory Committee meetings and Advisory Committee members had an opportunity to review and provide feedback on Chapter 4 of the GSP prior to the public draft version. Opposition to pumping curtailments has been voiced and it has been discussed and decided that this action should be prioritized as a "final result" type action and only implemented if all other defined PMAs have been implemented and groundwater management thresholds can still not be met. Ad hoc committees were formed as stipulated in the Scott Valley Advisory Committee Charter. Outcomes and action items from Ad hoc committee meetings were reported out to the Advisory Committee.
Karin Newton	KN-014	C	PO	C&E Plan, Public Outreach		1	7			"The final section of the C&E Plan describes outreach strategies which the local GSA employs to effectively advance SGMA implementation. Specific tools and forums include the following: • Advisory committee meetings • Constituent briefings with local organizations • Tribal engagement • Public meetings and workshops • GSA Board meetings • Coordination with local resource conservation districts • Coordination with state and federal agencies • Integration of relevant studies and materials • Interested parties list • Informational materials • County SGMA website • Local media and public service announcements" **Comment: The listed public outreach goals have, unfortunately, not been met. A very important group of stakeholders—landowners who use enough water to be affected by SGMA regulations—has been largely unaware of the GSA's activities to date, and until very recently has not been educated about SGMA. "Broad stakeholder input and feedback" has not been happening, at least among Scott Valley's farmers and ranchers.** **The excuse of "COVID" should not prevent our affected stakeholders from having meaningful engagement in this process. Zoom meetings led by the Tech Team do not constitute an open, accessible forum for most farmers and ranchers. Most of the "meetings" were held in the middle of the work day. In-person meetings should be held, at times convenient for farmers and ranchers.**		Noted. No response needed
Karin Newton	KN-015	C	GE	Suggested edit to plan		2	37			"The [Scott Valley Area Plan] includes multiple goals and policies that align with those in the GSP. Specifically, the focus on managing growth in a sustainable way while protecting priority agricultural lands and natural resources is an overarching theme in both the SVAP and the GSP." **Comment: The SVAP is explicit about protecting agricultural land. The GSP draft should explicitly protect ag, as well. (This comment was also made in the first draft, which means "agriculture" was deliberately left out. Why?)**		Correct, specific reference to protection of prime agricultural land, as identified in the development goals of the SVAP, has been added.
Karin Newton	KN-016	C	GD	Affected species, beneficial users		2	42			"The Valley and headwater tributaries of the mountains surrounding Scott Valley provide key spawning and rearing habitat for native anadromous fish species, including Oncorhynchus tschawytscha (Chinook salmon), Oncorhynchus kisutch (coho salmon) and Oncorhynchus mykiss (steelhead trout). Coho salmon in the Southern Oregon Northern California Coast Evolutionary Significant Unit (SONCC ESU) are listed as threatened at both the federal and state levels (NCRWQCB 2005)." **Comment: It should be noted that the Scott has never been prime habitat for coho. We are at the very bottom of the coho's natural range. Coho are harvested in great numbers off the coast of Alaska. This assertion is supported by the Shasta Indian tribe, which has stated that the Klamath (and by extension the Scott) is, "since time immemorial," historically unfit for coho. Additionally, a CDFW publication from 2007 refers to coho as a coastal fish that doesn't like to spawn farther than 20 miles inland (California Finfish and Shellfish Identification Book - a companion guide to the California Fishing Passport, California Department of Fish and Game, 2007).** **It should further be noted that the Chinook is also harvested commercially in the northern Pacific.** **Both Coho and Chinook populations are affected by many factors, such as gill netting (some Yuroks say they "don't know how a single fish gets up the river"); predation at the mouth of the Klamath; oceanic decadal oscillation; and more. This SGMA process must not be used as a weapon to target groundwater pumping when in fact many variables affect these species.**		Scott River has been identified as a major salmon spawning tributary (see Knechtle 2021, as referenced in Chapter 2 of the GSP, and coho salmon numbers from Scott River Fish Counting Facilities and CDFW spawning surveys from previous years). Additionally, CDFW identifies Scott River Watershed as a priority area for coho salmon recovery (https://wildlife.ca.gov/Conservation/Watersheds/Instream-Flow/Studies/Scott-Shasta-Study). Text has been added to highlight that there are numerous factors that can effect coho and Chinook salmon populations and the list of factors discussed is not exclusive.
Karin Newton	KN-017	B	GD	Suggested edit to plan, Comment on ad hoc committee organization		2	76			"Identification of Groundwater Dependent Ecosystems". This section is troubling. No agricultural members of the Advisory Committee were invited to join the "Surface Water" subcommittee that helped create this section. Nor were ag members given a very clear picture of what the Surface Water subcommittee was doing. Meanwhile, the Surface Water subcommittee was doing some pretty major things: "The group was created to assist with the identification of high-priority habitat, define a healthy hydrologic system in the Basin, and define metrics indicative of ecosystem health to assist in the definition of measurable objectives, undesirable results, and associated monitoring activities." Clearly, these important aspects should have had the entire Advisory Committee's consultation. This does not appear to have been the case. It seems the drafters of the GSP expected some blowback on this. On page 81, the GSP states, "A total of seven meetings [of the Surface Water subcommittee] were held between February 2020 and March 2021." No other subcommittee meetings were documented this way in the GSP. This seems to be an attempt to legitimize the somewhat cover-of-darkness process by which this section was developed. Some details about GDEs that should be addressed are: -Maps: Presence of a GDE on one's property seems as though it could have real ramifications. The GDE map on p 81 lacks any detail. Landowners should be able to see whether they are a target of extra scrutiny. -In two instances (western pond turtle and yellow-legged frog, p 85), the language points explicitly to "groundwater pumping" as potentially damaging. This is inappropriate. The main threat is drought. Placing blame on pumping implies the GSA's intent to curtail pumping. This is not necessary; we should pursue supply-side projects, which would alleviate the potential threats to these species.		Ad hoc committees were formed as stipulated in the Scott Valley Advisory Committee Charter. Outcomes and action items from Ad hoc committee meetings were reported out to the Advisory Committee. A full list of meetings, including public outreach activities, are listed in Appendix 1-B.Regarding only the Maps comment: The GSP now includes a digital D-size, high-resolution versions of this map (Appendix 2-A). Suggested edits were considered in the final GSP.
Karin Newton	KN-018	C	WB	Sustainable Yield, Future Groundwater Pumping		2	131			"For the Scott Valley, the sustainable yield is equal to the 28 year average groundwater pumping of 42 thousand acre-feet per year minus any future reduction in groundwater pumping resulting from the implementation of project and management actions (see Chapter 4)…" **This should be removed. Reductions of groundwater pumping should not be part of the GSP. As noted in numerous instances, there is no overdraft of water in Scott Valley, unlike some other basins developing GSPs. (Example: "Historical water levels indicate that there is no overdraft and no long-term decline in water levels" in Scott Valley (Ch 3 p 41).)**	MCR-15	The GSP provides a full rationale for this definition of the sustainable yield.
Karin Newton	KN-019	C	MN	Monitoring and data gaps		3	25			"The GSA plans to collaborate with other entities to add monitoring locations to fill data gaps." **Comment: The GSA should make clear that it will only accept verifiable data. Trust could become an issue for the public with the GSA accepting data from third parties.**	MCR-26	Noted. No response needed.
Karin Newton	KN-020	C	IS	streamflow depletion reversal		3	59			"that is, what is an "unreasonable" amount of streamflow depletion, which could be reframed as: what is a "reasonable" amount of avoided groundwater use?" **Comment: The latter question is flawed. Streamflow depletion reversal should be achieved by adding water to the equation, not by cutting back on current use (unless voluntary irrigation efficiencies are made).**	MCR-26	Noted. No response needed.
Karin Newton	KN-021	C	PM	Management Action		3	60			"The MAR-ILR scenarios, once fully implemented, provide a relative streamflow depletion reversal that averages 19% during September–November…" **Comment: I support this PMA but I am concerned 19% may be a high estimate. How many of the landowners in the proposed areas have been contacted to see if it will work for them? Also, more detailed maps than what's available in Appendix 4a would be helpful.**	MCR-3	The proposed action will be considered as the GSP is being implemented. It does not require the current GSP to be modified.

Karin Newton	KN-022	B	IS	SMC definition, Suggested edit to plan		3	61			"The average relative stream depletion reversal of the implemented PMAs during September–November must exceed 15% of the depletion caused by groundwater pumping from outside the adjudicated zone in 2042 and thereafter." **Comment: Since this self-imposed percentage is in bold and is so specific, the GSP should give a brief explanation of how it was arrived at.**	MCR-4	The revised plan, in chapter 3, explains in more detail than the draft plan how the minimum threshold was arrived at. Also see MCR-4.
Karin Newton	KN-023	B	IS	SMC Definiton, PMA		3	61			**These five-year goals for stream depletion reversal (5% by 2027, 10% by 2032, 15% by 2037) may need to be revised in order to accommodate the less expedient but more beneficial supply-side projects, such as reservoir-building and MAR/ILR.**	MCR-2	MCR-2
Karin Newton	KN-024	C	PM	Management Actions		3	64			"This explicit linkage between the measurable objective with the aspirational watershed goal also provides flexibility for compliance with potential future regulations or actions, in an integrated water management approach." **Comment: Agreed. As such, we should be proposing projects related to water storage, groundwater recharge, and instream structures to slow the flow. Regulatory hurdles, while inevitable, should not be used as a reason not to pursue these worthy projects. They are they only projects that will help achieve our groundwater goals without doing economic harm to a large swath of Scott Valley's farmers and ranchers.**	MCR-26	Noted. No response needed.
Karin Newton	KN-025	C	PM	Management Action		3	66			"Seasonal pumping restrictions in the non-Adjudicated Zone. • Voluntary pumping restrictions in the Adjudicated Zone. • Conservation easements that would limit irrigation in some or all water years." **Comment: These demand-side "solutions" will likely have undesirable results for Scott Valley's economy and environment and should be removed. Pumping restrictions will result in economic hardship, which could result in the forced sale of farms and ranches. Those properties would be divided into the smallest possible acreages, resulting in a denser population. Pressure would inevitably mount to revise the SV Area Plan to allow prime ag land to be subdivided into smaller pieces.** **Fields that are not watered will be overtaken by invasive weeds (dyer's woad, star thistle, etc). Therefore, ranches with conservation easements for non-irrigation will become bad neighbors: weed factories and fire hazards. (Note: language throughout Appendix 4a indicates that non-irrigated land will return to "native vegetation." This is not accurate. Circumstances have changed over the past 100 years: we have more drought and better drainage. "Native" vegetation will not reestablish itself. Without irrigation, invasive weeds will replace crops.)**	MCR-2	MCR-2
Karin Newton	KN-026	C	PM	Management Actions - Implementation and Prioritization, Funding		4	5			"Under the Sustainable Groundwater Management Implementation Grant Program Proposition 68, grants can be awarded for planning activities and for projects with a capital improvement component. As such, state funds for reimbursing landowners for implementation of PMAs, including land fallowing and well-shut offs, currently cannot be obtained under this program." **Comment: This funding issue speaks to the point that productive projects such as water storage should be pursued, while land fallowing and well shut-offs should be avoided.**	MCR-26	Noted. No response needed.
Karin Newton	KN-027	B	PM	Management Actions - Implementation and Prioritization		4	7			Table I PMA Summary Table. **Comment: Many promising ideas were proposed to the Tech Team to be included as Tier II or Tier III projects, with strong support from a sound majority of the Advisory Committee. Instead of including them in this table, those ideas were relegated to the last page of this report, with the reasoning that they "have not yet been investigated." Those proposals include: a study of the tailings for groundwater storage; recharge weirs; fish-friendly structures to decrease flow rates in Scott River and its tributaries; construction of a clay dam or permeable plug at the lower end of Scott Valley; and direct addition of water to the river during periods of low flow.** **It's hard to believe that none of these proposals have been investigated enough to put in the Tier II or III categories.** **Other PMAs listed in this table are addressed below.**		These PMAs have been included under an "Additional PMAs" list in Chapter 4. Evaluation and prioritization of PMAs is slated to occur in the first phase of GSP implementation, as outlined in Chapter 5.
Karin Newton	KN-028	C	PM	Management action		4	13			"Avoiding Significant Increase of Total Net Groundwater Use from the Basin." **Comment: Although this MA does propose significant regulations on new wells, it may be appropriate to avoid overdrafts in the Valley. It embodies the principle of "first in time, first in right," which has long been used in California water law.**	MCR-26	Noted. No response needed.
Karin Newton	KN-029	C	PM	Management Action		4	13		350	"[No net increase in groundwater use] can be achieved through exchanges, conservation easements, and other voluntary market mechanisms." **The GSA should be mindful of unintended consequences. For example, a market exchange, which is explored in more detail on p 19, could in fact encourage urban development of ag ground.**	MCR-2	MCR-2
Karin Newton	KN-030	C	PM	Management action, Suggested edit to plan		4	19		cutout	"Market instruments" cutout. **Comment: This troubling passage seems to encourage the conversion of ag land to urban development, because urban land uses less water. The example in the cutout even goes so far as to allow development of "natural lands" after a city buys out ag land—because now the city has "credits" for using less water than the ag land did. This entire section epitomizes tone-deafness and should be removed.**		Some cities in Siskiyou County groundwater basins have expressed concerns about not being allowed to have any expansion at all. The hypothetical example stated does not suggest urbanization of a largely agricultural region.
Karin Newton	KN-031	B	PM	Management actin		4	21			"Beaver Dam Analogues." **Comment: this section should be expanded to include other fish-friendly structures to slow the flow of the mainstem and tributaries for aquifer recharge. This concept has the support of many landowners along the river. I am told that BDAs (in some form) were used on the mainstem of the Scott several years ago and that the project successfully raised the water table. This is not mentioned in the draft.** **Other fish-friendly structures could include inflatable bladders: rubber dams that can quickly be inflated or deflated as needed. Thousands of these are used all over the world, with decades of success. In some cases, aquifer recharge is the sole purpose (e.g., the Santa Ana Inflatable Rubber Dam Project, which supplies 100,000 Orange County residents with water each year.)** **Recharge weirs, while more permanent and potentially damaging to surrounding fields during high water events, are also used around the world to recharge aquifers. They can be designed to allow fish passage.**		The GSP does not exclude future expansion to the PMA list. If other structures to slow flow will be shown to be feasible, this PMA could be expanded to carry such projects.
Karin Newton	KN-032	C	PM	Management Actions		4	22			Upslope water yield projects. **The "Green infrastructure" proposal is good and could be expanded. Clearing conifers, juniper, and brush all has potential to do good for the watershed, on both private and public land. By including such projects in this proposal, the GSA can encourage and partake in federal and private projects.**	MCR-26	Noted. No response needed.
Karin Newton	KN-033	C	PM	Management Action - Implementation and Prioritization		4	23			"Irrigation Efficiency Improvements". **Comments: As this PMA is fleshed out, the GSA should take care not to punish those who have already upgraded and invested in efficient systems, while antiquated systems get the grants. Perhaps the only fair way to go is a "First come, first serve" application system.** **This section merits more attention. While it claims that stream depletion is reversed by 4, 12 and -2 percent based on different scenarios, it doesn't describe what those scenarios are (nor does Appendix 4-A, which is referenced for more info). While irrigation efficiencies could hold potential for depletion reversal, this PMA seems to be glazed over when compared to more punitive options, such as pump turn-offs.**	MCR-2	MCR-2
Karin Newton	KN-034	C	PM	Management Actions		4	28			"Voluntary Land Repurposing". **Comment: This PMA should be used with extreme caution. From the perspective of a cattle producer, set-aside programs restrict the availability of pasture. Some would characterize term contracts, easements, etc. as "private decisions" by landowners. However, when government is offering incentives for such decisions, the concept of "free-market decisions" doesn't apply. Our local economy and culture will be affected in unforeseen ways when productive ag ground is set aside.**	MCR-2	MCR-2

Karin Newton	KN-035	C	PM	Management Action		4	28			"Irrigated Margin Reduction." **Comment: This is another example of a program that will require enforcement, and will likely result in citizen-police who turn in their neighbors for following their natural instinct of trying to be productive.**	MCR-2	MCR-2
Karin Newton	KN-036	C	PM	Management Action		4	29			"Crop Support: To support crop rotation, particularly for grain crops, access to crop support programs may be important to ensure that this option is economically viable." **Comment: This seems to rely on a federal program over which the GSA has no control. Rather than focusing on such weak possibilities, the GSP should focus on local, on-the-ground supply-side projects to increase the water table.**	MCR-26	Noted. No response needed.
Karin Newton	KN-037	C	PM	Management Action, Suggested Edit to Plan		4	29		841	"For example, a corner of a field may be well suited for wildlife habitat, or solar panels or water storage." **Comment: The concept of pivot corners as reservoirs was brought up by a local rancher and merits attention. "Wildlife habitat" is more likely to be noxious weeds, which farmers will have to try to beat back from encroaching on their crops. Solar panels would require considerable infrastructure at great expense. Ponds, on the other hand, are relatively inexpensive to build and could contribute to groundwater recharge.**		Document has been changed per suggestion.
Karin Newton	KN-038	B	PM	Management Actions - Implementation and Prioritization		4	30			"Tier III: Potential Future Project and Management Actions". **Comment: Some of these PMAs should not be relegated to Tier III. "Potential future" PMAs sends the clear message that these projects are not priorities, even though they are the least damaging and most promising for actually increasing the water table. Although they may take time to implement, these PMAs should be acted on immediately. (Examples: High mountain lake storage; MAR/ILR; reservoirs)**	MCR-26	Noted. No response needed.
Karin Newton	KN-039	C	PM	Management action		4	30			"Alternative, lower ET crops." **This section may have some potential; however, funding dedicated to research on this topic should be minimal. Farmers and ranchers are quite aware of which crops have a market in our region. Assuming grants are in limited supply, we have plenty of other supply-side projects that merit funding.**	MCR-26	Noted. No response needed.
Karin Newton	KN-040	C	PM	Management Action		4	31			"Floodplain reconnection/expansion." **This section ties in with the concept of slowing the river/tributaries. For willing landowners, this holds potential to slow the flow and increase the water table. Conversations with landowners should be pursued. In this case, limited conservation easements may be appropriate.**	MCR-26	Noted. No response needed.
Karin Newton	KN-041	B	PM	Management Action Prioritization		4	32			"High Mountain Lakes - This potential project class supports the restoration or modification of high-altitude lakes…." **Comment: Rather than referring to this PMA as "potential," it should be pursued immediately. Also, is it possible to include what percentage of depletion reversal would be gained from the 3,500 AF of storage? Using the metric used on other PMAs would be helpful.**		The AC did not consider this to be a Tier II PMA.
Karin Newton	KN-042	B	PM	Management Action - Implementation and Prioritization		4	33			"Reservoirs….Still in the conceptualization phase, details of a reservoir project have not yet been confirmed." **Comment: This sentence insinuates a lack of interest in this PMA on the part of the GSA. This is perhaps the most promising PMA when it comes to benefits to all, and yet the topic is given one-half of one page in this chapter. Meanwhile, there are empty ponds and reservoirs that already exist in the valley, which could be used right away (albeit permitting may be required). As for potential future reservoirs, has anyone asked the landowners in those areas for their opinions? Why has this project been relegated to "Tier III" when all the most damaging options – turning off irrigation and repurposing ag ground—have had reams of research done on them?** **Several landowners have indicated they have ponds available. A survey should be conducted to assess how many existing ponds there are, and how many landowners would be willing to have new ones built on their land. Several locals have talked about using the dredger tailings and ponds to store even more water than they do now.**		Tier III projects can be initiated right away. However, any reservoir project will take a significant period of time before it is completed.
Karin Newton	KN-043	C	PM	Management Action		4	33			"Strategic Groundwater Pumping Curtailment" **Comment: This section should be removed. This valley is not in an overdraft, and the GSP is on course to prevent that from happening without implementing any pump turn-offs. Including pump shut-offs as a potential future tool will result in pressure to use that tool. The mechanism should be removed entirely.**		Without this tool, the GSA has no credible tool to address groundwater management in case other tools fail.
Lauren Sweezy	LS-001	C	GE	General Comment		Comment overview				Please note, comments were submitted on the first draft of the GSP by the abovementioned 42 commentors. Most of these individuals are Scott Valley farmers and ranchers who will be directly affected by this GSP. Yet, our comments were largely ignored in the latest iteration of the GSP. The below comments are largely copied and pasted from the original comments.		Comment noted. No comment response required, and no document edits have been made.
Lauren Sweezy	LS-002	C	GE	Basin Name		Comment overview				One thing, however, is different in this draft: our name. Scott Valley is called just that—Scott Valley, not "Scott River Valley." Please remove all such references. Renaming our valley is an insult to our residents and an erasure our history.		Scott River Valley Groundwater Basin is the name used by DWR in Bulletin 118. The in-text references have been changed to "Scott Valley" and the name used by DWR in Bulletin 118 is included in a footnote.
Lauren Sweezy	LS-003	C	GE	GSP Goals		Comment overview				A primary goal of this GSP should be to preserve and protect agriculture. The people who live in Scott Valley love it. Why is this place so special? It's beautiful, clean, rural, and safe. We know our neighbors because we've been able to establish deep roots in agriculture. Without agriculture, what would Scott Valley be? We have an obligation to allow our kids the opportunity to pursue the productive and honorable trade of agriculture, just as we have. The importance of agriculture to our nation's health and security need not be explained. Yet we must recognize that, on a local level, agriculture is just as crucial. We must protect it in order to preserve Scott Valley as we know and love it.	MCR-26	Noted. No response needed.
Lauren Sweezy	LS-004	C	PM	Projects and Management Actions		Comment overview				Benefiting agriculture and fish can be done by increasing our water supply—or, more appropriately, holding onto our water supply. **During 7 to 10 days of high spring flows, enough water flows out of the valley to supply all of Scott Valley's farmers and ranchers with the water they need for the whole irrigation season.** We must implement water storage projects, both above- and below-ground, in order to hold onto that water. This will benefit ALL beneficial users in Scott Valley.	MCR-26	Noted. No response needed.
Lauren Sweezy	LS-005	C	PM	Management Actions		Comment overview				Any project that puts increased regulatory burden on agriculture should not be considered in this plan. SGMA does not require punitive measures; the law simply asks the GSA to address groundwater quality and supply issues. Water storage measures are included in SGMA and therefore are attainable.		Water storage measures will be considered under the proposed GSP.
Lauren Sweezy	LS-006	C	GE	General Comment		Comment overview				Proposals to turn off pumps and repurpose land away from agriculture will do damage to our economy, culture, and environment. Fallowed fields generally make bad neighbors: hotbeds for noxious weeds and fire danger. The more we discourage farmers and ranchers from being productive, the more we invite subdivisions and urban sprawl. Also, by discouraging above-board productivity, we inadvertently encourage below-board, illegal activities such as marijuana cultivation, which is dangerous to our citizens and damaging to our environment--including water quality.		GSP language includes measures to prevent stated concerns.
Lauren Sweezy	LS-007	C	GE	General Comment		Comment overview				Furthermore, adding damaging regulations will invite a "snitch" culture where people turn in their neighbors for trying to be productive, care for their land, and provide for their families. Regulations that go against human nature will only cause conflict. We who live in Scott Valley must stand firm against any proposals to divide us and transform our landscape and culture away from agriculture.	MCR-26	Noted. No response needed.
Lauren Sweezy	LS-008	C	PM	Management Actions		Comment overview				Again, SGMA allows for a wide variety of projects and management actions and does not mandate the use of punitive regulations.	MCR-26	Noted. No response needed.
Lauren Sweezy	LS-009	C	GE	General Comment, Public Outreach, Projects and Management Actions		Comment overview				Please see the attached flyer that has been circulating with Scott Valley residents since mid-April. It encourages water storage, groundwater recharge, fish-friendly structures, and other projects and opposes well metering, fees and fines for water use, and forced pump turn-off dates.	MCR-26	Noted. No response needed.
Lauren Sweezy	LS-010	C	GE	General Comment, Advisory Committee Process		Comment overview				It's been stated by more than one member of the Advisory Committee that this GSP development process "felt like a runaway train." Productive ideas that have had support from almost the entire committee—if not the entire committee—have been given very little attention by the Tech Team. It's time to put this plan back on track so that it suits the needs of Scott Valley.	MCR-26	Noted. No response needed.
Lauren Sweezy	LS-011	C	GE	General Comment		Executive Summary	8			**As noted above, we lose most of our water as flow down the river and to the ocean:** "Annual outflow from the Basin occurs largely as Scott River flow exiting the Basin to the northwest (ranging -689 to -85 TAF, median of -292), though a significant portion leaves as ET (-130 to -90 TAF, median of -112)."	MCR-26	Noted. No response needed.

Lauren Sweezy	LS-012	C	PM	Management Actions - Implementation and Prioritization		Executive Summary	11			This GSP relegates our most promising water storage projects to “Tier III” implementation—meaning “Additional PMAs that may be implemented in the future, as necessary 284 (initiation and/or implementation 2027–2042).” Meanwhile, “Tier II” projects have concrete plans to start right away. One of those projects, “voluntary managed land repurposing,” is problematic for Scott Valley. Removing ag land from the equation means our kids will have lower chances of continuing our farming and ranching tradition. What will take its place?	MCR-2	MCR-2
Lauren Sweezy	LS-013	C	GE	GSP Development, public outreach		1	6			“Consensus building is a foundational principle of all committee discussions, and membership is intended to reflect the diversity of beneficial groundwater uses and users in Scott Valley.” **Comment: It can't be said that every PMA listed has consensus among AC members. On numerous occasions, members of the irrigation ad hoc committee have voiced their disapproval of proposals to turn off pumps, yet that option remains in the plan.** **Furthermore, the Tech Team held separate “ad hoc” committee meetings but never provided the full AC with an opportunity to meet in-person to find common ground. The subcommittees seemed to be working in silos.** **To the question of whether the AC represents the diversity of Scott Valley, it should be noted that cattle producers are not represented on the Committee, even though they represent a sizeable portion of the valley’s economy, affected land area, and culture.**		PMAs were reviewed with the entire committee at multiple Advisory Committee meetings and Advisory Committee members had an opportunity to review and provide feedback on Chapter 4 of the GSP prior to the public draft version. Opposition to pumping curtailments has been voiced and it has been discussed and decided that this action should be prioritized as a "final result" type action and only implemented if all other defined PMAs have been implemented and groundwater management thresholds can still not be met. Ad hoc committees were formed as stipulated in the Scott Valley Advisory Committee Charter. Outcomes and action items from Ad hoc committee meetings were reported out to the Advisory Committee.
Lauren Sweezy	LS-014	C	PO	C&E Plan, Public Outreach		1	7			“The final section of the C&E Plan describes outreach strategies which the local GSA employs to effectively advance SGMA implementation. Specific tools and forums include the following: • Advisory committee meetings • Constituent briefings with local organizations • Tribal engagement • Public meetings and workshops • GSA Board meetings • Coordination with local resource conservation districts • Coordination with state and federal agencies • Integration of relevant studies and materials • Interested parties list • Informational materials • County SGMA website • Local media and public service announcements” **Comment: The listed public outreach goals have, unfortunately, not been met. A very important group of stakeholders—landowners who use enough water to be affected by SGMA regulations—has been largely unaware of the GSA’s activities to date, and until very recently has not been educated about SGMA**		Noted. No response needed
Lauren Sweezy	LS-015	C	GE	Suggested edit to plan		2	37			“The [Scott Valley Area Plan] includes multiple goals and policies that align with those in the GSP. Specifically, the focus on managing growth in a sustainable way while protecting priority agricultural lands and natural resources is an overarching theme in both the SVAP and the GSP.” **Comment: The SVAP is explicit about protecting agricultural land. The GSP draft should explicitly protect ag, as well. (This comment was also made in the first draft, which means “agriculture” was deliberately left out. Why?)**	MCR-27	Correct, specific reference to protection of prime agricultural land, as identified in the development goals of the SVAP, has been added.
Lauren Sweezy	LS-016	C	GD	Affected species, beneficial users		2	42			“The Valley and headwater tributaries of the mountains surrounding Scott Valley provide key spawning and rearing habitat for native anadromous fish species, including Oncorhynchus tschawytscha (Chinook salmon), Oncorhynchus kisutch (coho salmon) and Oncorhynchus mykiss (steelhead trout). Coho salmon in the Southern Oregon Northern California Coast Evolutionary Significant Unit (SONCC ESU) are listed as threatened at both the federal and state levels (NCRWQCB 2005).” **Comment: It should be noted that the Scott has never been prime habitat for coho. We are at the very bottom of the coho’s natural range. Coho are harvested in great numbers off the coast of Alaska. This assertion is supported by the Shasta Indian tribe, which has stated that the Klamath (and by extension the Scott) is, “since time immemorial,” historically unfit for coho. Additionally, a CDFW publication from 2007 refers to coho as a coastal fish that doesn’t like to spawn farther than 20 miles inland (California Finfish and Shellfish Identification Book - a companion guide to the California Fishing Passport, California Department of Fish and Game, 2007).** **It should further be noted that the Chinook is also harvested commercially in the northern Pacific.** **Both Coho and Chinook populations are affected by many factors, such as gill netting (some Yuroks say they “don’t know how a single fish gets up the river”); predation at the mouth of the Klamath; oceanic decadal oscillation; and more. This SGMA process must not be used as a weapon to target groundwater pumping when in fact many variables affect these species.**		Scott River has been identified as a major salmon spawning tributary (see Knechtle 2021, as referenced in Chapter 2 of the GSP, and coho salmon numbers from Scott River Fish Counting Facilities and CDFW spawning surveys from previous years). Additionally, CDFW identifies Scott River Watershed as a priority area for coho salmon recovery (https://wildlife.ca.gov/Conservation/Watersheds/Instream-Flow/Studies/Scott-Shasta-Study). Text has been added to highlight that there are numerous factors that can effect coho and Chinook salmon populations and the list of factors discussed is not exclusive.
Lauren Sweezy	LS-017	B	GD	Suggested edit to plan, Comment on ad hoc committee organization		2	76			“Identification of Groundwater Dependent Ecosystems”. This section is troubling. No agricultural members of the Advisory Committee were invited to join the “Surface Water” subcommittee that helped create this section. Nor were ag members given a very clear picture of what the Surface Water subcommittee was doing. Meanwhile, the Surface Water subcommittee was doing some pretty major things: “The group was created to assist with the identification of high-priority habitat, define a healthy hydrologic system in the Basin, and define metrics indicative of ecosystem health to assist in the definition of measurable objectives, undesirable results, and associated monitoring activities.” Clearly, these important aspects should have had the entire Advisory Committee’s consultation. This does not appear to have been the case. It seems the drafters of the GSP expected some blowback on this. On page 81, the GSP states, “A total of seven meetings [of the Surface Water subcommittee] were held between February 2020 and March 2021.” No other subcommittee meetings were documented this way in the GSP. This seems to be an attempt to legitimize the somewhat cover of darkness process by which this section was developed.		Ad hoc committees were formed as stipulated in the Scott Valley Advisory Committee Charter. Outcomes and action items from Ad hoc committee meetings were reported out to the Advisory Committee. A full list of meetings, including public outreach activities, are listed in Appendix 1-B.
Lauren Sweezy	LS-018	C	WB	Sustainable Yield, Future Groundwater Pumping		2	131			“For the Scott Valley, the sustainable yield is equal to the 28 year average groundwater pumping of 42 thousand acre-feet per year minus any future reduction in groundwater pumping resulting from the implementation of project and management actions (see Chapter 4)…” **This should be removed. Reductions of groundwater pumping should not be part of the GSP. As noted in numerous instances, there is no overdraft of water in Scott Valley, unlike some other basins developing GSPs. (Example: “Historical water levels indicate that there is no overdraft and no long-term decline in water levels” in Scott Valley (Ch 3 p 41).)**	MCR-15	The GSP provides a full rationale for this definition of the sustainable yield.
Lauren Sweezy	LS-019	C	MN	Monitoring and data gaps		3	25			“The GSA plans to collaborate with other entities to add monitoring locations to fill data gaps.” **Comment: The GSA should make clear that it will only accept verifiable data. Trust could become an issue for the public with the GSA accepting data from third parties.**	MCR-26	Noted. No response needed.
Lauren Sweezy	LS-020	C	IS	streamflow depletion reversal		3	59			“that is, what is an “unreasonable” amount of streamflow depletion, which could be reframed as: what is a “reasonable” amount of avoided groundwater use?” **Comment: The latter question is flawed. Streamflow depletion reversal should be achieved by adding water to the equation, not by cutting back on current use (unless voluntary irrigation efficiencies are made).**	MCR-26	Noted. No response needed.
Lauren Sweezy	LS-021	C	PM	Management Action		3	60			“The MAR-ILR scenarios, once fully implemented, provide a relative streamflow depletion reversal that averages 19% during September–November…” **Comment: I support this PMA but I am concerned 19% may be a high estimate. How many of the landowners in the proposed areas have been contacted to see if it will work for them? Also, more detailed maps than what's available in Appendix 4a would be helpful.**	MCR-3	The proposed action will be considered as the GSP is being implemented. It does not require the current GSP to be modified.
Lauren Sweezy	LS-022	B	IS	SMC definition, Suggested edit to plan		3	61			“The average relative stream depletion reversal of the implemented PMAs during September–November must exceed 15% of the depletion caused by groundwater pumping from outside the adjudicated zone in 2042 and thereafter.” **Comment: Since this self-imposed percentage is in bold and is so specific, the GSP should give a brief explanation of how it was arrived at.**	MCR-4	The revised plan, in chapter 3, explains in more detail than the draft plan how the minimum threshold was arrived at. Also see MCR-4.
Lauren Sweezy	LS-023	B	IS	SMC Definiton, PMA		3	61			**These five-year goals for stream depletion reversal (5% by 2027, 10% by 2032, 15% by 2037) may need to be revised in order to accommodate the less expedient but more beneficial supply-side projects, such as reservoir-building and MAR/ILR.**	MCR-2	MCR-2
Lauren Sweezy	LS-024	C	PM	Management Actions		3	64			“This explicit linkage between the measurable objective with the aspirational watershed goal also provides flexibility for compliance with potential future regulations or actions, in an integrated water management approach.” **Comment: Agreed. As such, we should be proposing projects related to water storage, groundwater recharge, and instream structures to slow the flow. Regulatory hurdles, while inevitable, should not be used as a reason not to pursue these worthy projects. They are they only projects that will help achieve our groundwater goals without doing economic harm to a large swath of Scott Valley’s farmers and ranchers.**	MCR-26	Noted. No response needed.

Lauren Sweezy	LS-025	C	PM	Management Action		3	66			"Seasonal pumping restrictions in the non-Adjudicated Zone. • Voluntary pumping restrictions in the Adjudicated Zone. • Conservation easements that would limit irrigation in some or all water years." **Comment: These demand-side "solutions" will likely have undesirable results for Scott Valley's economy and environment and should be removed. Pumping restrictions will result in economic hardship, which could result in the forced sale of farms and ranches. Those properties would be divided into the smallest possible acreages, resulting in a denser population. Pressure would inevitably mount to revise the SV Area Plan to allow prime ag land to be subdivided into smaller pieces.** **Fields that are not watered will be overtaken by invasive weeds (dyer's woad, star thistle, etc). Therefore, ranches with conservation easements for non-irrigation will become bad neighbors: weed factories and fire hazards. (Note: language throughout Appendix 4a indicates that non-irrigated land will return to "native vegetation." This is not accurate. Circumstances have changed over the past 100 years: we have more drought and better drainage. "Native" vegetation will not reestablish itself. Without irrigation, invasive weeds will replace crops.)**	MCR-2	MCR-2
Lauren Sweezy	LS-026	C	PM	Management Actions - Implementation and Prioritization, Funding		4	5			"Under the Sustainable Groundwater Management Implementation Grant Program Proposition 68, grants can be awarded for planning activities and for projects with a capital improvement component. As such, state funds for reimbursing landowners for implementation of PMAs, including land fallowing and well-shut offs, currently cannot be obtained under this program." **Comment: This funding issue speaks to the point that productive projects such as water storage should be pursued, while land fallowing and well shut-offs should be avoided.**	MCR-26	Noted. No response needed.
Lauren Sweezy	LS-027	B	PM	Management Actions - Implementation and Prioritization		4	7			Table I PMA Summary Table. **Comment: Many promising ideas were proposed to the Tech Team to be included as Tier II or Tier III projects, with strong support from a sound majority of the Advisory Committee. Instead of including them in this table, those ideas were relegated to the last page of this report, with the reasoning that they "have not yet been investigated." Those proposals include: a study of the tailings for groundwater storage; recharge weirs; fish-friendly structures to decrease flow rates in Scott River and its tributaries; construction of a clay dam or permeable plug at the lower end of Scott Valley; and direct addition of water to the river during periods of low flow.** **It's hard to believe that none of these proposals have been investigated enough to put in the Tier II or III categories.** **Other PMAs listed in this table are addressed below.**		These PMAs are included under an "additional PMAs section". PMA evaluation and prioritization is planned at the start of Plan implementation as discussed in Chapter 5.
Lauren Sweezy	LS-028	C	PM	Management action		4	13			"Avoiding Significant Increase of Total Net Groundwater Use from the Basin." **Comment: Although this MA does propose significant regulations on new wells, it may be appropriate to avoid overdrafts in the Valley. It embodies the principle of "first in time, first in right," which has long been used in California water law.**	MCR-26	Noted. No response needed.
Lauren Sweezy	LS-029	C	PM	Management Action		4	13	350		"[No net increase in groundwater use] can be achieved through exchanges, conservation easements, and other voluntary market mechanisms." **The GSA should be mindful of unintended consequences. For example, a market exchange, which is explored in more detail on p 19, could in fact encourage urban development of ag ground.**	MCR-2	MCR-2
Lauren Sweezy	LS-030	C	PM	Management action, Suggested edit to plan		4	19		cutout	"Market instruments" cutout. **Comment: This troubling passage seems to encourage the conversion of ag land to urban development, because urban land uses less water. The example in the cutout even goes so far as to allow development of "natural lands" after a city buys out ag land—because now the city has "credits" for using less water than the ag land did. This entire section epitomizes tone-deafness and should be removed.**		Some cities in Siskiyou County groundwater basins have expressed concerns about not being allowed to have any expansion at all. The hypothetical example stated does not suggest urbanization of a largely agricultural region.
Lauren Sweezy	LS-031	B	PM	Management actin		4	21			"Beaver Dam Analogues." **Comment: this section should be expanded to include other fish-friendly structures to slow the flow of the mainstem and tributaries for aquifer recharge. This concept has the support of many landowners along the river. I am told that BDAs (in some form) were used on the mainstem of the Scott several years ago and that the project successfully raised the water table. This is not mentioned in the draft.** **Other fish-friendly structures could include inflatable bladders: rubber dams that can quickly be inflated or deflated as needed. Thousands of these are used all over the world, with decades of success. In some cases, aquifer recharge is the sole purpose (e.g., the Santa Ana Inflatable Rubber Dam Project, which supplies 100,000 Orange County residents with water each year.)** **Recharge weirs, while more permanent and potentially damaging to surrounding fields during high water events, are also used around the world to recharge aquifers. They can be designed to allow fish passage.**		The GSP does not exclude future expansion to the PMA list. If other structures to slow flow will be shown to be feasible, this PMA could be expanded to carry such projects.
Lauren Sweezy	LS-032	C	PM	Management Actions		4	22			Upslope water yield projects. **The "Green infrastructure" proposal is good and could be expanded. Clearing conifers, juniper, and brush all has potential to do good for the watershed, on both private and public land. By including such projects in this proposal, the GSA can encourage and partake in federal and private projects.**	MCR-26	Noted. No response needed.
Lauren Sweezy	LS-033	C	PM	Management Action - Implementation and Prioritization		4	23			"Irrigation Efficiency Improvements". **Comments: As this PMA is fleshed out, the GSA should take care not to punish those who have already upgraded and invested in efficient systems, while antiquated systems get the grants. Perhaps the only fair way to go is a "First come, first serve" application system.** **This section merits more attention. While it claims that stream depletion is reversed by 4, 12 and -2 percent based on different scenarios, it doesn't describe what those scenarios are (nor does Appendix 4-A, which is referenced for more info). While irrigation efficiencies could hold potential for depletion reversal, this PMA seems to be glazed over when compared to more punitive options, such as pump turn-offs.**	MCR-2	MCR-2
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Lauren Sweezy	LS-036	C	PM	Management Action		4	29			"Crop Support: To support crop rotation, particularly for grain crops, access to crop support programs may be important to ensure that this option is economically viable." **Comment: This seems to rely on a federal program over which the GSA has no control. Rather than focusing on such weak possibilities, the GSP should focus on local, on-the-ground supply-side projects to increase the water table.**	MCR-26	Noted. No response needed.
Lauren Sweezy	LS-037	C	PM	Management Action, Suggested Edit to Plan		4	29	841		"For example, a corner of a field may be well suited for wildlife habitat, or solar panels or water storage." **Comment: The concept of pivot corners as reservoirs was brought up by a local rancher and merits attention. "Wildlife habitat" is more likely to be noxious weeds, which farmers will have to try to beat back from encroaching on their crops. Solar panels would require considerable infrastructure at great expense. Ponds, on the other hand, are relatively inexpensive to build and could contribute to groundwater recharge.**		Document has been changed per suggestion.

Lauren Sweezy	LS-038	B	PM	Management Actions - Implementation and Prioritization		4	30			"Tier III: Potential Future Project and Management Actions". **Comment: Some of these PMAs should not be relegated to Tier III. "Potential future" PMAs sends the clear message that these projects are not priorities, even though they are the least damaging and most promising for actually increasing the water table. Although they may take time to implement, these PMAs should be acted on immediately. (Examples: High mountain lake storage; MAR/ILR; reservoirs)**	MCR-26	Noted. No response needed.
Lauren Sweezy	LS-039	C	PM	Management action		4	30			"Alternative, lower ET crops." **This section may have some potential; however, funding dedicated to research on this topic should be minimal. Farmers and ranchers are quite aware of which crops have a market in our region. Assuming grants are in limited supply, we have plenty of other supply-side projects that merit funding.**	MCR-26	Noted. No response needed.
Lauren Sweezy	LS-040	C	PM	Management Action		4	31			"Floodplain reconnection/expansion." **This section ties in with the concept of slowing the river/tributaries. For willing landowners, this holds potential to slow the flow and increase the water table. Conversations with landowners should be pursued. In this case, limited conservation easements may be appropriate.**	MCR-26	Noted. No response needed.
Lauren Sweezy	LS-041	B	PM	Management Action Prioritization		4	32			"High Mountain Lakes - This potential project class supports the restoration or modification of high-altitude lakes…." **Comment: Rather than referring to this PMA as "potential," it should be pursued immediately. Also, is it possible to include what percentage of depletion reversal would be gained from the 3,500 AF of storage? Using the metric used on other PMAs would be helpful.**		The AC did not consider this to be a Tier II PMA.
Lauren Sweezy	LS-042	B	PM	Management Action - Implementation and Prioritization		4	33			"Reservoirs….Still in the conceptualization phase, details of a reservoir project have not yet been confirmed." **Comment: This sentence insinuates a lack of interest in this PMA on the part of the GSA. This is perhaps the most promising PMA when it comes to benefits to all, and yet the topic is given one-half of one page in this chapter. Meanwhile, there are empty ponds and reservoirs that already exist in the valley, which could be used right away (albeit permitting may be required). As for potential future reservoirs, has anyone asked the landowners in those areas for their opinions? Why has this project been relegated to "Tier III" when all the most damaging options – turning off irrigation and repurposing ag ground—have had reams of research done on them?** **Several landowners have indicated they have ponds available. A survey should be conducted to assess how many existing ponds there are, and how many landowners would be willing to have new ones built on their land. Several locals have talked about using the dredger tailings and ponds to store even more water than they do now.**		Tier III projects can be initiated right away. However, any reservoir project will take a significant period of time before it is completed.
Lauren Sweezy	LS-043	C	PM	Management Action		4	33			"Strategic Groundwater Pumping Curtailment" **Comment: This section should be removed. This valley is not in an overdraft, and the GSP is on course to prevent that from happening without implementing any pump turn-offs. Including pump shut-offs as a potential future tool will result in pressure to use that tool. The mechanism should be removed entirely.**		Without this tool, the GSA has no credible tool to address groundwater management in case other tools fail.
NGO Consortium	NGO-001	C	DC	Identification and Mapping of DACs						The GSP states that there are three DACs in the basin, but these areas are not mapped. Provide a map of the DACs in the basin. The DWR DAC mapping tool1 can be used for this purpose.		One map showing DACs and SDACs has been added to Chapter 2.
NGO Consortium	NGO-002	C	DW	Domestic Well Mapping						The GSP provides a map of domestic well density in Figure 5, but fails to provide depth of these wells (such as minimum well depth, average well depth, or depth range) within the basin. Include a map showing domestic well locations and average well depth across the basin.		The requested information, subject to some data limitations, is included in the well outtage analysis in Appendix 3-C.
NGO Consortium	NGO-003	B	DC	Mapping of DAC and groundwater users						The GSP fails to identify the population dependent on groundwater as their source of drinking water in the basin. Specifics are not provided on how much each DAC community relies on a particular water supply (e.g., what percentage is supplied by groundwater). Identify the sources of drinking water for DAC members, including an estimate of how many people rely on groundwater (e.g., domestic wells, state small water systems, and public water systems).		Added a sentence about SDAC and DAC dependence on groundwater as a source of drinking water. Details on populations in these communities are already discussed.
NGO Consortium	NGO-004	B	IS	ISW Mapping, IHM explanation					Figure 18	The identification of Interconnected Surface Waters (ISWs) is **insufficient**, due to lack of supporting information provided for the ISW analysis. Based on the ISW section of the GSP (Section 2.2.1.7), it appears that a comprehensive analysis of ISWs in the basin was performed using the Scott Valley Integrated Hydrologic Model. However, little information is provided in the GSP to support the conclusions presented. The GSP states that data from 1990-2018 was used for the analysis, but there is no description of the location of groundwater wells or stream gauges used in analysis, or description of temporal (seasonal and interannual) variability of the data. The GSP concludes (p. 2-74): "Across the stream system in Scott Valley (Fig. 18), there are no known stream reaches that are flowing and also entirely and permanently disconnected from surface water, separated from the water table by thick unsaturated zones. For purposes of this plan, the Scott River and its major tributaries (Mill, Shackleford, Oro Fino, Moffett, Kidder, Patterson, Crystal, Johnson, Etna, French, Miners, Sugar, and Wildcat Creeks, South Fork and East Fork Scott River, Figure 15) are therefore all considered part of a single interconnected surface water system in the basin." The map of stream reaches (Figure 18), however, is not consistent with description in the text, and the legend labels (dry, wet, uncertain - no, uncertain - yes) are not explained. Describe the legend labels (i.e., dry, wet, uncertain - no, uncertain - yes) used on Figure 18, and contextualize with losing and gaining terminology		Figure 18 was not intended to serve as an inventory of ISWs. A figure depicting all ISWs has been added to Section 2.2.1.7. All major tributary streams in the Scott Valley which overlie the Basin area are assumed to be interconnected to the aquifer during at least some parts of some water years, and consequently all major tributaries overlying the Basin have been identified as ISWs.
NGO Consortium	NGO-005	B	IS	Groundwater Elevation and ISW Data						Further describe the groundwater elevation data and stream flow data used in the analysis. Ensure depth-to-groundwater data from multiple seasons and water year types (e.g., wet, dry, average, drought) are used to determine the range of depth and capture the variability in environmental conditions inherent in California's climate.	MCR-31	See chapter 2 and appendices. Also see MCR-31
NGO Consortium	NGO-006	B	IS	Groundwaer Contour Maps						Overlay the stream reaches shown on Figure 18 with depth-to-groundwater contour maps to illustrate groundwater depths and the groundwater gradient near the stream reaches. Show the location of groundwater wells used in the analysis.	MCR-31	MCR-31
NGO Consortium	NGO-007	B	IS	Groundwater Contour Maps						For the depth-to-groundwater contour maps, use the best practices presented in Attachment D. Specifically, ensure that the first step is contouring groundwater elevations, and then subtracting this layer from land surface elevations from a Digital Elevation Model (DEM) to estimate depth-to-groundwater contours across the landscape. This will provide accurate contours of depth to groundwater along streams and other land surface depressions where GDEs are commonly found.		Depth-to-groundwater contour maps are not included in the Scott Valley GSP; only interpolated groundwater elevation maps have been used. Where interpolated depth-to-water spatial layers were created for iGDE classification, the described best practice was used.
NGO Consortium	NGO-008	B	IS	ISW Data Gaps						Describe data gaps for the ISW analysis in the ISW section, in addition to the discussion in Appendix 3-A (Data Gap Assessment). Discuss and reconcile these data gaps with specific measures (shallow monitoring wells, stream gauges, and nested/clustered wells) along surface water features in the Monitoring Network section of the GSP.	MCR-31	Data gaps and future monitoring improvements are discussed in the ISW monitoring section of chapter 3. Also see MCR-31.
NGO Consortium	NGO-009	A	GD	Identification of GDEs						The identification of Groundwater Dependent Ecosystems (GDEs) is **insufficient**, due to a lack of comprehensive, systematic analysis of the basin's GDEs. The GSP states (p. 2-76) that the Natural Communities Commonly Associated with Groundwater dataset (NC dataset) was used as a starting point. Further description in the GSP, however, of the GDE analysis process is very sparse, except to state that the presence and geographic extent of groundwater dependent vegetation were verified through an evaluation by the ad hoc committee. The GSP does not discuss how the NC dataset was verified with the use of groundwater data from the shallow aquifer. Without an analysis of groundwater data to verify the NC dataset polygons, it will be difficult or impossible to adequately monitor and manage the basin's GDEs throughout GSP implementation. Develop and describe a systematic approach for analyzing the basin's GDEs. For example, provide a map of the NC Dataset. On the map, label polygons retained, removed, or added to/from the NC dataset (include the removal reason if polygons are not considered potential GDEs, or include the data source if polygons are added). Discuss how local groundwater data was used to verify whether polygons in the NC Dataset are supported by groundwater in an aquifer. Refer to Attachment D of this letter for best practices for using local groundwater data to verify whether polygons in the NC Dataset are supported by groundwater in an aquifer.	MCR-32	The GSA acknowledges the data gaps in the GDE analysis in Section 2.2.1.8 and outlines how to address them in Appendix 3-A. Additional text has been added to Section 2.2.1.8 and Appendix 3-A for clarity and an additional management action "Groundwater Dependent Ecosystem Data Gaps" has been added to Chapter 4. The GSA looks forward to working with CDFW to fill data gaps of local habitat in Scott Valley in the next 5 years for the next GSP update.
NGO Consortium	NGO-010	B	GD	Identification of GDEs						Use depth-to-groundwater data from multiple seasons and water year types (e.g., wet, dry, average, drought) to determine the range of depth to groundwater around NC dataset polygons. We recommend that a baseline period (10 years from 2005 to 2015) be established to characterize groundwater conditions over multiple water year types. Refer to Attachment D of this letter for best practices for using local groundwater data to verify whether polygons in the NC Dataset are supported by groundwater in an aquifer.		Interpolated depth-to-water spatial layers were created for iGDE classification using all available groundwater elevation measurements. These were averaged for each well over the years 2006-2020.

NGO Consortium	NGO-011	B	GD	Groundwater contour maps						Provide depth-to-groundwater contour maps, noting the best practices presented in Attachment D. Specifically, ensure that the first step is contouring groundwater elevations, and then subtracting this layer from land surface elevations from a DEM to estimate depth-to-groundwater contours across the landscape.	MCR-26	Noted. No response needed.
NGO Consortium	NGO-012	B	GD	identification of GDEs, depth to groundwater						Refer to Attachment B for more information on TNC's plant rooting depth database. Deeper thresholds are necessary for plants that have reported maximum root depths that exceed the averaged 30 feet threshold, such as valley oak (*Quercus lobata*). We recommend that the reported max rooting depth for these deeper-rooted plants be used. For example, a depth-to-groundwater threshold of 80 feet should be used instead of the 30 feet threshold, when verifying whether valley oak polygons from the NC Dataset are connected to groundwater. It is important to re-emphasize that actual rooting depth data are limited and will depend on the plant species and site-specific conditions such as soil and aquifer types, and availability to other water sources.	MCR-32	CDFW has identified Valley Oak as not existing in Scott Valley. Also see MCR-32.
NGO Consortium	NGO-013	B	GD	Identification of GDEs						If insufficient data are available to describe groundwater conditions within or near polygons from the NC dataset, include those polygons as "Potential GDEs" in the GSP until data gaps are reconciled in the monitoring network.	MCR-32	MCR-32
NGO Consortium	NGO-014	B	WB	Water budget presentaiton						The GSP describes the soil water budget model (SWBM) which computes groundwater needs and evapotranspiration of crops and native vegetation. The water budget did not explicitly include the current, historical, and projected demands of native vegetation, but instead lumped all evapotranspiration together. Only the current water budget was presented in the GSP. The omission of explicit water demands for native vegetation is problematic because key environmental uses of groundwater are not being accounted for as water supply decisions are made using this budget, nor will they likely be considered in project and management actions. Quantify and present all water use sector demands in the historical, current, and projected water budgets with individual line items for each water use sector, including native vegetation.		SWBM accounts for historic, current, and future daily variable evapotranspiration directly through climate data. It employs a crop coefficient approach for both, crops and natural vegetation, which ties natural vegetation ET to daily reference ET.
NGO Consortium	NGO-015	C	WB	identification of wetlands						Managed wetlands are not mentioned in the GSP, so it is not known whether or not they are present in the basin. State whether or not there are managed wetlands in the basin. If there are, ensure that their groundwater demands are included as separate line items in the historical, current, and projected water budgets.	MCR-31	The term "managed wetlands" is not mentioned in chapter 2. See MCR-31.
NGO Consortium	NGO-016	B	PO	Targeted stakeholder outreach						The opportunities for public involvement and engagement are described in very general terms. They include attendance at public meetings, stakeholder email list, and updates to the GSP website. There is no specific outreach described for members of the DAC communities or domestic well owners. In the Stakeholder Communication and Engagement Plan, describe active and targeted outreach to engage DAC members and domestic well owners throughout the GSP development and implementation phases. Refer to Attachment B for specific recommendations on how to actively engage stakeholders during all phases of the GSP process.		Targeted outreach was not conducted to specific DACs but a large portion of the GSP area is classified as SDAC or DAC and thus outreach to the entire basin area was intended to cover those communities. See Chapters 1 and 2 for additional information.
NGO Consortium	NGO-017	B	PO	Targeted stakeholder outreach						The Stakeholder Communication and Engagement Plan does not include a plan for continual opportunities for engagement through the *implementation* phase of the GSP for DACs and domestic well owners.		Noted. Planned outreach during the implementation phase of the plan is described in Chapter 5.
NGO Consortium	NGO-018	C	GL	Groundwater Level Minimum Threshold and undesireable result						For chronic lowering of groundwater levels, the GSP does not sufficiently describe or analyze direct or indirect impacts on domestic drinking water wells, DACs, or tribes when defining undesirable results. Describe direct and indirect impacts on DACs, drinking water users, and tribes when describing undesirable results for chronic lowering of groundwater levels.		There is not enough data available on residential wells to produce the desired analysis. A table has been included at the end of the Methods section in Appendix 3-C, Dry Well Risk Analysis, to clarify this.
NGO Consortium	NGO-019	C	GL	Groundwaer Level Minimum Threshold and undesireable results						The GSP does not sufficiently describe how the existing minimum threshold groundwater levels are consistent with avoiding undesirable results in the basin Consider and evaluate the impacts of selected minimum thresholds and measurable objectives on DACs, drinking water users, and tribes within the basin. Further describe the impact of passing the minimum threshold for these users. For example, provide the number of domestic wells that would be de-watered at the minimum threshold.		
NGO Consortium	NGO-020	B	WQ	Constituents of concern						For degraded water quality, SMC were developed for two of the constituents of concern (COCs) in the basin, nitrate and specific conductivity. Minimum thresholds were set at the primary and secondary maximum contaminant levels (MCLs), respectively, for these COCs. The GSP states (p. 3-42): "Although benzene is identified as a potential constituent of concern in Section 2.2.3, no SMC is defined for benzene as current benzene data are associated with leaking underground storage tanks (LUST) where the source of benzene is known and monitoring and remediation are in progress." However, SMC should be established for all COCs in the basin, in addition to coordinating with water quality regulatory programs. Set minimum thresholds and measurable objectives for benzene. Ensure they align with drinking water standards9.		The GSA only sets SMCs for three COCs but will continue to monitor other identified COCs for any increasing temporal and spatial trends. As shown in Appendix 2-B, 1,2-dibromoethane and benzene contamination is highly localized and decreasing down to drinking level standards through management by the Regional Board through the Leaking Underground Storage Tank (LUST) program. The GSA feels that SMCs are not needed at this time for 1,2-dibromoethane and benzene but will continue to monitor trends. Historical data of boron shows a decreasing or steady trend. The GSA feels that an SMC is not needed for boron, but will continue to monitor boron for any future issues.
NGO Consortium	NGO-021	B	WQ	Impact of water quality on DACs						The GSP only includes a very general discussion of indirect impacts to drinking water users when defining undesirable results and evaluating the cumulative or indirect impacts of proposed minimum thresholds. The GSP does not, however, mention or discuss direct and indirect impacts on DACs or tribes when defining undesirable results for degraded water quality, nor does it evaluate the cumulative or indirect impacts of proposed minimum thresholds on DACs or tribes. Describe direct and indirect impacts on DACs, drinking water users, and tribes when defining undesirable results for degraded water quality. For specific guidance on how to consider these users, refer to "Guide to Protecting Water Quality Under the Sustainable Groundwater Management Act." Evaluate the cumulative or indirect impacts of proposed minimum thresholds for degraded water quality on DACs, drinking water users, and tribes.		The discussion of indirect impacts to drinking water users is valid because the entire valley is considered a disadvantaged community (DAC). Chapter 3 already describes the impact on water users when defining undesirable results for degraded water quality. The cumulative and indirect impact of the proposed minimum thresholds will avoid the described undesirable results for degraded water quality. Due to the lack of data, as described in Chapter 2 and Appendix 3-A, the GSA cannot complete qualitative analysis of the impact on the proposed SMCs on surface waters and groundwater dependent ecosystems. The current discussion in the GSP is valid until the outlined data gaps are addressed in the 5-year GSP update.
NGO Consortium	NGO-022	B	GL	SMC Definition, Impact to GDEs and other environmental beneficial users, undesirable result defintion						The GSP sets minimum thresholds to historic groundwater lows, with a buffer that further lowers the elevations. The GSP states (p. 3-35): "The minimum threshold (MinT) is set at the historic maximum depth to water measurement (i.e., the historic low measured groundwater elevation), plus a buffer to allow for operational flexibility against the measurable objective under extreme climate conditions and to accommodate practicable triggers. The buffer is either 10% of the historic maximum depth to water measurement, or 10 feet, whichever is smaller." However, the impacts to GDEs under this scenario are not discussed in the GSP. If minimum thresholds are set to historic low groundwater levels (or lower) and the basin is allowed to operate at or close to those levels over many years, there is a risk of causing catastrophic damage to ecosystems that are more adverse than what was occurring at the height of the 2012-2016 drought. This is because California ecosystems, which are adapted to our Mediterranean climate, have some drought strategies that they can utilize to deal with short-term water stress. However, if the drought conditions are prolonged, the ecosystem can collapse. SGMA requires that SMCs, and specifically minimum thresholds, be established in consideration of beneficial users10-12, thus using historic maximum groundwater levels as a proxy for 'significant and unreasonable' is inadequate since it fails to take beneficial user water needs into consideration. When defining undesirable results for chronic lowering of groundwater levels, provide specifics on what biological responses (e.g., extent of habitat, growth, recruitment rates) would best characterize a significant and unreasonable impact to GDEs. Undesirable results to environmental users occur when 'significant and unreasonable' effects on beneficial users are caused by one of the sustainability indicators (i.e., chronic lowering of groundwater levels, degraded water quality, or depletion of interconnected surface water). Thus, potential impacts on environmental beneficial uses and users need to be considered when defining undesirable results 10 in the basin. Defining undesirable results is the crucial first step before the minimum thresholds can be determined.		GDEs in streams are protected through the SMC for interconnected surface water. The MO does not allow for further lowering of water levels. The MT was developed to provide a small operational buffer, while managing water levels such that they remain at historic levels. Water levels are seasonally highly variable. The level of the MT, even if reached two years in a row, would only be reached for an intermittent period of time and be significantly higher in winter and spring. The degree to which this may affect GDEs, is a known data gap.

NGO Consortium	NGO-023	A	IS	SMC Definition and approach, environmental beneficial users						Despite the complexities of managing ISW in the basin, the GSP does not attempt to evaluate the cumulative or indirect impacts of the proposed minimum thresholds for ISW on environmental beneficial users of surface water. The method of setting the SMC based on project and management actions in the basin is not correct, as the SMC should inform the design and implementation of project and management actions (i.e., project and management actions should help avoid undesirable results), not the other way around. When defining undesirable results for depletion of interconnected surface water, include a description of potential impacts on instream habitats within ISWs when defining minimum thresholds in the basin12. The GSP should confirm that minimum thresholds for ISWs avoid adverse impacts to environmental beneficial users of interconnected surface waters as these environmental users could be left unprotected by the GSP. These recommendations apply especially to environmental beneficial users that are already protected under pre-existing state or federal law6,13. For example, model streamflow depletion due to pumping outside adjudicated areas to determine how much streamflow depletion is permissible given the amount of depletion that has already occurred in the past. The SMC should reflect how much more depletion is likely to be permissible based on future drier climatic conditions.	MCR-4	Chapter 3 explains in detail the rationale for the setting of the ISW SMC. Chapter 3 is consistent with DWR regulations and guidance. Also see MCR-4
NGO Consortium	NGO-024	B	WB	Sustainable yield, climate scenarios						the GSP does not calculate a sustainable yield based on the projected water budget with climate change incorporated, but instead states that the sustainable yield will vary over time as new project and management actions are added. If sustainable yield is not calculated, then there is also increased uncertainty in virtually every subsequent calculation used to plan for projects, derive measurable objectives, and set minimum thresholds. Plans that do not explicitly calculate sustainable yield may underestimate future impacts on vulnerable beneficial users of groundwater such as ecosystems, DACs, domestic well owners, and tribes. Estimate sustainable yield based on the projected water budget with climate change incorporated, to inform the basis for development of projects and management actions.		The GSP is more conservative than a specific sustainable yield. Sustainable yield is a function of future climate and of project implementation. It may be less in the future than it is currently. The sustainable yield selected by the GSP is a formula that accounts for such changes. Prescribing a fixed sustainable yield is technially incorrect and practically insufficient to achieve long-term sustainability.
NGO Consortium	NGO-025	C	WB	Water budget appendix						Include the water budget appendix in the GSP, so that the manner in which climate change is incorporated into the water budgets is fully explained.		The appendix is part of the GSP. Also see MCR-31
NGO Consortium	NGO-026	C	PM	Projects and management actions, climate change scenarios						Incorporate climate change scenarios into projects and management actions.		Climate change scenarios have already been completed. Also see MCR-31
NGO Consortium	NGO-027	A	MN	Monitoring network - add representative monitoring points						The consideration of beneficial users when establishing monitoring networks is **insufficient**, due to lack of specific plans to increase the Representative Monitoring Points (RMPs) in the monitoring network that represent water quality conditions and shallow groundwater elevations around DACs, domestic wells, and GDEs. Beneficial users of groundwater may remain unprotected by the GSP without adequate monitoring and identification of data gaps in the shallow aquifer. The Plan therefore fails to meet SGMA's requirements for the monitoring network The GSP…does not provide specific plans, well locations shown on a map, or a timeline to fill the data gaps.the additional RMPs should be included in the GSP now, instead of delaying inclusion until the 5-year GSP update. Without a map of proposed new monitoring well locations, a determination cannot be made regarding the adequacy of the monitoring network for sustainability indicators going forward into the GSP implementation phase.		Current GSP has been approved by the stakeholder committee and meets regulatory requirements. The current GSP has identified these data gaps (Appendix 3-A), PMAs to address these data gaps, and is consistent with regulations, communications by DWR, and DWR approved GSPs. In response to the public comment period, additional PMAs and language regarding data gap processes have been added to the GSP.
NGO Consortium	NGO-028	B	MN	Water quality monitoring						Regarding the frequency of groundwater quality monitoring, the plan states that nitrate will be monitored annually while specific conductivity will be monitored periodically. This monitoring plan is insufficient to adequately capture groundwater quality conditions within the basin.		The rationale for monitoring frequency is consistent with DWR guidelines and hydrogeologic practice. There are no sources or practices in place that would suggest nitrate or salinity to rapidly change over time, at scales of less than one year.
NGO Consortium	NGO-029	B	MN	Monitoring Network - mapping						Provide maps that overlay current and proposed monitoring well locations with the locations of DACs, domestic wells, and GDEs to clearly identify potentially impacted areas.		A map of current monitoring locations, beneficial users, GDEs, and waterbodies has been added to Section 3.3.1. General tentative locations of proposed monitoring locations is available in Chapter 3, Section 3.3.1. Final locations of additional monitoring locations will depend on local well owner volunteers and funding availability.
NGO Consortium	NGO-030	B	MN	Monitoring network - add representative monitoring points						Increase the number of representative monitoring points (RMPs) across the basin as needed to adequately monitor all groundwater condition indicators. Prioritize proximity to GDEs and drinking water users when identifying new RMPs.		The density of wells in the proposed monitoring network (Section 3.3.1) is relatively high for an area the size of the Scott Valley groundwater basin, and is assumed to adequtely monitor all groundwater condition indicators as far as is known at this time. Chapter 3 and Appendix 3-A outline existing data gaps and the need to expand the monitoring networks.
NGO Consortium	NGO-031	B	MN	Monitoring Network - addressing data gaps						Provide specific plans to fill data gaps in the monitoring network. Evaluate how the gathered data will be used to identify and map GDEs, and identify DACs and shallow domestic well users that are vulnerable to undesirable results.		Current GSP has been approved by the stakeholder committee and meets regulatory requirements. The current GSP has identified these data gaps (Appendix 3-A), PMAs to address these data gaps, and is consistent with regulations, communications by DWR, and DWR approved GSPs. In response to the public comment period, additional PMAs and language regarding data gap processes have been added to the GSP.
NGO Consortium	NGO-032	B	PM	PMAs - DACs						The consideration of beneficial users when developing projects and management actions is **insufficient**, due to the failure to completely identify benefits or impacts of identified projects and management actions to beneficial users of groundwater such as DACs and drinking water users. The GSP does not discuss the manner in which DACs, drinking water users, and tribes may be benefitted or impacted by projects and management actions identified in the GSP. Therefore, potential project and management actions may not protect these beneficial users. For DACs, domestic well owners, and tribes, include a discussion of whether potential impacts to water quality from projects and management actions could occur and how the GSA plans to mitigate such impacts.		California Code of Regulations 354.44(b)(5) specifies that PMAs shall explain benefits, but there is no requirement to specify, for each PMA, how DACs, drinking water users, and tribes may benefit from or be impacted by PMAs. Instead, chapter 3 explains the impacts of SMCs on beneficial uses and users.
NGO Consortium	NGO-033	B	PM	Projects and management actions, suggested edit to plan						For DACs and domestic well owners, include a drinking water well impact mitigation program to proactively monitor and protect drinking water wells through GSP implementation. Refer to Attachment B for specific recommendations on how to implement a drinking water well mitigation program.		We already follow the Appendix B recommendations for a drinking water well impact mitigation program. The key elements include (Section 2 of Appendix B): Drinking water well monitoring program (see RMP for water level); Adaptive management trigger system (see water level SMC, where the MO is in the "green light" and the minimum threshold in the "yellow light" zone, for which potential corrective actions have been identified (see PMAs that address: - Undertake an analysis to pinpoint the cause; - Undertake water quality testing for selected domestic and public supply wells; - Provide immediate support to groundwater users experiencing impacts; - Reassess pumping allocation and pumping patterns; - Consider restricting or limiting groundwater extraction near the impacted area.); drinking water well impact model (Appendix 3-C of GSP); public outreach and education (see PMAs); development of mitigation measures, identifying eligibility and access.
NGO Consortium	NGO-034	C	PM	Projects and Management actions - multi benefit projects						Recharge ponds, reservoirs, and facilities for managed stormwater recharge can be designed as multiple-benefit projects to include elements that act functionally as wetlands and provide a benefit for wildlife and aquatic species. For guidance on how to integrate multi-benefit recharge projects into your GSP, refer to the "Multi-Benefit Recharge Project Methodology Guidance Document"	MCR-26	MCR-26
NGO Consortium	NGO-035	C	PM	PMAs - Incorporate climate change						Develop management actions that incorporate climate and water delivery uncertainties to address future water demand and prevent future undesirable results.	MCR-16	MCR-16
NMFS	NMFS-001	B	SC	Basin characteristics, clarification requested		2	67		1719	Under "Stream Flow Status in Baseflow Conditions", the draft chapter states …"*Reaches of some major tributaries in the Scott Valley only flow during wet or average winters.* " The authors should clarify whether this flow pattern is a natural process without anthropogenic cause, or a result of groundwater pumping impacts in the basin. If the latter, then the inter-annual variability in surface flow may be a streamflow depletion impact that should be investigated as such.		The text has been clarified to specify "perennial flowing streams, ephemeral streams which are periodically connected to the water table, and non-riparian groundwater-dependent vegetation" rather than the previous text stating only "perennial flowing streams".

NMFS	NMFS-002	B	GD	GDE identification and mapping		2	71		1765	Page 71, line 1765: The draft chapter states…"GDEs consisting of perennial flowing streams (aquatic ecosystems) are mapped under Interconnected Surface Waters (see previous section)." No maps of GDEs consisting of perennial flowing streams appear to be included within the SR GSP chapters. Furthermore, perennial flow is not a requirement for interconnected surface waters under SGMA. Streams with intermittent flow contain seasonal habitat important to juvenile salmonid survival		The degree to which this pattern is due to anthropogenic causes has been identified in the SVIHM scenario simulations called "Natural Vegetation" (see Appendix 4A). Given the current availability of data, the GSP focuses on the Fort Jones gage measurements and simulation results for that gage as a representative monitoring point to assess overall basin impacts to interconnected surface waters.
NMFS	NMFS-003	B	SC	Basin characteristics, clarification requested		2	120		3180	Page 120, line 3180: The author should clarify what argument is being made here. The conclusion presented is that no apparent trend indicating long-term groundwater depletion in the Scott River Valley exists, with the reasoning presented as a comparison between fall storage between 2018 and 1991. However, the storage difference shows a 23 thousand acre-foot drop in groundwater storage between the two years, which would seem to suggest a long-term decline in storage. Also, the reasoning also alludes to 2018 being a dry year, as if implying that the two years are not an "apples to apples" comparison. However, 1991 also appears to have been a dry year (see Figure 22).		The paragraph was rephrased. Lowest groundwater storage conditions were observed in 1994, 2001, and 2014. The paragraph concludes with stating that "Aquifer storage dynamics do not indicate long-term overdraft conditions".
NMFS	NMFS-004	B	SC	Basin characteristics, water budget, clarification requested		2	121		3225	Page 121, line 3225: While discussing potential future changes to the water table slope resulting from future precipitation change, the author appears to suggest that a significant long-term decrease in precipitation is unlikely to lead to groundwater overdraft. This suggestion seems implausible if groundwater use is constant or increasing into the future. We suggest the author clarify the intended message of the paragraph.		The principle behind this statement is explained in Section 2.2.3.3 and are based on Darcy's Law, which governs groundwater flow dynamics.: "Any significant long-term decrease or increase of long-term precipitation totals over the watershed will lead to commensurate lowering or raising, respectively in the average slope of the water table from the valley margins toward the Scott River thalweg, leading to a dynamic adjustment of water levels, even under otherwise identical land use and land use management conditions."
NMFS	NMFS-005	B	IS	Monitoring, identifying data gaps		3	22		786	Page 22, line 786: The draft chapter states that "existing biological monitoring that will be used to assess the condition of aquatic and other groundwater-dependent ecosystems includes the CDFW camera trap program and biological surveys conducted by the Siskiyou County RCD (RCD)." Both the CDFW camera trap program and the adult redd surveys by the RCD only inform adult migration and spawning behavior, and thus have no probative value for discerning streamflow depletion impacts on juvenile salmonids and their habitat. NMFS suggests the SR GSA identify streamflow depletion impacts on juvenile salmonids as a data gap, and develop and propose specific studies and monitoring that will provide the necessary data within the first several years of the SR GSP.		Juvenile salmonid migration added to list of biological monitoring.
NMFS	NMFS-006	B	IS	Clarification requested		3	25		884	Page 25, line 884: As an example of future field monitoring data used to assess and improve SVIHM, the draft chapter lists the "last date on which certain flow triggers are exceeded in the spring recession (e.g., date at which flow at the Fort Jones gauge falls below 40 cfs)." The reference to 40 cfs is not explained, and the significance of that flow level is not apparent. The author should clarify what the significance is of 40 cfs at the Fort Jones gauge.		Clarification has been added to the text by providing multiple alternative example threshold values. The selection of 40 cfs was not intended to have any significance beyond it being a seasonal occurrence, which could be used to calibrate the model of the watershed.
NMFS	NMFS-007	B	GL	Basin characteristics, sustainable yield		3	29		995	Page29, Line 995: The draft Chapter 3 states that basin groundwater pumping currently does not exceed the sustainable yield of the Basin. However, as described in the draft Chapter 2, sustainable yield as defined under SGMA means "the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result." (California Water Code Section 10721). The draft Chapter 3 does not demonstrate that the Scott Valley subbasin is sustainable at this point (i.e., avoids all undesirable results), so any sustainable yields presented are hypothetical and pending further refinement after all undesirable results, including streamflow depletion, are proven avoided.	MCR-22	The undesirable results are prevented through the minimum threshold. The minimum threshold will be reached by implementation of PMAs that achieve the required level of reversal in streamflow depletion. To the degree that those PMAs require a future reduction in groundwater pumping, that amount of pump reduction must be subtracted from the sustainable yield, which was computed for the pre-2015 baseline period. By providing a definition of sustainable yield that is not a fixed number, but accounts for future PMAs in a well-prescribed protocol, the sustainable yield is specific and implicitly adjusts to the implementation of PMAs. The GSPS definition of sustainable yield avoids that a new pumper will claim the amount of pumping that was retired through a PMA elsewhere in the basin. This is not unlike sustainable yield definitions for overdrafted basins, where the sustainable yield may be defined as the sustainable yield during the base period *minus* any future increases in managed aquifer recharge (a PMA).
NMFS	NMFS-008	B	IS	Undesirable results, environmental beneficial users, suggested edit to plan		3	34		1134-1136	Page 34, line 1134-1136: The passage states that water levels have remained steady over the last 40 years and no overdraft or long term decline has occurred. NMFS disputes this fact as Scott Valley has been identified as a critically over drafted basin, hence it's inclusion in the SGMA program. Additionally, in NMFS' SONCC Coho Salmon Recovery Plan, we identify "Altered Hydrologic Function" as a key limiting stress for the Scott River coho salmon population. The limiting threats are identified as "Agricultural Practices" and "Diversions." In the recent past the date of reconnection within the mainstem and at tributary mouths has been increasing into the winter. In some years, this prevents Chinook salmon from entering the Valley and has recently restricted coho salmon from reaching key spawning grounds in tributaries. We believe this delay in reconnection is a product of over drafting groundwater during the summer, which impacts the designated beneficial uses of salmonid migration, spawning and early life development, and cold water habitat. The groundwater first must recharge in the fall before surface flows are reconnected, often too late to support critical fisheries needs. Thus, undesirable results, such as streamflow depletion, can occur even within a groundwater basin that may fully recharge each winter. NMFS recommends the SR GSP take a seasonal perspective when describing surface flow rates and relate those to key fisheries life history requirements – a beneficial use of interconnected surface waters. For example, how many contiguous days do mainstem passage barriers exist during fall migration? Or when does tributary reconnection occur at prime spawning locations?	MCR-22	The Scott Valley groundwater basin has been identified by DWR as a medium priority basin. The comment is incorrect in claiming that DWR has identified the basin as critically overdrafted. As for the remaining comments, see MCR-23.
NMFS	NMFS-009	A	IS	SMC definition, Critique of aspirational goal		3	52		1797	Page 52, line 1797: The SR GSP proposes an aspirational "Watershed Goal" that forms the basis for the streamflow depletion measurable objective. NMFS agrees a larger effort outside the SGMA process will be required to solve streamflow degradation in the Scott River watershed, but disagrees that an aspirational "Watershed Goal" proposed by the SR GSA is not appropriate per SGMA regulations. At line 1852, the document acknowledges the streamflow depletion undesirable result is "smaller in scope" than the existing challenges in the Scott River stream network, and proposes meeting SGMA requirements (i.e., avoiding undesirable results) through aspirational sustainable management criteria that addresses all streamflow threats in the basin. However, the aspirational goal is just that – an aspiration that requires a level of cooperation and funding that is hardly certain to occur. The draft Chapter 3 acknowledges this point at line 1880. Many groups have been trying to implement aspirational flow restoration goals within the Scott River watershed for decades, and current instream flows continue to harm ESA-listed salmonids and their habitat. On the other hand, SGMA contains clear goals, requirements, and deadlines that will ensure that streamflow depletion impacts from wells subject to SGMA (i.e., outside the adjudicated zone) are avoided by 2042. This type of certainty is what is missing from the proposed "aspirational" goal. Instead of, or in addition to, the aspirational goal, the SR GSA should develop sustainable management criteria that can be used to clearly discern whether SGMA requirements (i.e., avoiding streamflow depletion impacts from groundwater extraction in the un-adjudicated area) are ultimately met. In summary, wrapping the SGMA-mandated requirement within a larger "aspirational" watershed goal inappropriately obfuscates the required mandates of SGMA, and is not appropriate.		Chapter 3 of the GSP clearly quantifies the MO: The MO is an average streamflow depletion reversal of 20% or more (green-shaded area in Figure 8). Compliance is achieved if the streamflow depletion reversal meets or exceeds the 20% target.

NMFS	NMFS-010	A	IS	SMC approach and definition, ESA, Environmental beneficial users		3	50		1747	Page 50, line 1747: The draft chapters do not provide an adequate description of the impact to surface waters as a result of groundwater extraction, specifically the impact to coho and Chinook salmon species and their habitat. The SR GSP sets a baseline condition looking at groundwater conditions in the years of 2014/2015. Chapter 3 states undesirable conditions in the interconnected surface water already existing for over 30 years prior to 2015 and those conditions have not worsened since 2015. NMFS does not believe this approach is appropriate when addressing ESA-listed species likely impacted by groundwater pumping within the Scott River basin. During the 2014/2015 period, California was at the peak of the worst drought in 1,200 years (Griffin and Anchukaitis 2014). In the Scott Valley, tributaries were disconnected from the mainstem river and coho salmon were forced to spawn in undesirable locations, whichled to a rescue-relocation efforts that were unsuccessful in maintaining survival through outmigration. The SR GSP must set a baseline condition above and beyond the conditions experienced during a significant drought if it intends to avoid undesirable results to interconnected surface waters.		The extreme drought conditions in 2014 and 2015 apply to most of California's groundwater basins. The selection of the base period and the definition of undesirable results in the GSP complies with the regulations and guidelines provided by DWR.
NMFS	NMFS-011	B	IS	SMC approach and defintion		3	53		1862	Page 53, line 1862: NMFS is not aware of SGMA existing regulations requiring a "balancing test between economic cost and environmental improvement." Instead, SGMA ultimately requires that GSAs achieve groundwater sustainability (i.e., the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results). Hopefully sustainable groundwater management in the Scott River Valley can be achieved in an economical fashion, which is an obvious goal for all parties involved. However, economical achievement, aside from being a nebulous term, is ultimately a goal and not a requirement under SGMA.		The distinction and relationship between SGMA requirements and PTD are explained in chapters 2 and 3.
NMFS	NMFS-012	A	IS	Public Trust Doctrine		3	54		1887	Page 54, line 1887: The narrative states that the minimum threshold is set to address public trust resources, but the only reference to what this would entail is the reference to "some reversal of undesirable results." Given the earlier described issues with the "aspirational" sustainable management criteria proposed, the draft document should further clarify how those criteria are likely to adequately address public trust resources.	MCR-4	MCR-4
NMFS	NMFS-013	B	IS	SMC approach and definition		3	54		1890	Page 54, line 1890: The draft Chapter 3 seems to identify a backwards process for defining minimum thresholds for surface flow objectives. These objectives were identified based on what PMA's the agriculture community was willing to do. Since the landowners agreed to conduct managed aquifer recharge (MAR) and in lieu recharge (ILR) actions, the model was run to show only the changed depletion with this scenario in place. This implementation of this scenario provided the minimum thresholds. NMFS recommends the model be run in a reverse fashion. First, interconnected surface water objectives (minimum flows) should be identified. Then the model should be run using a series of various PMAs to describe methods to meet those objectives. In this approach, seasonal objectives would be important to support fisheries life history needs. Ideas include seasonal min flows at Fort Jones gauge, number of days of mainstem disconnection, timely seasonal tributary connection, etc.	MCR-44309	MCR-4 and MCR-23
NMFS	NMFS-014	B	IS	SMC definition, requested clarification		3	54		1898	Page 54, line 1898 describes that the minimum thresholds identified under the MAR-ILR scenario will result in a 19% depletion reversal. What exactly does this depletion reversal do in the context of beneficial uses? NMFS suggests that you show how this amount of depletion reversal will impact interconnected surface waters and the beneficial use to salmonids in critical times of year that support their life history needs.	MCR-23	The GSP has employed and makes reference to California's functional flow approach by quantifying changes in the timing of the spring recession, the amount of summer baseflow, and the timing of fall flush flows / reconnection, for attribution to groundwater pumping inside or outside the adjudicated zone or for attribution to all of irrigated agriculture, and also under future management scenarios. See Appendix 4A.
NMFS	NMFS-015	C	IS	SMC interim goals and timeline		3	55		1957	Page 55, line 1957: Measurable objectives represent a threshold that achieves the sustainability goal for the basin within 20 years of Plan implementation. Therefore, the SR GSP must achieve the sustainability goal by 2042, not just show progress toward meeting it as is stated by the draft Chapter 3.		Progress to the MO refers to the period prior to 2042 (see Figure 8 in Chapter 3).
NMFS	NMFS-016	B	IS	Stream depletion, environmental beneficial users		2	75		Table 7	Page 75, Table 7: "Average Stream Depletion" is meaningless for analyzing streamflow depletion impacts to beneficial uses of surface water. This concept also appears in Chapter 3, where there is a reliance upon "average" stream depletion reversal as part of the minimum threshold definition (page 61, line 2152). Fish and other aquatic organisms survive or perish based upon instantaneous conditions at a point in time, especially within a compromised system like the Scott River watershed where anthropogenic surface and groundwater withdrawal can dewater whole stream reaches (reference?).	MCR-24	As explained in the GSP, the average is used as a "label" to represent an entire future scenario, with daily and spatially varying streamflow, streamflow depletion, and streamflow depletion reversal over a minimum period of 28 years, as computed by SVIHM for specific scenarios (Appendix 4A). Furthermore, the average represents the relevant season for aquatic species from September to November (see page 12 in Appendix 4A).
NMFS	NMFS-017	B	WQ	SMC definition		2	89		2441	Chapter 2, page 89, line 2441: the water quality component should also consider temperature and dissolved oxygen, since these parameters can be degraded by the impairment of groundwater accretion to the stream and can lead to salmonid mortality.	MCR-21	MCR-21
NMFS	NMFS-018	B	IS	Undesirable result definition and approach		3	59		2089	Page 59, line 2089: The SR GSP misinterprets the depletion of interconnected surface water undesirable result as "what is a 'reasonable' amount of avoided groundwater use?" There are a few problems with this approach. First, the undesirable result in question is defined as "*depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water*" (Water Code Section 10721(x)). There are other undesirable results that pertain to minimizing impacts on groundwater pumpers, namely the undesirable result of "significant and unreasonable reduction of groundwater storage." Nowhere within the SGMA regulations or Best Management Practices (2017) does it acknowledge or recommend considering impacts to groundwater pumpers as part of sustainable management criteria development for the streamflow depletion undesirable result, and thus to do so is inappropriate.	MCR-4	MCR-4
NMFS	NMFS-019	A	BR	ESA		3	60		2108	Page 60, line 2108: NMFS finds it notable that the SR GSA includes a goal of satisfying the ESA with the measurable objective (page 59, line 2074), but not for the minimum threshold (page 60, line 2108). NMFS reminds the SR GSA that it must comply with the ESA (23 CCR § 354.28(b)(5)), and that compliance must occur at all times and not just at the end of the 20 year GSP implementation period. For reasons outlined above, NMFS believes a minimum threshold based upon historically high streamflow depletion rates is not consistent with the ESA, despite the SR GSA's assertion to the contrary (page 57, line 1976). If the SR GSA wishes to maintain this position in the final GSP, we recommend they thoroughly explain what instream habitat conditions will result under the minimum threshold, and how those conditions will avoid adversely affecting ESA-listed coho salmon. Any explanation should avoid the generalized, qualitative reasoning currently found within the SR GSP, but instead be supported by quantitative analysis linking groundwater elevations, surface flow depletion, and resultant impacts to instream habitat variables important to coho salmon.	MCR-10	MCR-10
NMFS	NMFS-020	A	IS	SMC definition, environmental beneficial users		3	60		2113	Page 60, line 2113: The SR GSP states the following regarding minimum threshold development for the undesirable result of streamflow depletion: *"This framework for the minimum threshold is consistent with 23 CCR 354.28(c)(6), which (A) specifies the use of models to measure stream depletion, (B) implies that consideration of impacts on beneficial uses and surface flows is* *necessary, but (C) does not require that streamflow itself is used to set the minimum threshold, triggers, or interim targets."* The above passage mischaracterizes the SGMA regulations in a couple significant ways. First off, the required consideration is for "beneficial uses of *the* surface water", not "beneficial uses *and surface flows"* as the SR GSP contends. As noted earlier, identified beneficial uses in the Scott River include migration of aquatic organisms, fish spawning and early development, and cold water habitat, and these beneficial uses must be considered (and significant and unreasonable impact to them avoided) when crafting minimum thresholds. Also, while the regulations do not require streamflow be used to set minimum thresholds, triggers, or interim targets, they do require the minimum threshold for streamflow depletion be either the "rate or volume of surface water depletion caused by groundwater use that has adverse impacts on beneficial uses of the surface water, and may lead to undesirable results." If the SR GSA wishes to use groundwater elevation as a proxy for streamflow depletion rate or volume, it must "demonstrate that the representative value is a reasonable proxy for multiple individual minimum thresholds as supported by adequate evidence." (23 CCR 354.28(d)	MCR-44296	Line 2115-2116 has been changed to read "……impacts on beneficial uses and users of interconnected surface water is necessary…". Also see MCR-4 and MCR-10 for further discussion.

Quartz Valley Indian Community	QVIC-001	C	IS	SMC definition						ISW MT should not be defined based on a proportion or partial contribution to an undesirable result. SGMA requires that an MT define the minimum threshold for a full undesirable result. The whole concept of defining the ISW MT on what the PMA can achieve is putting the cart before the horse. The MT is a numeric value used to define an undesirable result (this may be why the GSP spends so much time confusing and twisting the definition of undesirable result). The MT, if exceeded, may cause an undesirable result. PMAs are a means to avoid exceeding an MT, not a mechanism to define an MT.	MCR-4	MCR-4
Quartz Valley Indian Community	QVIC-002	A	IS	SMC definition and approach						The approach taken in the GSP is backwards. Rather than first defining an arbitrary endpoint based on what groundwater users can relatively easily tolerate (i.e., the approach outlined the GSP), the first step should be to determine the instream flows needed by fish, then calculate the difference between those needed flows and current flows, and then assign the same percent reductions needed by all water users (surface, adjudicated groundwater, and unadjudicated groundwater) to meet that difference. This approach should be applied to all parts of the year that have flows that are not meeting fish needs, not just September through November	MCR-4	MCR-4
Quartz Valley Indian Community	QVIC-003	A	IS	SMC Defintion, Public Trust, ESA						15% streamflow reversal proposed is far short of the non-adjudicated groundwater users' responsibility meeting existing laws and regulations such as the Public Trust Doctrine, Total Maximum Daily Loads (TMDLs), and the Endangered Species Act.	MCR-4	MCR-4
Quartz Valley Indian Community	QVIC-004	B	IS	SMC definition						The GSP proposes an MT for streamflow depletion only for the September–November period. The September–November this period is the time of year with the lowest flows and is very important for migration and spawning of adult salmon, but streamflow depletion also has adverse impacts at other times of year, such as during winter when salmon eggs are incubating, during spring when fish are rearing and outmigrating, and during summer when low flows can exacerbate high water temperatures.	MCR-24	Streamflow depletion reversal MT and MO are set for each month of each year, as computed by SVIHM. See MCR-24.
Quartz Valley Indian Community	QVIC-005	C	PM	Projects and management actions - incorporate water year types						MAR and IRL only work if there is "excess" surface water available. In critical drought years, there is very little excess water and thus MAR and IRL do not provide much benefit to instream flows. This is unfortunate because reversing streamflow depletion is arguably more important in critical drought years that in normal and wet years. The GSP should have proposed management strategies that are tailored to water year type, so that streamflow depletion could be substantially reversed in all water year types.	MCR-2	MCR-2
Quartz Valley Indian Community	QVIC-006	C	GE	Data accessibility						How will transparency and public access to data be incorporated into reporting and data sharing agreements? All data that is paid for with public money should be accessible to the public. All GSP reporting (i.e., annual and five-year review reports) should include electronic appendices with easily accessible data, so others could run their own analyses on the data.		The GSA will follow DWR guidelines for data and model transparency. Per DWR's modeling BMP document, "final model files used for decision making in the GSP should be packaged for release to the Department". We anticipate that model files will be uploadable with the GSP in digital format. Similarly, we anticipate that DWR will collect annual report data in digital format.
Quartz Valley Indian Community	QVIC-007	C	PM	Metering, Transparency, Data availability						We understand the political sensitivity of well metering, but how can groundwater be managed at a basinwide scale without metering? At least some subset of the wells should be mandated to be metered. Examples could include the largest wells, or new wells drilled after the passage of the SGMA legislation or after adoption of the Scott Valley GSP. How can existing ordinances, such as the prohibition on the use of groundwater for cannabis production or the requirement for permits being needed for inter-basin transfers of groundwater, be enforced without the well metering? How can the effects of efficiency projects be verified without metering? The lack of metering requirements suggests a lack of transparency, which further suggests a lack of will to actually manage groundwater extraction.	MCR-25	MCR-25
Quartz Valley Indian Community	QVIC-008	C	GE	Water mastering						Watermastering should be returned to the State of California, implemented basinwide, with well-organized publicly accessible records of diversions.	MCR-25	MCR-25
Quartz Valley Indian Community	QVIC-009	B	PM	Projects and Management actions - Suggested edit to plan						"Avoiding Significant Increase of Total Net Groundwater Use from the Basin" project and management action (PMA), but when we look closely at the details we see that the wording is loosely defined so that it does not actually guarantee anything. Since all well metering is voluntary, how is it possible to verify this? If the GSP is to actually achieve the stated objectives, it needs more things that can actually be readily verified. Examples that we recommend include: •No additional wells for new land use or additional cropping will be permitted in the basin. Only new wells intended to replace old wells, at their existing pumping capacity, and existing crops will be permitted, and these replacement wells will be metered. The intent here is to avoid net increase in groundwater use. •Wells intended to replace stream diversions will not be permitted, even if there will be no additional net water usage (i.e., pumped groundwater will be used to replace surface water irrigation of existing crops). The intent here is to allow the SWRCB to ascertain and regulate surface water rights and stream and spring flows. The use of groundwater wells in place of stream or spring diversions simply moves the point of diversion and lessens the ability of the SWRCB to carry out its mission.	MCR-28	MCR-28
Quartz Valley Indian Community	QVIC-010	C	GE	Climate change sceniarios, water budget						The GSP does include model runs for future climate change, these results are not presented in a coherent way that highlights the major challenges that climate change will pose to water management. A warming climate will cause a shift in precipitation form (less snow, more rain) that will in turn shift the seasonal timing of tributary surface flows into the valley. Regardless of what happens to total precipitation or total runoff, this change in precipitation form and runoff timing is a huge issue that water management is going to need to recon with .	MCR-3	MCR-3
Quartz Valley Indian Community	QVIC-011	C	HM	SVIHM, 5-year update						We agree with the SVIHM's overall approach and appreciate the many years of work that the modeling team has invested in developing and refining the model. While the model has been peer-reviewed, we have some concerns that we think should be addressed in future updates (i.e., the five-year review). Details regarding the following suggestions are provided in the modeling section of comments: 1) need for a sensitivity analysis to quantify how sensitive SVIHM modeled outflows are to tributary inputs (especially during September and October); 2) need to incorporate fall/winter stockwater diversions into SVIHM; 3) need to reduce the MODFLOW model timestep to something shorter than a month; and, 4) need to use a better method for filling the large gaps in tributary inflows (e.g., considering other model types beyond linear regression, and using Salmon River gage as an alternative to the Scott River gage for filling tributary data gaps at least for some months and/or sites).		We appreciate the feedback. These improvements are being considered as the modeling is moving into the next phase.
Quartz Valley Indian Community	QVIC-012	A	IS	SMC Definition and approach						The GSP defines these terms for interconnected surface waters in a way that fails, as the statute requires, to tie the results of over pumping to concrete effects in the basin. The GSP distinguishes between a "SGMA undesirable result" and an "aspirational 'watershed goal.'" (GSP at 3.57-59.) The former is defined as "stream depletion that can be attributed to groundwater pumping outside of the adjudicated zone to the degree it leads to significant and unreasonable impacts on beneficial uses of surface water." (GSP at 3.57.) The minimum threshold is defined as the "the amount of stream depletion reversal achieved by one or an equivalent set of multiple minimum required PMAs to meet the intent of SGMA (no additional undesirable results), and Porter Cologne and the PTD (some reversal of existing undesirable results)." (GSP at 3.60.) And the measurable objectives are defined by percentages of streamflow depletion reversed by PMAs. (GSP at 3.63-64.)		Noted. No response needed
Quartz Valley Indian Community	QVIC-013	A	GE	Suggested edit to plan, definition of unreasonable						The GSP must define these "significant" and "unreasonable" effects. (Cal. Code Regs. tit. 23, § 354.26(a).) But the GSP's definition of "undesirable results" is a tautology. The GSP defines it as "significant and unreasonable stream depletion due to groundwater extraction from wells subject to SGMA (i.e., outside of the Adjudicated Zone)." (GSP at 3.59.) By including the terms "significant and unreasonable" in the definition, the GSP fails to provide a workable definition: an effect is defined as unreasonable if it is unreasonable. This is nonsensical and unworkable. In Asociacion de Gente Unida por el Agua v. Central Valley Regional Water Quality Control Board (2012) 210 Cal.App.4th 1255, 1280, the Court of Appeal disapproved a waste discharge requirement for dairy pollution where "the basis for concluding that any degradation of groundwater will be of maximum benefit to the people of California is that the Order states that it prohibits any further degradation of groundwater." The court found that this reasoning was "circular." (Ibid.) The same is true here.	MCR-27	

Quartz Valley Indian Community	QVIC-014	B	IS	SMC Definition and Approach						What the GSP could have done, but did not do, is establish a streamflow target that is protective of beneficial uses in the Scott. It then could have determined the relative contributions of groundwater users inside and outside the adjudication along with surface users. It could then establish the needed reductions in use by all three categories of water users. Even though the GSA lacks authority over surface users and the adjudicated zone, the exercise would inform the amount that pumpers outside the zone need to reduce by to reach a satisfactory flow rate. And making these calculations would inform the County, the State Board, the Watermaster, and potentially the courts and other agencies about the scale and nature of needed actions. This approach would also comply with SGMA by quantifying the undesirable result and minimum threshold.	MCR-4	
Quartz Valley Indian Community	QVIC-015	A	PM	basin-wide approach						the regulations and the statute include the language "throughout the basin." If the legislature did not want to include consideration of effects in the adjudicated areas, it could have done so but did not. By focusing solely on pumping outside the adjudicated zone, the GSP fails to ensure, or even analyze what would be necessary to ensure that the basin as a whole reaches sustainability.	MCR-4	MCR-4
Quartz Valley Indian Community	QVIC-016	B	GE	Undesireable result definition						(Cal. Code Regs., tit. 23, § 354.26, subd. (b)(2) (emphasis added).) The description in the GSP is inadequate because it is not a "quantitative description." The regulations are clear that the result must be in the form of numbers tying minimum threshold exceedances to the significant and unreasonable effects. The GSP's description is entirely qualitative. In addition, the description lacks "criteria" for "when and where" groundwater conditions cause significant and unreasonable depletions. Again, SGMA and the regulations make crystal clear that the undesirable results analysis must be tied to physical conditions and physical locations, not solely a model output.	MCR-7	MCR-7
Quartz Valley Indian Community	QVIC-017	A	IS	Environmental Beneficial Users						4. The Reasonableness Analysis Fails to Consider Costs to Beneficial Users of Surface Waters The GSP is required to determine whether the depletions of surface waters have "unreasonable impacts on beneficial users of surface waters." But instead of focusing its discussion on the harms to beneficial users, it focuses solely on the costs to groundwater users. This violates SGMA.	MCR-4	MCR-4
Quartz Valley Indian Community	QVIC-018	B	IS	Unreasonableness definition and costs						The GSP fails to properly consider the "unreasonableness" of stream depletions by failing to analyze not only of the costs of compliance but of the costs to the public, tribes, and commercial fisheries of the loss of fish populations—loss which may include the incalculable consequences of extinction or extirpation. For instance, courts have held that when setting water quality objectives under Water Code section 13241, the "Water Control Boards are charged with taking into account economic considerations, not merely costs of compliance with a permit. As noted, economic considerations also include, among other things, the costs of not addressing the problems of contaminated water." (City of Duarte v. State Water Resources Control Board (2021) 60 Cal.App.5th 258, 276.) The same is true here: determining whether an effect is reasonable requires looking at both costs to comply with any restrictions and also the costs to the public of over-extraction.	MCR-4	MCR-4
Quartz Valley Indian Community	QVIC-019	A	IS	SMC definition, reasonableness analysis						SGMA requires the definition of significant and unreasonable effects to focus on the results of stream depletion, not the cost of avoiding it. (Wat. Code § 10721, def. (x); Cal. Code Regs. tit 23, § 354.26(a).) Any costs associated with any constraint on groundwater users has to be balanced against the effect of their actions on groundwater conditions. A reasonableness analysis that focuses entirely on costs to groundwater users is incomplete.	MCR-4	MCR-4
Quartz Valley Indian Community	QVIC-020	A	BR	SWRCB emergency actions, unreasonable definition						The analysis also misses the fact that the State Board recently adopted emergency regulations setting flow levels (embodied in the CDFW drought minimum flows) below which extractions are deemed to be unreasonable. (See Wat. Code § 1058.5. (State Board authority to adopt emergency regulations to "prevent the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion, of water"); Cal. Code Regs. tit. 23, § 875 et seq.) Rather than focusing on the cost of compliance, the GSP must revisit its significant and unreasonable analysis in light of the State Board's determination of what is "reasonable." It is within the State Board's authority to determine which uses are reasonable. (Stanford Vina Ranch Irrigation Company v. State (2020) 50 Cal.App.5th 976, 1002–1003 ("[T]he Board is charged with acting to prevent unreasonable and wasteful uses of water, regardless of the claim of right under which the water is diverted.").)	MCR-17	
Quartz Valley Indian Community	QVIC-021	A	BR	SWRCB emergency regulations						The GSP must account for the fact the State Board has now declared flows below the CDFW drought minimum flows to be unreasonable.	MCR-17	MCR-17
Quartz Valley Indian Community	QVIC-022	A	IS	SMC Definition and approach						The GSP defines the minimum threshold for interconnected surface waters as "the amount of stream depletion reversal achieved by one or an equivalent set of multiple minimum required PMAs to meet the intent of SGMA (no additional undesirable results), and Porter Cologne and the PTD (some reversal of existing undesirable results)." (GSP at 3.60.) It goes on specify: "**average stream depletion reversal** of the implemented PMAs during September–November **must exceed 15% of the depletion caused by groundwater pumping from outside the adjudicated zone in 2042 and thereafter…**" (GSP at 3.60 (emphasis in original).) There are at least three problems with this. First, it is circular. Second, the 15% figure is arbitrary and unsupported by evidence. Last, it is not tied to a "monitoring site or representative monitoring site" as required by the regulations.	MCR-4, 18	The justification for the "15% figure" has been thoroughly vetted by the AC and documented in the GSP (also see MCR-4). Extensive monitoring is included in the GSP and implicit to the use and regular update of SVIHM (see MCR-18)
Quartz Valley Indian Community	QVIC-023	A	IS	SMC Definition and approach						By defining the minimum threshold as the results of simulated PMAs, the GSP creates a circle. It can define the undesirable result and achieve it without demonstrating any real-world impact on flows, fish, or the people that rely on them. This violates SGMA. In addition, the 15% figure is completely lacking in evidence. An agency's action is invalid if it is "arbitrary, capricious, or without evidentiary support." (E.g. Association of Irritated Residents v. San Joaquin Valley Unified Air Pollution Control Dist. (2008) 168 Cal.App.4th 535, 542.)	MCR-7, MCR-18	
Quartz Valley Indian Community	QVIC-024	A	IS	SMC definition, cost analysis, clarification requested						While the GSP implies that it was discussed at the Advisory Committee meetings, there is no justification for why 15% was chosen, and not 50%, 100%, or 5%. Indeed, although the key driver of the GSP's MT analysis is the cost of the MAR/ILR scenario, the GSP *does not consider the cost of the scenario!* (GSP at 3.60-61, 4.27 ("Costs and funding for [the ILR/MAR] project have not yet been explored.") Here, the failure to consider the costs of the ILR/MAR scenario—which is the only basis for the selection of the 15% reduction figure—is arbitrary and capricious because it is not based on any evidence in the record.	MCR-4	
Quartz Valley Indian Community	QVIC-025	B	IS	SMC definition						there is no analysis of the impacts of the 15% depletion reduction on the stream itself. Without this analysis, there is no way to know whether this level of reduction is "significant" or "unreasonable," no matter how the terms are defined. And this illustrates the problem with defining the minimum threshold in terms of a modeled output rather than, as required by the regulations, a value at a monitored site.	MCR-7	
Quartz Valley Indian Community	QVIC-026	A	GE	Definition of undesireable result						The "minimum thresholds" must "quantify groundwater conditions for each applicable sustainability indicator *at each monitoring site or representative monitoring site*." (Cal. Code Regs., tit. 23, § 354.28(a), emphasis added.) Therefore, the definition of the undesirable result must be "quantitative" and must be tied to minimum threshold exceedances at *particular monitoring sites*.* In other words, the SGMA regulations require a GSP to express an undesirable result in terms of a real-world impact to a directly measured value, in this case, streamflow. *Section 352.4 of the regulations makes clear that a monitoring site is a physical location, not a model output. (Cal. Code Regs., tit. 23, § 352.4.)	MCR-7, MCR-18	
Quartz Valley Indian Community	QVIC-027	B	IS	SVIHM, SMC definition, monitoring						The SVIHM model will doubtless be a useful tool and provides invaluable insights into those parameters that cannot be directly measured. But it is not a "monitoring site." The GSP must include minimum thresholds that inform the GSA and the public when physical conditions in the basin have reached the point of being "significant and unreasonable" impacts on interconnected surface waters.	MCR-7, MCR-18	

Quartz Valley Indian Community	QVIC-028	A	IS	SMC definition and approach - measurable objectives						The GSP attempts to avoid the requirement to define the minimum threshold and measurable objectives in terms of stream flow by referring to section 354.30, subdivision (b) of the regulations. The GSP states, "Choosing the aspirational watershed goal itself as MO would not meet the requirement that quantification/measurement of streamflow depletion that is used to establish the minimum threshold, Section 3.3.5.1, must also [be] used to quantify the MO."* But this is precisely backwards. As discussed above, the minimum threshold must be defined with reference to a measured value at a monitoring site. And there is no requirement that the measured value be identical, only that the metrics and monitoring sites be the same. Again, SGMA is clear that measurable objectives, like minimum thresholds and undesirable results, be defined in terms of measurable stream flow, not as a portfolio of PMAs or solely as a model output. * GSP, Chapter 3, at p. 53. The cited regulation states: "measurable objectives shall be established for each sustainability indicator, based on quantitative values using the same metrics and monitoring sites as are used to define the minimum thresholds." (Cal. Code Regs., tit. 23, § 354.30, subd. (b).)	MCR-7, MCR-18	
Quartz Valley Indian Community	QVIC-029	A	IS	SWRCB emergency actions, SMC definition						The emergency regulation now sets a minimum flow for the Scott River. Thus, the goal of restoring adequate flows in the Scott is no longer "aspirational"—a minimum flow is now the law. The GSP must be revised to account for this.	MCR-17	MCR-17
Quartz Valley Indian Community	QVIC-030	B	IS	SMC definition - suggested edit to plan, baseline condition						This a similar situation: the stream depletions are not a continuous problem that occurred long ago and has not been corrected, like seawater intrusion or permanent subsidence. Depletions are discrete events that recur anew each year, but the GSP treats them as permanent. Indeed, the GSP claims that there is no chronic lowering of groundwater levels in the Scott. (GSP at 3.32.) The GSP should be revised to make clear that the stream depletions did not "exist" prior to 2015 because each year they are caused again.	MCR-19	This interpretation of "new" is inconsistent with SGMA regulations and DWR guidelines. For example, Figures 3, 4, 7, and 11-14 in DWR's BMP 6 guidelines (https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/BMP-6-Sustainable-Management-Criteria-DRAFT_ay_19.pdf) all clearly identify cyclical "recurring" events rather than "new" events. The interpretation given here would require all GSPs to consider stream flow and groundwater level conditions at midnight on December 31, 2014, when SGMA came into effect. In the interpretation given here, any stream flow or water level lower than at that specific point in time would be "anew". In contrast, DWR's guidance is to consider a decadal to multi-decadal baseline period that defines the basin conditions prior to 2015 in wet, average, and dry years as well as seasonal variations typical for the basin. The GSP's findings are therefore fully consistent with SGMA regulations and DWR guidance.
Quartz Valley Indian Community	QVIC-031	A	BR	Public Trust Doctrine, CWA						The GSP purports to consider other laws. But it does so in the context of doing as little as possible to comply with those laws. The GSP states that SGMA requires it to only not cause more undesirable results than "existed" in 2015 (e.g. GSP at 3.60). But it characterizes any "additional" reduction in pumping as in response to the public trust doctrine the Clean Water Act, not SGMA. As discussed above, the conclusion that SGMA does not require further reductions below the 2015 baseline is incorrect. The analysis of undesirable results and minimum thresholds needs to be revised to take into account the requirements of all other relevant laws.	MCR-4, MCR-19	MCR-4, 19
Quartz Valley Indian Community	QVIC-032	A	IS	CWA, ESA, TMDL						But the GSP does not model or account for cold water refugia, which are crucial for salmonid over-summering and rearing, especially for Coho. (GSP at 2.73.) The TMDL Action Plan reinforces that these thermal refugia are necessary for species recovery: "Where reaches of the Scott River and its tributaries are providing suitable freshwater salmonid habitat, including cold water refugia for coho and other salmonids, protection of these areas should be a priority for restoration efforts." * The GSP's failure to model and consider impacts of groundwater extraction on this crucial habitat implicates the Clean Water Act, by failing to comply with the TMDL for temperature, and the Endangered Species Act, for failing to protect critical habitat. Moreover, temperature impacts are an "effect" that the GSP wholly fails to evaluate the significance and reasonableness of when defining the undesirable result and minimum thresholds for either water quality or interconnected surface waters. The GSP should, at the very least, incorporate a plan to identify and protect these cold water refugia where they occur. * North Coast Regional Water Quality Control Board, Staff Report for the Action Plan for the Scott River Watershed Sediment and Temperature Total Maximum Daily Loads (2005) at p. 5-4.	MCR-20	The TMDL Action Plan does not specify any regulatory requirements with respect to said claim.
Quartz Valley Indian Community	QVIC-033	A	WQ	Surface water quality, CWA						The GSP's identification of undesirable results for water quality is insufficient because it fails to consider groundwater extraction's impacts to surface water quality. SGMA provides that "[s]ignificant and unreasonable degraded water quality" is an undesirable effect required to be avoided (Wat. Code § 10721, subd. (x)(4), and SGMA does not limit this definition to degraded groundwater quality. But the GSP limits its discussion of the water quality undesirable result to groundwater quality. (GSP at 3.42) This limitation violates SGMA because it does not consider the significant effects that groundwater conditions have on surface water quality, namely, temperature—including cold water refugia. The GSP acknowledges that the Scott is listed as impaired for temperature under section 303(d) of the Clean Water Act. (GSP at 2.23) And extractions of groundwater affect flows and therefore temperature in the Scott. (GSP at 2.25.) The GSP must be revised to describe impacts to surface water temperature as an undesirable result and to develop minimum thresholds, measurable objectives, and projects and management actions to remedy the undesirable result.	MCR-21	CCR 354.28(c)(4) explicitly refers to "contaminant plumes" and "supply wells", indicating that groundwater quality must be monitored ("Degraded Water Quality. The minimum threshold for degraded water quality shall be the degradation of water quality, including the migration of contaminant plumes that impair water supplies or other indicator of water quality as determined by the Agency that may lead to undesirable results. The minimum threshold shall be based on the number of supply wells, a volume of water, or a location of an isocontour that exceeds concentrations of constituents determined by the Agency to be of concern for the basin. In setting minimum thresholds for degraded water quality, the Agency shall consider local, state, and federal ater quality standards applicable to the basin."). Furthermore, in interpreting this regulation, DWR's BMP 6 guidelines (https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/BMP-6-Sustainable-Management-Criteria-DRAFT_ay_19.pdf) provide no indication that surface water quality monitoring is required where and when baseflow conditions dominate streamflow.
Quartz Valley Indian Community	QVIC-034	C	GE	SVIHM assumptions, Basin Characteristics, Requested clarification		ES	8	ES-2	214-215	"…lateral flux of Mountain Front Recharge (MFR) is assumed constant at <18 TAF." Seems odd that this would be assumed constant between years. See comment below regarding Chapter 2, page 117, section 2.2.3.2.		Data are not available to provide the model with more detailed data. Additionally, the Scott Valley Integrated Hydrologic Model was not highly sensitive to variation in the MFR parameter (see Tolley et al., 2019).
Quartz Valley Indian Community	QVIC-035	C	GE	Suggested edit to plan - citations		2	13-15	2.1.2	259-369	It would be very helpful to provide citations for most (or all) of the documents listed on these pages, rather than the current few. The top of the sections says "This chronology was provided by Sari Sommarstrom (2019), with additional details from select sources", but Sommarstrom (2019) is not listed in the references at the end of this chapter.	MCR-27	Document has been changed per suggestion.
Quartz Valley Indian Community	QVIC-036	C	GE	suggested edit to plan		2	15	2.1.3	378	Should Karuk Tribe be added to the list of monitoring entities because they monitor water quality at the mouth of the Scott River, or is this list only for monitoring within and upstream of the Scott Valley? Even though the Karuk Tribe monitoring is downstream, it is informative to conditions within the basin.	MCR-27	Document has been changed per suggestion.
Quartz Valley Indian Community	QVIC-037	C	GE	Susggested edit to plan		2	18	2.1.3	Table 2	For Quartz Valley Indian Reservation Environmental Department, Plan/Program columns should be updated to: "Flow monitoring, groundwater elevation, and ~~Annual~~ surface and groundwater quality monitoring". Also, "Regulatory?" column should be changed to "Yes" and "What is regulated?" column should be changed to "Surface and groundwater quality", because QVIR has been approved by U.S. EPA for Treatment as a State status for regulating those with tribal trust lands.	MCR-27	Document has been changed per the suggestion.
Quartz Valley Indian Community	QVIC-038	C	GE	Suggested edit to plan		2	19	2.1.3	Table 2	In the "Tool" section of the table, a row should be added for "Quartz Valley Indian Reservation Environmental Department", with "Plan/Program" of "Statistical model to predict water temperature at Scott River USGS gage"	MCR-27	Document has been changed per the suggestion.

Quartz Valley Indian Community	QVIC-039	C	GE	Suggested edit to plan		2	30	2.1.3	839	Add new sentence to end of paragraph: "QVIR was approved by U.S. EPA for Treatment as a State status for regulating water quality within the tribal trust lands."	MCR-27	Document has been changed per the suggestion.
Quartz Valley Indian Community	QVIC-040	C	GE	Suggested edit to plan		2	30	2.1.3	840	Add new paragraph: "QVIR and Riverbend Sciences have developed a statistical model to predict daily water temperatures at Scott River USGS gage using flow and air temperature data. The model was calibrated with 24 years of data is currently undergoing peer review (Asarian and Robinson 2021). It is freely available from an online repository." In addition, we recommend the first sentence on line 840 be revised to: "The QVIR Environmental Department has made this water quality and water level monitoring data and statistical model available for use in GSP development." Citation to add to references section: "Asarian, J. E., & Robinson, C. (2021). Modeling Seasonal Effects of River Flow on Water Temperatures in an Agriculturally Dominated California River [Preprint]. Earth and Space Science Open Archive: Earth and Space Science Open Archive. https://doi.org/10.1002/essoar.10506606.1" We are hopeful that the final peer-reviewed version of the article will be complete in late 2021 or early 2022.	MCR-27	Document has been changed per the suggestion.
Quartz Valley Indian Community	QVIC-041	C	HM	SVIHM, clarification requested		2	39	2.1.5.2	1241-1245	"The Advisory Committee discussed modeled scenarios using the Siskiyou County Sheriff Department's estimate of 2 million illicit cannabis plants and a consumptive use of 4-10 gallons of water per plant per day, to consider the potential impacts to groundwater resources from this activity under current and future conditions. This information can be found at Appendix [ ]." What appendix is this referring to? Also, it would be good to clarify if the estimate of 2 million plants is regarding the whole county or just the Scott basin.		Removed cannabis language except for noting the ordinances related to groundwater use.
Quartz Valley Indian Community	QVIC-042	C	GE	suggested edit to plan - citations		2	41	2.1.5.2	1299	The Lee 2016 document cited here is not included in the references at the end of the chapter.		Replaced with alternative source and updated reference list.
Quartz Valley Indian Community	QVIC-043	C	SC	Basin characteristics, suggested edit to plan		2	44	2.2.1.2	1379-1391	This paragraph discusses trends at 9 snow stations. The up-to-date data are appreciated, but it would also be good to cite previous analyses of regional snowpack data, something like "Since the 1940s, the percent of precipitation falling as snow has decreased in the region (Lynn et al. 2020) and April 1 snowpack has decreased, especially at lower elevations (Van Kirk and Naman 2008)." Citation: "Lynn, E., Cuthbertson, A., He, M., Vasquez, J. P., Anderson, M. L., Coombe, P., Abatzoglou, J. T., & Hatchett, B. J. (2020). Technical note: Precipitation-phase partitioning at landscape scales to regional scales. Hydrology and Earth System Sciences, 24(11), 5317–5328. https://doi.org/10.5194/hess-24-5317-2020"		Regional snowpack discussion added.
Quartz Valley Indian Community	QVIC-044	C	GE	Suggested edit to plan		2	69	2.2.1.6	1878	"Some of these flow gauges (notably French Creek and Sugar Creek) have later end dates than the years listed…"	MCR-27	Document has been changed per the suggestion.
Quartz Valley Indian Community	QVIC-045	C	GE	Suggested edit to plan		2	70	2.2.1.6	1934-1936	In contrast, lower baseflow in September and October since the 1970s has been attributed to climate change as the dominant factor (ibid. Figure 6; Drake et al., 2000), although Asarian and Walker (2016) found that flow declines in August, September, and October were much larger than could be explained by precipitation alone." Suggested language is based on Figure 8 from Asarian and Walker (2016) which shows declines in precipitation-adjusted flow. Citation: Asarian, J. E., & Walker, J. D. (2016). Long-Term Trends in Streamflow and Precipitation in Northwest California and Southwest Oregon, 1953-2012. Journal of the American Water Resources Association, 52(1), 241–261. https://doi.org/10.1111/1752-1688.12381	MCR-27	Document has been changed per suggestion
Quartz Valley Indian Community	QVIC-046	B	SC	Basin characteristics, suggested edit to plan, clarification requested		2	70	2.2.1.6	1936-1939	"Over the past 22 years, the relative frequency of below average and dry years has been much higher than during any period in the 20th century during which Scott River flows at Fort Jones have been measured (Figure 16). This has resulted in more frequent occurrence of baseflow conditions of less than 20 cfs, although low flows measured in recent years have not been lower than low flows measured prior to 2015 (Figure 16)." These sentences are unclear and should be re-worded. The phrase "below average and dry years" implies precipitation, but Figure 16 shows flows not precipitation, so should probably be re-worded as "years with low-flows". Are water year types (and methods used to derive water year types) explicitly defined somewhere in the GSP (i.e., see comment on Chapter 2, Section 2.2.3, page 108, line 2991)? The purpose of the statement "although low flows measured in recent years have not been lower than low flows measured prior to 2015" is unclear and should either be deleted or explain why that is notable. Minimum flows have clearly declined over the period of record (e.g., see Figure 16, or the statistical analyses in Asarian and Walker 2016). Looking at Figure 7 on page 26 which shows precipitation, the period 2000-2021 does not look obviously drier than 1977-1999.	MCR-27	Document has been changed per suggestion. Water year types are from the DWR dataset, as mentioned in Section 2.2.3
Quartz Valley Indian Community	QVIC-047	C	GE	Suggested edit to plan		2	73	2.2.1.7	1960-1963	"Figure 18 illustrates the monthly variations in the amount and direction of water exchange between groundwater and surface water. Losing sections are indicated by red colors and the positive value of the logarithm of the rate of stream leakage to groundwater. Gaining stream sections are indicated by blue colors…" The Figure 18 on page 72 (a map of dry and wet river/stream reaches from SRWC 2018) does not match the description on page 73. Page 73 appears to instead describe Figure 5 from Tolley et al. (2019) which we do not see in the GSP document.	MCR-27	Thank you for flagging this oversight. We have corrected this to include the stream-aquifer flux heatmap in the GSP.
Quartz Valley Indian Community	QVIC-048	C	GE	Suggested edit to plan		2	73	2.2.1.7	1975	Tributary names should be labeled on subject Figure.	MCR-27	The subject figure is the missing (now included) stream-aquifer flux heatmap; key tributary confluences are labeled.
Quartz Valley Indian Community	QVIC-049	C	SC	Basin characteristics - stream flow depletion, clarification requested		2	75	2.2.1.7	2040	When talking about summer baseflow period depletion, what is the rationale for only presenting estimates for the Sept.-Oct. period? What is going on earlier in the summer and in the late fall?		September-October has the lowest flows and is the most critical season with respect to fall-run Chinook and coho migration. We added a reference to the Digital Appendix 2-A (i.e. two csv files) that has the complete data set.
Quartz Valley Indian Community	QVIC-050	C	SC	Basin characteristics - stream depletion, clarification requested		2	75	2.2.1.7	2026-2051	Table 7 provides summaries of stream depletion. Values are presented as ranges (e.g., 43-65 cfs). Please clarify what these ranges are (e.g., is the minimum and maximum of the seasonal averages observed across all years?) and briefly discuss in the text if there are any apparent patterns driving the variation between years (e.g., is stream depletion generally greater in low-snowpack/flow years?).		This comment correctly identifies that the metrics used here are unclear and overly complicated. We have simplified the table to include only one average number and clarified the caption to describe how the average number was calculated.
Quartz Valley Indian Community	QVIC-051	B	GD	GDEs		2	76	2.2.1.8	2063-2065	"For purposes of this section, 'GDE' is used to refer to a spatial area covered by vegetation that is observably distinct from dry-land terrestrial vegetation." What about areas that historically had groundwater-dependent riparian vegetation but do not currently support this vegetation because of groundwater depletion. For example, the valley reach of Moffett Creek used to have large riparian trees but they are nearly all dead now, with a few standing skeletons remaining. Moffett Creek is not mapped as GDE in Figure 19 and should be.		The sentence "Existence of groundwater-dependent vegetation such as cottonwood trees on Moffett Creek, potentially difficult to observe using remote methods" has been added below the referenced text.
Quartz Valley Indian Community	QVIC-052	B	GL	Groundwater level mapping, clarification requested		2	80	2.2.1.8	2172-2174	What depth to groundwater mapping analysis performed? What seasonal (winter vs. summer) groundwater level information used to inform the DTW determination?		Interpolated depth-to-water spatial layers were created for iGDE classification using all available groundwater elevation measurements. These were averaged for each well over the years 2006-2020.
Quartz Valley Indian Community	QVIC-053	B	GD	Identification of GDEs - mapping, clarification requested		2	80	2.2.1.8	2179-2180	The GDE mapping appears to be based solely on visual or aerial map inspection. Were all iGDEs assumed to be GW dependent or were some removed due to excessive DTW? What iGDEs dropped and why, if any?		Aerial image inspection was a major component of the GDE mapping, but depth to water was also consulted. An iGDE polygon located on top of an interpolated groundwater level > 20 feet below ground surface (bgs) was classified as "disconnected" and is not mapped. This applied to a relatively small number of polygons. Where groundwater was < 20 feet bgs, and aerial evidence of vegetation was present, iGDE polygons were classified as either Riparian or Non-Riparian Groundwater Dependent Vegetation, depending on proximity to a riparian corridor. Of course, this map may become outdated, and ground-based observations of GDEs may be more reliable than remote data assessment, so this map may be updated in the 5-year update.
Quartz Valley Indian Community	QVIC-054	C	GD	suggested edit to plan		2	82	2.2.1.8	Table 1	Shouldn't cascade frogs and willow flycatchers be added to Table 1 (or related text), even they were not listed by the Nature Conservancy?	MCR-27	These species have been added.
Quartz Valley Indian Community	QVIC-055	C	GE	Water year types, clarification requested		2	108	2.2.3	2991	It is unclear how water year types were defined. Tolley et al. (2019) used the "Sacramento Valley water year hydrologic classification" (though no citation is provided so it is unclear what that is) while Foglia et al. (2013) used an analysis of Fort Jones and Callahan precipitation data. Please clarify here how water year types were defined.		The DWR SGMA water year type dataset was used. Text has been added to clarify this. It is available at https://water.ca.gov/programs/groundwater-management/data-and-tools.

Quartz Valley Indian Community	QVIC-056	B	WB	Clarification requested		2	112	2.2.3	3030-3050	In Table 15, the SW Irrigation values do not add up to the Farmers and SVID Div. values presented in Table 14. Where do the SW Irrigation values in Table 15 come from? Similarly, the GW Irrigation values in Table 15 don't equal the "Wells" values presented in Table 16 – where do the GW Irrigation values come from and why do they differ from the Wells values?		SW Irrigation does not consist of Farmers and SVID diversions; it refers to simulated diversions off of tributaries upstream of where the tributary streams enter the model domain. "Wells" and "GW Irrigation" annual values represent the amount extracted from the aquifer and the amount applied to cropland as groundwater irrigation; these values should be approximately equal. Differences in summary statistics may be due to rounding errors.
Quartz Valley Indian Community	QVIC-057	C	WB	Water budget - suggested edit to plan		2	112	2.2.3	3030-3050	The Median SW budget values indicates a 10 TAF deficit in stream flow. This suggests a long-term chronic condition of stream outflows exceeding inflows during most years. It would also be helpful to present the Average values on Tables 14-16 for comparison.		See Appendix 2-E, Model Documentation and Water Budget Tables, for all annual values.
Quartz Valley Indian Community	QVIC-058	C	HM	Suggested edit to plan		2	113	2.2.3	3079-3081	"The streamflow regression model is a statistical tool used to estimate tributary inflows at the valley margins when upper watershed flow data are unavailable ('streamflow regression model') (Foglia et al. 2013)." While true, this statement is somewhat misleading. During the 1992-2018 model period, most tributary inflows are estimated not measured. It would probably be more accurate to revise this to: "…used to estimate tributary inflows at the valley margins, supplemented by gaged upper watershed flows when data are available ('streamflow regression model') (Foglia et al. 2013)."	MCR-27	Text amended per suggestion.
Quartz Valley Indian Community	QVIC-059	C	HM	Water Budget, irrigation efficiency		2	113	2.2.3.1	3090	"Agricultural irrigation is calculated based on daily crop demand." should be revised to "Agricultural irrigation is calculated based on daily crop demand, with an efficiency assigned to each field based on source of irrigation water and type of irrigation." Efficiency is an important component of the model that merits brief explanation here even if the details are explained in Appendix 2-C.	MCR-27	Text amended per suggestion.
Quartz Valley Indian Community	QVIC-060	B	WB	Water Budget assumptions		2	114	2.2.3.1	3096-3097	All precipitation falling on cultivated fields and native vegetation is assumed to infiltrate completely and "runoff is neglected". Yet, the SW budget indicates runoff (overland flow). So, are the water budget models double accounting for runoff? (i.e., ppt. runoff contributing to SW flow and ppt. runoff being infiltrated into soil budget and possibly being transferred to GW recharge).		Parethetical text amended for clarity to: "runoff is neglected, with the exception of the zone of known shallow groundwater referred to as the "Discharge Zone." Discharging groundwater in this area is referred to as "Overland Flow" in the water budget figures."
Quartz Valley Indian Community	QVIC-061	C	GE	Clarification requested		2	114	2.2.3.1	3121	What does "weakly coupled" mean?		A "fully coupled" model would solve for all flux values (including surface water inflow from the streamflow regression model, and recharge to aquifer from the SWBM) simultaneously, for each timestep. Instead, SVIHM is "weakly coupled" in that the streamflow regression model and SWBM cascade into the MODFLOW model, which then solves for stream and aquifer flux values for each timestep. A sentence has been added here for clarity.
Quartz Valley Indian Community	QVIC-062	B	HM	SVIHM - assumptions		2	114	2.2.3.1	3130-3134	"However, for the MODFLOW model, daily values of stream inflow from the upper watershed, pumping, and recharge, including canal and mountain front recharge, are aggregated (averaged) to each calendar month and held constant within a calendar month. In MODFLOW, the calendar month is referred to as a 'stress period'". This seems like an un-necessary coarsening of the data, given that the computationally intensive part is the daily time step of the daily model, right? Why do that? The surface water budget is calculated on a daily basis. Flow data could be estimated on a daily basis. The model is used for purposes such as predicting the date when flows in the fall first increase to above 20 cfs, so a monthly model seems less than desirable for those purposes. Foglia et al. 2013 wrote: "However, if warranted, the budget model described here can also be applied to an integrated hydrologic modeling scenario with weekly or bi-weekly varying stress periods or to stress periods of varying period length." This issue is particularly pertinent in the fall, when the model does not do well at representing the timing and magnitude of flow increases (i.e., as discussed in Appendix 2-D).		Upgrading the model to daily stress periods is a planned uprade to SVIHM but has not been implemented to date. Monthly stress period were used for the GSP due to the original design of SVIHM: 1) Monthly stress periods are computationally efficient for multi-decade model periods like the one used here. 2) For this reason, monthly stress periods are fairly common and an accepted standard in regional-scale MODFLOW models. 3) Their use here is partly an artifact of the original model architecture; that's how it was built before SGMA arrived. 4) Updating the model to run on a finer stress period (e.g., biweekly, weekly or daily) would be a time-consuming effort in itself. Furthermore, newer versions of MODFLOW, not available at the time of SVIHM development, greatly facilitate the input management for using daily stress periods. We recommend to implement such an approach in the first five-year implementation period as part of updating future PMA scenarios and prior to any future model re-calibrations. We note that a SVIHM simulation run currently takes ~4 hours to run one simulation. Tens to hundreds of runs are required for sensitivity analysis and calibration. Hence, efficiency is important. A daily stress period architecture will ideally require sub-daily time-stepping degrading the current efficiency of SVIHM.
Quartz Valley Indian Community	QVIC-063	B	WB	Suggested edit to plan, water budget assumptions		2	116	2.2.3.2	3197	"Surface water irrigation diversions are computed as a function of irrigation demand. Fall/winter diversions for stockwater are not included in the current version of SVIHM, but will be added in the future." If we understand correctly, the SVIHM assumes that no surface water diversions occur outside of the irrigation season (i.e., after September 30? or is it weather driven?). In reality, there are substantial diversions for stockwater, with many diversions remaining in place after the end of irrigation season. In years when there is not much fall rain (i.e., 2009, 2020), these stockwater diversions can divert the flow of entire creeks and leave downstream reaches dry during salmon spawning season. Not including these diversions is a considerable deficiency of the SVIHM. The effect of these winter stockwater diversions on fall/winter flows is an important management question that we need tools like the SVIHM to answer. These diversions inadvertently (from a water rights perspective, though we cannot rule out that recharge might be part of diverters' motivation) provide some amount of beneficial aquifer recharge in late winter or spring once surface flows are reconnected throughout the valley. On the other hand, during fall these diversions likely extend the period of low river flow by some unknown number of days because they take water from the channel and recharge the aquifer in locations far from the river where the water may take weeks or months to return. Stockwater diversions in the fall cause recharge during the worst possible time of year (managed aquifer recharge should occur in the late winter and spring, not the summer and fall!). Incorporating these stockwater diversions into the model would be difficult because these diversions are unreported and unmetered. One approach for dealing with the data gaps would be to bookend the estimates in a sensitivity analysis with low and high scenarios. The low scenario could assume that the diversions match demand including transmission losses (i.e., recent State Water Boards emergency regulations set maximum diversion rates based on the number of animals and assumed 90% conveyance losses, see https://www.waterboards.ca.gov/drought/scott_shasta_rivers/docs/surface_water_stockwater_diverters_090121.pdf). The high scenario could assume that the diversions match the irrigation season right (i.e., from the adjudication), since the stockwater diversions utilize the same ditches as the irrigation diversions. We are not very familiar with the day-to-day operation of these stockwater diversions and thus are unclear if they are pulsed (i.e., on for a few days, off for a few days, etc.) or continuous, but hopefully local farmers and ranchers could provide information on that as well as advise on the volume of the diversions.		These are good suggestions for handling this data gap. This data gap has been added to Appendix 3-A.
Quartz Valley Indian Community	QVIC-064	C	Water budget	Water budget		2	116	2.2.3.2	3197	One exception to the data gaps on winter stockwater diversions is that the Scott Valley Irrigation District (SVID) diversions are reported monthly for the years 2010–2020 in the State of California's eWRIMS database. For example, SVID diversions for the October 2019 for "1000-1800 cattle-sheep-horses" were reported as 260.4 AF (https://rms.waterboards.ca.gov/LicensePrint_2019.aspx?FORM_ID=476977). This equates to 4.2 cfs during a month when flows at the USGS gaged average 7.1 cfs. Assuming that each head of livestock needs 15 gallons per day (cattle value from https://www.waterboards.ca.gov/drought/scott_shasta_rivers/docs/surface_water_stockwater_diverters_090121.pdf), then 1800 cattle would need 27,000 gallons/day. In comparison the 260.4 AF diversion equates to 8.4 AF/day, or 2.7 million gallons/day, which is 100x greater than the amount of water actually needed to sustain the livestock. Is this a "reasonable" use of water at a time when mainstem river flows were so low that salmon could not access their spawning grounds?		SVID diversions, and leakage from the unlined ditch, are estimated in SVIHM. In the current diversion of SVIHM, the diversion for the two canals have been simplified. The diversion amount for the two ditches are estimated based on the applied water demand in fields identified as being irrigated with surface water or a mix of surface water and groundwater within the land area serviced by these canals. The stated diversion does not include the fraction of diversion that subsequently recharges to the aquifer. The eWRIMS have not been incorporated. Future versions of SVIHM may improve upon this representation.
Quartz Valley Indian Community	QVIC-065	C	PM	Potential management actions, water budget		2	116	2.2.3.2	3197	Conversion of winter stockwater diversions to stock tanks fed by small wells could be the lowest-hanging fruit for achieving meaningful increases in fall river flows while having little or no economic cost to agriculture (assuming the conversions are paid for with public money). We recognize that the GSP cannot dictate management of surface flows; however, the analyses and models used in the GSP should consider the real-world water budget and not ignore important drivers of key groundwater management endpoints (i.e., fall flows).		See QVIC-076.

Quartz Valley Indian Community	QVIC-066	B	WB	Water Budget assumptions		2	116	2.2.3.2	3197-3200	“Surface water diversions are computed as a function of irrigation demand. The conceptual diversion points from tributary flows are just outside the Basin boundary, except for two internal diversions (6 TAF, see below), which is consistent with most diversions occurring near the Basin margin.” Due to data constraints, the approach of estimating diversions based on irrigation demand (i.e., deduct diversion from gages surface inflows) makes sense. However, since some tributary flow gages are located downstream of substantial diversions (e.g., French Creek), it seems like the flows at these gages should be treated differently than gages that are upstream of diversions, but we do not see this mentioned anywhere in the documentation. For fields irrigated with water diverted upstream of flow gages, shouldn’t the water demand not be deducted from the gaged flows? Deducting the demand seems like double-counting the diversion (first it is already implicitly deducted prior to the gage measurement because the water is not physically there, then it is explicitly deducted during data processing).		This comment correctly observes some of the complexities of determining the "unimpaired" tributary inflows to the valley from the upper watershed - that is the total inflows from the upper watershed prior to any diversions. In the development of the regression model to estimate the inflow to the valley from the upper watershed (unimpaired flows), existing gage information was assumed to represent those unimpaired inflows. This is a simplifying assumption, given that some diversion occur upstream of these (short-term) tributary stream gages. However, no information was readily available at the time of the regression model development to correct for this. This has now been identified explicitly as a data gap that may be addressed in future technical work on SVIHM (Section "Assessing and Improving SVIHM" in chapter 3). See QVIC-076
Quartz Valley Indian Community	QVIC-067	B	HM	SVIHM assumptions, Basin Characteristics, Requested clarification		2	117	2.2.3.2	3209-3214	“Mountain Front Recharge, the phenomenon of diffuse water flow through mountain soil or fractured bedrock into the alluvial sediments of an aquifer along a valley margin, is simulated along the western edge of the model domain. It is estimated to be a volume that changes month-to-month (i.e., greater recharge during the wet season) but which is identical year over year (see Appendix 2-C for more details).” We have reviewed the Appendix 2-C documents as well as the S.S. Papadopulos (2012) report that is cited for the original estimate. Mountain Front Recharge is estimated at <18 TAF (thousand acre-ft), so is quite small relative to other inputs (i.e., it is <5% of the other inflows [stream inflow and precipitation] on average). While we sympathize with the difficulty of estimating this parameter, we do not understand why it should be constant between years, given that it is derived from a water balance of terms that vary considerably between years (i.e., precipitation minus evapotranspiration minus surface flows). Seems like it would make more sense to scale it to be larger in wet years than dry years?		Data are not available to provide the model with more detailed data. Additionally, the Scott Valley Integrated Hydrologic Model was not highly sensitive to variation in the MFR parameter (see Tolley et al., 2019).
Quartz Valley Indian Community	QVIC-068	B	SC	Basin characteristics, recharge		2	120	2.2.3.2	3330-3331	“Recharge from the land surface occurs primarily in winter months but is limited – except under flood irrigation – during the summer months.” This ignores fall/winter stockwater diversions, which are substantial but not included in the SVIHM. See comments above regarding chapter 2, page 116, section 2.2.3.2, line 3197.	MCR-26	Noted. No response needed.
Quartz Valley Indian Community	QVIC-069	C	WB	Future water budget		2	125-126	2.2.4	3437-3515	The “Future Water Budget” section is lacking discussion of some key factors. For example, what changes are expected to snowpack and tributary inflow hydrographs (i.e., runoff timing) of the four climate change scenarios evaluated? What are the greenhouse gas emissions trajectories associated with the climate scenarios (i.e., does it assume “business as usual” or that aggressive efforts are made to reduce greenhouse gas emissions, or something intermediate?). Listing the degrees Celsius (or Fahrenheit) of air temperature increase associated with each scenario would be helpful for context.	A figure and text regarding the snowpack dynamics has been added to the GSP. For additional details on climate scenarios, see DWR climate guidance for GSPs.	Thomas can you review? (If you think this sounds right you can mark it done)
Quartz Valley Indian Community	QVIC-070	C	GE	Susggested edit to plan - citations		2	125	2.2.4	3473	DWR 2018 citation is not included in the references cited at the end of the chapter.	MCR-27	Document has been changed per the suggestion.
Quartz Valley Indian Community	QVIC-071	C	GE	Susggested edit to plan - citations		2	126	2.2.4	3499-3502	Figure citation should be fixed: “Importantly for sustainable groundwater management, none of the future climate scenarios indicate that the lowest groundwater storage points decrease over repeated drought occurrence (Figure 3128).” Also, please explain the significance/implications of this. Does it mean that long-term overdraft and subsidence are unlikely? Or that late summer streamflows will not be lower with climate change?		The figure citation has been fixed as suggested. Implications for overdraft, subsidence and dry season flows have been added to the text.
Quartz Valley Indian Community	QVIC-072	B	HM	Climate Scenarios, suggested edit to plan		2	130	2.2.4	Figure 32	“Figure 32. Projected flow at the Fort Jones Gauge, in difference (cfs) from Basecase, for four future projected climate change scenarios. Near and Far scenarios show minimal differences from historical basecase flow conditions.” Perhaps we are mis-understanding what these scenarios are, but are extremely skeptical of any claims that the temperature-driven changes in precipitation form due to climate change (i.e., more rain and less snow) are not going to substantially decrease river flows in summer and fall, regardless of what happens to total annual amount of precipitation. The GSP should acknowledge these realities and then describe how the model predicts that this will seasonally change river flow and groundwater. The format of the graph makes it very difficult to see meaningful seasonal patterns. The y-axis scale that ranges from -2,000 to +12,000 cfs makes it impossible to see what is happening during low flows. Can you add a second panel to the graph so that the low-flow period is legible (maybe -100 to +100 cfs?)? Or maybe limit the months to just show April through October?		A new figure, Figure 33, has been added to clarify the impacts of the Dry scenario on summer and fall flows.
Quartz Valley Indian Community	QVIC-073	C	GE	Suggested edit to plan - citations		2	137	References	3775-3777	Langridge, Ruth, Abigail Brown, Kirsten Rudestam, and Esther Conrad. 2016. “An Evaluation of California’s Adjudicated Groundwater Basins.” https://www.waterboards.ca.gov/water_issues/programs/gmp/docs/resources/swrcb_012816.pdf ~~https://doi.org/10.1038/nmicrobiol.2016.214~~	MCR-27	Document has been changed per the suggestion.
Quartz Valley Indian Community	QVIC-074	B	MN	Monitoring, data accessibility		3	9	3.3	351-353	“Where it is necessary, the GSA will coordinate with existing programs to develop an agreement for data collection responsibilities, monitoring protocols and data reporting and sharing.” How will transparency and public access to data be incorporated into these data reporting and sharing agreements? All data that is paid for with public money should be accessible to the public.		The GSA will follow DWR guidelines for data and model transparency. Per DWR's modeling BMP document, "final model files used for decision making in the GSP should be packaged for release to the Department". We anticipate that model files will be uploadable with the GSP in digital format. Similarly, we anticipate that DWR will collect annual report data in digital format. All requirements for public information about monitoring network characteristics and data will be followed.
Quartz Valley Indian Community	QVIC-075	B	MN	HM, Monitoring network - additional monitoring points		3	21	3.3.5.1	748+	Surface water flow estimates in SVIHM appear to only be calibrated to the Ft. Jones gauge. Comparing simulated stream flow against only one calibration point for such a large river system calls into question how well the model is at simulating stream flow in other reaches that may be experiencing different management and hydrogeologic conditions. The proposed monitoring plan does not call for any additional river flow monitoring along the mainstem river. We recommend adding additional stream flow monitoring gauges along the mainstem river to better calibrate/validate the stream flow estimates along the entire reach, not just at the downstream Ft. Jones outflow point. Given the need for additional tributary gages as model inputs, we are not sure how we would rank the priority of additional mainstem gages. Perhaps these additional mainstem gages should just be operated for a few years, long enough to capture different water year types. Or perhaps there are discrete flow measurements collected during other sampling or special projects (i.e., in the early/mid 2000s in preparation of the TMDLs) that could be used for calibration and verification?		SVIHM surface flow values have been calibrated against multiple locations along the mainstem of the Scott River. This is discussed in Section 3.5, Sensitivity Analysis and Calibration, of the Tolley et. al 2019 paper in WRR. The relevant information is: "A total of2485 streamflow observations, consisting of 1,385 at the USGS Fort Jones gage, 500 at the Lower Shackleford Creek gage, 300 at the Above Serpa Lane (AS) gage, and 300 at the Below Young's Dam (BY) gage, was randomly selected from data available during the model simulation period so the total number of streamflow observations was similar to the number of groundwater head observations." Obviously, more data is better, and additional gauge data on the mainstem of the Scott River would help improve future versions of SVIHM.
Quartz Valley Indian Community	QVIC-076	B	HM	SVIHM, suggested edit to plan		3	26	3.3.5.2	935-972	In this “Assessing and Improving SVIHM” section, we recommend several additional tasks. These model refinements are described in more detail in a separate comment document (not in this comment form), but are briefly summarized here: 1) use a better method for filling the large gaps in tributary inflows (e.g., considering other model types beyond linear regression, and using Salmon River gage as an alternative to the Scott River gage for filling tributary data gaps at least for some months and/or sites), 2) incorporate fall/winter stockwater diversions, 3) shorten the MODFLOW model timestep to something shorter than a month, 4) do a sensitivity analysis to quantify how sensitive modeled outflows are to tributary inputs (especially during September and October).		We have added these suggestions to the GSP. Points 1, 2, and 3 have been added to the list for "Hydrologic and hydrogeologic conditions (concept and "input" data)". Point 4 has been added to "Data about projects and management actions".
Quartz Valley Indian Community	QVIC-077	C	GL	Clarification requested		3	30	3.4.1	Figure 5	The definition of Minimum Threshold in Figure 5 is confusing: “Minimum Threshold: historic low – (10 % of max historical depth to water or 10 ft, whichever is less)” Maybe revise to “Minimum Threshold: historic low minus either 10% of max historical depth to water or 10 ft, whichever is less”		The "-" sign has been replaced with "*minus*".

Quartz Valley Indian Community	QVIC-078	B	GL	SMC definition, IHM		3	30-38	3.4.1	1088-1265	As currently proposed, the Actions Trigger occurs if water levels at a well fall below the historic level for two consecutive years and the Minimum Threshold occurs if a well falls more than 10% (or 10 ft, whichever is less) of the historic level. We have not actually tried an experiment with hypothetical or real well data, but it seems possible that well levels could have long-term declines but not ever violate the Actions Trigger and Minimum Threshold if the decline is "bumpy", meaning there are not consecutive drought years. For example, well levels could alternate between moderate/high levels in wet or normal years, followed by a severe drought year in which well levels drop to historically low levels (but not exceeding the 10 ft or 10%), followed by moderate/high levels in wet or normal years, followed by a severe drought year in which well levels drop to historically low levels (but not exceeding the 10 ft or 10%), etc. This seems very problematic because conditions could progressively deteriorate but never violate the AT or MT.		The "historic" data series used to determine the maximum historic depth will always refer to the period prior to 2015. This has been clarified in the text.
Quartz Valley Indian Community	QVIC-079	B	GE	Inclusion of Climate change		3	34	3.4.1.1	1173-1183	This paragraph of the GSP, similar to other sections of the GSP, does not mention one of the key elements of climate change for which there is high certainty- there will be a shift in precipitation form (less snow and more rain) that will shift the seasonal timing of tributary surface flows into the valley. Regardless of what happens to total precipitation or total runoff, this change in precipitation form and runoff timing is a huge issue that water management is going to need to deal with.		Reduced snowpack as a consequence of climate change has been added to the narrative.
Quartz Valley Indian Community	QVIC-080	C	GL	Suggested edit to plan		3	35	3.4.1.2	1236-1237	As these are depth to groundwater values in Table 5, shouldn't the MO values have less-than signs, not greater than signs?		This is correct and has been changed to a "<" sign.
Quartz Valley Indian Community	QVIC-081	C	GE	Clarification requested		3	35-36	3.4.1.2	1227-1245	Is "primary trigger (PT)" here the same as "Action Trigger" in Figure 5 (on page 30)? If the meaning is the same, then it would be better (i.e., easier to understand) to use the same phrase/abbreviation rather than have two separate terms that mean the same thing. On the other hand, if they are different, then shouldn't Figure 5 also show the PT in addition the Action Trigger?		The GSP describes two triggers - the action trigger related to the water table depth (the metric used to also define the MT and the MO), and a related trigger that is not measured as a water table depth, but is instead informed by outcomes (well outages). The text has been clarified. As the secondary trigger is not water-level specific, it is not included in Figure 5.
Quartz Valley Indian Community	QVIC-082	B	WQ	SMC definition		3	44	3.4.1.3	1495-1531	The water quality triggers are all based on the 75th percentile of wells, so it is conceivable that water quality conditions could deteriorate horribly at 20% of wells and that would not violate any triggers. Seems like it might make sense to also have some metric that would reflect conditions in the wells with the worst water quality?		Well with the worst water quality would still be subject to the MCL portion of the MT.
Quartz Valley Indian Community	QVIC-083	C	WQ	Water quality, suggested edit to plan		3	46	3.4.3.1	1591-1593	Same comment from March Draft: Irrigating with water containing moderate to high nitrate levels may also increase nitrate concentrations in underlying groundwater.		Suggested text has been added.
Quartz Valley Indian Community	QVIC-084	B	WQ	SMC definition, clarification requested		3	46	3.4.3.2	1618-1621	Same comment from review of draft in May: This language is very confusing and unclear how it translates to concentrations. One way it reads suggests that a 14% annual increase per year over a 10 year period in no more than 25% of wells is acceptable. However, compounding a 14% increase over a 10 year period results in a 370% increase in concentration. Perhaps the intent of the statement is, "Monitoring well concentrations shall not exceed the Maximum threshold by 15% in more than 25% of wells during any given year". One could also argue that it isn't warranted - a Maximum threshold should be treated as a just that - a Maximum threshold. Why are exceptions warranted? Theoretically, reaching/exceeding the trigger concentrations should trigger corrective actions. Perhaps the 15% annual exceedance in 25% of wells exception should be applied to trigger values, not Maximum thresholds.		In this case, the maximum threshold is defined statistically, that is, with respect to the statistical distribution (quantiles) of observed values. This approach acknowledges that data are somewhat noisy due to natural influences. It provides operational flexibility to prevent unnecessarily triggering actions.
Quartz Valley Indian Community	QVIC-085	C	IS	Suggested edit to plan, citations		3	54	3.4.5.1	1868-1870	Asarian and Robinson (2021) would be a good citation for this sentence: "Excessive stream temperatures are also related to earlier completion of the snowmelt/spring flow recession…" Full reference is: Asarian, J. E., & Robinson, C. (2021). Modeling Seasonal Effects of River Flow on Water Temperatures in an Agriculturally Dominated California River [Preprint]. Earth and Space Science Open Archive; Earth and Space Science Open Archive. https://doi.org/10.1002/essoar.10506606.1		Added citation under the paragraph proposed in CIN QVIC-040
Quartz Valley Indian Community	QVIC-086	C	HM	SVIHM		3	54	3.4.5.1	1885-1889	"Some consumptive uses of groundwater may have a more immediate impact on streamflow than others; for example, a well that begins pumping groundwater 66 ft (20 m) from the river bank may cause stream depletion hours or days later, while a well that begins pumping two miles (3 km) west of the river bank may not influence streamflow for months or even a year." This is an important point. Unfortunately, the SVIHM is not capable of simulating the short-term impacts. Prudic et al. (2004) provide the following statement on the associated limitations on MODFLOW's streamflow routing package: *"The mass-balance or continuity approach for routing flow and solutes through a stream network may not be applicable for all interactions between streams and aquifers. The SFR1 Package is best suited for modeling long-term changes (months to hundreds of years) in ground-water flow and solute concentrations using averaged flows in streams. The Package is not recommended for modeling the transient exchange of water between streams and aquifers when the objective is to examine short-term (minutes to days) effects caused by rapidly changing streamflows."*		During the critical baseflow period, when stream depletion is of most concern, the Scott River does not experience rapidly changing streamflows. It is correct that accurate predictions for day-by-day changes in streamflow are not expected from SVIHM. However, quantifying monthly average stream flows and their dynamics is adequate for purposes of developing and implementing the GSP.
Quartz Valley Indian Community	QVIC-087	C	IS	Suggested edit to plan		3	58	3.4.5.1	2032-2034	"The reasonableness of groundwater use that may contribute to stream depletion could depend on a number of circumstances, including the benefits of pumping groundwater and the resource benefits of pumping groundwater" This statement distracts from the issue as it addresses the beneficial uses of groundwater consumers, not the beneficial uses of surface waters.	MCR-4	MCR-4
Quartz Valley Indian Community	QVIC-088	B	IS	SMC definition and approach, suggested edit to plan		3	58	3.4.5.1	2044-2047	"In the context of assessing MTs for the ISW SMC, it is reasonable to only hold groundwater users~~producers~~ outside the adjudicated zone to a modest percentage of stream depletion reversal because any greater responsibility would unreasonably constrain groundwater users in the basin." We agree that groundwater users outside the adjudicated zone are not responsible for solving all the water issues in the Scott River. However, the approach taken here is backwards. Rather than first defining an arbitrary endpoint based on what groundwater users can relatively easily tolerate, the first step should be to determine the instream flows needed by fish, then calculate the difference between those needed flows and current flows, and then assign the same percent reductions needed by all water users (surface, adjudicated groundwater, and unadjudicated groundwater) to meet that difference. To use a hypothetical example, if overall water use needs to be reduced by 40% to meet instream flow targets, then surface water users, adjudicated groundwater users, and unadjudicated groundwater users should each be responsible for reducing their water use (or coming up with projects that produce an equivalent amount of seasonal supply) by that same 40%.	MCR-4	MCR-4
Quartz Valley Indian Community	QVIC-089	C	GE	Clarification requested		3	58	3.4.5.1	2044-2047	What is "modest" and how is it quantified in terms of groundwater use?	MCR-4	MCR-4
Quartz Valley Indian Community	QVIC-090	B	IS	Definition of unreasonable		3	59	3.4.5.1	2089-2090	"…that is, what is an "unreasonable" amount of stream depletion, which could 2089 be reframed as: what is a "reasonable" amount of avoided groundwater use?". This statement is not how SGMA defines an unreasonable impact for ISW. The GSA can't replace "unreasonable impacts on beneficial uses of surface water" with reasonable use of groundwater.	MCR-4	MCR-4
Quartz Valley Indian Community	QVIC-091	C	IS	SMC definition		3	60+	3.4.5.1	2108-2209	ISW MT should not be defined based on a proportion or partial contribution to an undesirable result. SGMA requires that an MT define the minimum threshold for a full undesirable result. The whole concept of defining the ISW MT on what the PMA can achieve is putting the cart before the horse. The MT is a numeric value used to define an undesirable result (this may be why the GSP spends so much time confusing and twisting the definition of undesirable result). The MT, if exceeded, may cause an undesirable result. PMAs are a means to avoid exceeding an MT, not a mechanism to define an MT.	MCR-4	MCR-4
Quartz Valley Indian Community	QVIC-092	C	IS	Clarification requested		3	63	3.4.5.1	Table 7	The caption here says that streamflow depletion is summarized across the "Sep 1 to Nov 1" period. Is that correct, or should it be "Sep 1 to Nov 30", as is stated on the Slide 8 of Appendix 4-a? Given that the model's primary time scale is monthly, the correct time period is probably Sept. 1 – Nov. 30, right?		Correct, this was a typo. The text has been corrected as suggested.

Quartz Valley Indian Community	QVIC-093	B	PM	PMAs implementation, SVIHM		4	3	4.1	107-110	"In developing PMAs, priorities for consideration include effectiveness toward maintaining the sustainability of the Basin, minimizing impacts to the Basin's economy, seeking cost-effective solutions…" Based on the description here, it seems like increasing the efficiency of fall/winter stockwater diversion and delivery systems (so these diversions could be dramatically reduced with little economic impact) would be low-hanging fruit that should have been included as a PMA. This would not improve groundwater conditions, but could (we do not know, in part because the SVIHM is not currently set up to be able to provide answers to this important question) mitigate some of the fall streamflow depletion caused by groundwater pumping. While ditches currently used for stockwater could be very useful for managed aquifer recharge (MAR), this activity should only occur during times when there is abundant surface water, such as late winter and spring of normal and wet years, and should utilize a MAR-specific water right so it can be appropriately managed to benefit, rather than harm, instream flows. See our comments on Chapter 2, page 116, section 2.2.3.2 for additional information on this topic.	MCR-29	We propose to add an assessment of options with respect to stockwater diversions as a PMA.
Quartz Valley Indian Community	QVIC-094	C	PM	Clarification requested		4	5	4.1	205	Which "Existing reports, proposals" were used to develop the PMAs for recharge? Please provide specific citations.		The draft final proposal for the NFWF Scott Recharge project (used for the project description in Chapter 4), is included as Appendix 4-B.
Quartz Valley Indian Community	QVIC-095	C	PM	suggested edit to plan		4	5	4.1	206	Shouldn't the Scott River Watershed Council be listed as an entity that is engaged in planning and implementing habitat improvement projects? Table 1 on page 7 lists several PMAs being implemented by the Council.		Scott River Watershed Council added to the list.
Quartz Valley Indian Community	QVIC-096	B	PM	Projects and Management actions		4	7	4.1	Table 1	Increasing the efficiency of fall/winter stockwater diversion and delivery systems (so these diversions could be dramatically reduced will little economic impact) should be included as a PMA. See our comments on Chapter 2, page 116, section 2.2.3.2 for additional information on this topic.	MCR-29	MCR-29
Quartz Valley Indian Community	QVIC-097	C	PM	SVIHM, PMAs		4	8	4.1	Table 1	Beaver Dam Analogues (BDAs) are listed solely in the "Habitat Improvement" category. Aren't they also designed to increase groundwater storage and recharge? Why weren't model runs conducted on the effects of BDAs? Is the model not capable of simulating BDAs? If not, what modifications to the model would be needed to simulate BDAs?		BDAs are difficult to simulate because the extent of the inundation they create (~10-100 feet in length or width) is substantially smaller than the size of a model grid cell (100 meters or 328 feet). We attempted to simulate them using a 0.5 m higher streambed elevation on the tributaries and mainstem (to simulate the aggregate effect of widespread BDAs) but this produced negligible changes from the basecase simulated flows at the Fort Jones gauge. Consequently we currently have no evidence that BDAs enhance dry-season flows. A much finer gridscale, or possibly an unstructured grid with higher resolution near streambeds, would be needed to more explicitly simulate BDA effects on surface flow.
Quartz Valley Indian Community	QVIC-098	C	PM	Projects and management actions, suggested edit to plan		4	8	4.1	Table 1	Prescribed fire should be added to the list of activities described in the Scott River Watershed Council's "Upslope Water Yield Projects" PMA.	MCR-27	Document has been changed per the suggestion.
Quartz Valley Indian Community	QVIC-099	C	PM	Suggested edit to plan		4	9	4.1	Table 1	In the "Voluntary Managed Land Repurposing" PMA, we recommend adding groundwater recharge. See our comments on Chapter 4, Section 4.3, pages 24-28, lines 640-809 for additional discussion of this topic.		For clarity, MAR is considered a separate PMA. However, water storage was added under the "other uses" discussion.
Quartz Valley Indian Community	QVIC-100	C	PM	Projects and Management actions - clarification requested		4	13	4.3	316	The "Avoiding Significant Increase of Total Net Groundwater Use from the Basin" PMA does not provide a definition of what "significant" means, so we suggest removing that word. Without a definition, isn't this PMA meaningless? It should probably either be percent (e.g., 1%) or volume? See related comment regarding Chapter 4, page 17, section 4.3, lines 454-456.		"Significant" is a common qualifier in environmental and water management, even if it is not quantified.
Quartz Valley Indian Community	QVIC-101	B	PM	Management actions - clarification requested		4	13	4.3	340-344	We are unable to understand exactly what the "Avoiding Significant Increase of Total Net Groundwater Use from the Basin" PMA means, especially, this excerpt: "Due to the direct relationship between net groundwater use and ET, implementation of the MA is measured by comparing the most recent five- and ten-year running averages of agricultural and urban ET over both the Basin and watershed, to the maximum value of Basin ET measured in the 2010-2020 period, within the limits of measurement uncertainty." Can it be re-stated more clearly, such as, "The goal of this MA is for X not to exceed Y by Z percent?" Can you provide information on the limits of measurement uncertainty? What is the rationale for using the maximum as the basis for the comparison? Is the purpose of the running averages to smooth out climatic variation (i.e., is ET higher in wet years than dry years)? If there is substantial variation between water year types, then should the goal be different in different water year types? What about the contribution of surface water irrigation to ET? We anticipate that climate change will cause increased reliance on groundwater because surface water flows are going to recede earlier in the irrigation season (due to less snowmelt), which could result in ET staying the same but groundwater extraction will increase and flows be lower, all without violating this MA.	MCR-28	This MA is part of a portfolio of PMAs. It's main objective is to avoid unintentional increases in net groundwater use stemming from land use changes that increase the ET demand in the basin. The MA is preventive and is designed to work in conjunction with other PMAs and the monitoring described in the SMCs to address the concerns raised about climate change, climate variability, reduced surface water availability for irrigation, etc. Also see MCR-28.
Quartz Valley Indian Community	QVIC-102	C	PM	PMAs		4	13	4.3	348-352	"To provide an efficient, effective, and transparent planning tool that allows for new urban, domestic, and agricultural groundwater extraction without increase of total net groundwater use. This can be achieved through exchanges, conservation easements, and other voluntary market mechanisms while also meeting current zoning restrictions for open space, agricultural conservation, etc. (see Chapter 2)." Exchanges and markets need real, verifiable information if they to operate properly. Without widespread metering, it would be far too easy to game the system.	MCR-26	Noted. No response needed.
Quartz Valley Indian Community	QVIC-103	C	PM	Comment on PMAs		4	14	4.3	354-356	"To be flexible in adjusting the limit on total net groundwater extraction if and where additional groundwater resources become available due to additional recharge dedicated to later extraction." Groundwater is already over-extracted. Additional recharge should be used to reverse streamflow depletion, not enable more extraction.	MCR-26	Noted. No response needed.
Quartz Valley Indian Community	QVIC-104	C	GE	Suggested edit to plan		4	15	4.3	414-415	"The Basin has negligible groundwater inflow and outflow across its aquifer boundaries. As a result, pumping and recharge outside the Basin do not affect groundwater levels." Negligible is probably too strong a word, probably should be "relatively little" instead? Mountain Front Recharge ("the phenomenon of diffuse water flow through mountain soil or fractured bedrock into the alluvial sediments of an aquifer along a valley margin") is estimated constant at <18 thousand acre-feet (TAF), compared to total inflow which ranges from 149 TAF in the driest year to 788 TAF in the wettest year (i.e., see Chapter 2, page 17, Section 2.2.3.2)? Mountain Front Recharge is estimated to be 12% (18/149) of total inflow in the driest year, which isn't really "negligible," is it?		"Negligible" has been revised to be "relatively little" per suggestion.
Quartz Valley Indian Community	QVIC-105	C	PM	Suggested edit to plan, clarification requested		4	17	4.3	454-456	"The permitting program would ensure that construction of new extraction wells does not significantly expand current total net groundwater use in the Basin (to the degree that such expansion may cause the occurrence of undesirable results)." How are "undesirable results" defined? Please add a definition or citation here. See related comment regarding Chapter 4, page 13, section 4.3, line 316.	MCR-27	Referenced definitions in Chapter 3 and the corresponding sections
Quartz Valley Indian Community	QVIC-106	B	PM	PMAs, clarification requested		4	17	4.2	460	"Here are two illustrative examples of an appropriate use of well replacement…" … "Example 2: Replacement of a 1,000-gpm agricultural well that will be properly decommissioned with a new 2,000-gpm capacity agricultural well is permissible with the explicit condition that the 10-year average total net groundwater extraction within the combined area serviced by the old and the new well does not exceed the average groundwater extraction over the most recent 10-years." Since groundwater use is mostly unmetered (much less publicly accessible), how would this be tracked or enforced?	MCR-28	The example does not cover issues of metering or enforcement. It merely explains the principle. Also see MCR-28.
Quartz Valley Indian Community	QVIC-107	C	PM	Clarification requested		4	21	4.2	543	The discussion of Beaver Dam Analogues (BDAs) discusses habitat, but aren't BDA's also designed to increase groundwater storage and recharge? See comments on Chapter 4, Section 4.1, page 21, Table 1 for additional information.		BDAs are difficult to simulate because the extent of the inundation they create (~10-100 feet in length or width) is substantially smaller than the size of a model grid cell (100 meters or 328 feet). We attempted to simulate them using a 0.5 m higher streambed elevation on the tributaries and mainstem (to simulate the aggregate effect of widespread BDAs) but this produced negligible changes from the basecase simulated flows at the Fort Jones gauge. Consequently we currently have no evidence that BDAs enhance dry-season flows. A much finer gridscale, or possibly an unstructured grid with higher resolution near streambeds, would be needed to more explicitly simulate BDA effects on surface flow.
Quartz Valley Indian Community	QVIC-108	C	PM	Projects and management actions, suggested edit to plan		4	22	4.2	574	Prescribed fire should be added to the list of activities described in the Scott River Watershed Council's "Upslope Water Yield Projects" PMA.	MCR-27	Document has been changed per the suggestion.

Quartz Valley Indian Community	QVIC-109	C	PM	Suggested edit to plan, clarification requested		4	23	4.2	609-639	For the Irrigation Efficiency Improvements, "Potential benefits were quantified through modelled scenarios of a 10% increase, 20% increase, and 10% decrease in irrigation efficiency. Relative stream depletion reversals resulting from these scenarios were 4%, 12% and -2%, respectively (Appendix 4-A)." Can you add a sentence or two here describing how improved efficiency affects the monthly/annual water budgets and reduces streamflow depletion in the September-November period? There's a widespread misconception among the public and agencies that increasing irrigation efficiency magically creates water, so it would be helpful if the text here provided specific estimates of how it changes the water budget. Increased efficiency would have zero impact on ET, but would decrease pumping and diversions and would decrease recharge, right? Does efficiency reduce some of the streamflow depletion because the reductions in pumping and diversions outweigh the decreases in recharge?	MCR-30	We have added clarification to the text per this suggestion.
Quartz Valley Indian Community	QVIC-110	C	PM	Projects and management actions - clarication requested, metering		4	23	4.2	631-639	The proposed monitoring of irrigation efficiency omits a key tool– metering of water use. Without metering, how can we know if the efficiency projects are actually working?		Added under discussion of monitoring for improvements of irrigation efficiency.
Quartz Valley Indian Community	QVIC-111	C	PM	SVIHM, clarification requested		4	23	4.2	631-639	The proposed monitoring of irrigation efficiency lists "Assessment of the increase in irrigation efficiency, with particular emphasis on assessing the reduction or changes in consumptive water use (evaporation, evapotranspiration) based on equipment specification, scientific literature, or field experiments." Doesn't efficiency usually not affect consumptive water use but instead just change recharge (that's how it is represented in the SVIHM, right?). What is the physical basis for thinking efficiency would affect consumptive use for crops like pasture and alfalfa that have low-lying continuous canopy cover (i.e., in contrast to orchards or row crops like tomatoes where efficient delivery systems like drip irrigation could reduce evaporation from bare soil)?	MCR-30	MCR-30
Quartz Valley Indian Community	QVIC-112	A	PM	Projects and management actions - clarification requested, water rights		4	27	4.3	764	The Permitting and Regulatory Process section explains the legal basis for how water could be diverted for managed aquifer recharge (MAR) though a SWRCB temporary permit, but we are unclear how the water rights would work for in lieu recharge (ILR). Is switching from groundwater to surface water really legal under California water law? If so, please explain in this section. Would the ILR utilize existing surface water rights (but don't farmers generally already exhaust their surface water rights each year before switching to groundwater)? Or would ILR require a separate temporary permit than MAR? Or would ILR require new permanent surface water rights? It seems very unlikely that SWRCB would grant new surface water rights for irrigation after the start of the April 1 irrigation season, but there might be new rights available in March.		ILR would only be implemented in areas with existing (riparian) surface water rights that are currently not exercised. Not all growers with existing surface water rights exercise those rights. For practical reasons, many irrigate with groundwater throughout the year.
Quartz Valley Indian Community	QVIC-113	C	PM	MAR/ILR implementation, stream flow depletion		4	24-28	4.3	640-809	We support the concept of managed aquifer recharge (MAR) in winter and in lieu recharge (ILR) during the irrigation season, but have some concerns. The largest concern is that we do not think that MAR/ILR alone are sufficient to reverse enough of the streamflow depletion to make meaningful improvements to river flows. We are also concerned that there has not been sufficient analysis of the effects of MAR and ILR on river flows (and resulting biological effects) during the period of increased diversions (i.e., winter and spring). As shown in the figures in the "Percentile Flows and Flow Regime Comparison" section of Appendix 4-a, the CDFW (2017) flows are very low compared to the historic range of observed flows during March through May (i.e., always <25th percentile and sometimes approach or even drop below the lowest flows ever recorded). For example, CDFW's recommended April flows are 134 cfs, which if that volume remained instream after a full ILR diversion of 43 cfs would mean that 20% of the 168 cfs river flow would being diverted during a severe drought which seems like quite an aggressive rate of diversion. It probably would make more sense to increase the rate of diversion above 43 cfs when flows are higher, but drop to rate far below 43 cfs (or even to zero) when flows are low. Increased diversions after May 1 could have detrimental effects on water temperatures (Asarian and Robinson 2021).		This concern has been raised and discussed by the AC. It was the main reason for expanding the number of PMAs.
Quartz Valley Indian Community	QVIC-114	C	PM	Clarification requested		4	24-28	4.3	640-809	The documentation provided in the GSP leaves many unanswered questions. Given the prominence of MAR/ILR in the GSP, we would have expected to see a more detailed level of analysis and discussion. For example: -What MAR/ILR diversion volumes are feasible in individual dry and severe drought years (e.g., 1977, 2001, 2020, 2021), and what effects does this have on river flow during the spring diversion period and the summer/fall period? We see Table 7 in Chapter 3, and the figures in Appendix 4-a, but we would like to see daily hydrographs (comparing the in-river flow and diversions with/without MAR/ILR) for individual severely dry years. -How were the parcels selected for the primary MAR/ILR scenario? Why not also use Farmer's Ditch in addition to Scott Valley Irrigation District (SVID)? -How was 43 cfs selected? Is that capacity of SVID, if so please state that? -What are the "CDFW requirements"? If that the same as CDFW (2017) Interim Instream Flow Criteria, then that document should be cited. -It might also be appropriate to use tributary ditches for MAR during winter high flows? We are hesitant to open this can of worms, but if done carefully (limiting the diversions to limited high-flow periods and only diverting a small percentage of flow [i.e., 5-10%] it could have benefits. -The GSP does not explicitly define the time period for ILR. For example, Appendix 4-a says "in the early growing season, as long as surface water is available." Does this mean a set start date of March 1, or April 1, or a custom date that changes each year depending on the weather? Does it end when there is no water at all, or when flows drop below CDFW requirements? How about voluntary (i.e., paid) permanent conversion of land in key areas (i.e., where that water would not flow the river for many months) for MAR during the spring to extend the season for groundwater recharge into the active growing season? On agricultural lands, MAR would normally have to cease once pasture or crops emerge from dormancy, but if lands were solely dedicated to MAR then the recharge season could be extended. Also, during period (i.e., summer) when there is not sufficient water for MAR, if these areas were not irrigated then they could also contribute to demand reduction. Would doing this require new ditches (because all ditch capacity is already used during irrigation season?), or is there sufficient capacity?		These are suggestions worthy to consider during the implementation phase. Some clarifications have been added. Point-by-point responses: - Examination of the effect of MAR+ILR on Fort Jones flow is now possible using the Digital Appendices 2-A, which contain daily time series of simulated Fort Jones Flow in each of the scenarios modeled. - Some text has been added to the Implementation section of the second MAR + ILR project description clarifying the criteria for selecting MAR+ILR fields in the modeled scenario. - Yes. Statement has been added. - Yes, or requirements identified in project-specific discussions. Clarifying text has been added. - This can be considered during project implementation; it is too detailesd to include in the high-level project summary in Ch. 4. - Clarification added to specifiy water "availability" is based on CDFW instream flows, or project-specific permitting discussions (which may be higher). The ILR window will be determined by flow availability per those criteria. - This suggestion would be something like a permutation of multiple PMAs currently present in Ch. 4, so it is covered in the current drafts.
Quartz Valley Indian Community	QVIC-115	C	PM	Suggested edit to plan		4	28	4.3	810	In the "Voluntary Managed Land Repurposing" PMA, we recommend adding groundwater recharge. See our comments on Chapter 4, Section 4.3, pages 24-28, lines 640-809 for additional discussion of this topic.		For clarity, MAR is considered a separate PMA.
Quartz Valley Indian Community	QVIC-116	C	PM	Projects and management actions - suggested edit to plan		4	29	4.3	841	The "Voluntary Managed Land Repurposing" PMA discusses "For example, a corner of a field may be well suited for wildlife habitat or solar panel". This is an interesting idea. Would it be possible to convert some agricultural land to solar photovoltaic (i.e., electricity-producing) farms and still use those lands for groundwater recharge? Such a project could accomplish four things: reduce irrigation demand, increase groundwater recharge, generate electricity, and provide a new income stream to the landowner through lease payments.		"managed aquifer recharge infiltration areas" has been added to the list of p
Quartz Valley Indian Community	QVIC-117	B	PM	Projects and management actions - clarification requested, SVIHM		4	32	4.4	984	We strongly support the Floodplain Reconnection/Expansion PMA due to its benefits to instream habitat, and potentially its effects on hydrology as well; however, we are confused by the statement that the "Floodplain Reconnection/Expansion" PMA "…will be evaluated and assessed with SVIHM using the methodology described in Section 3.3 and using monitoring data that describes the implementation of the floodplain reconnection/expansion program." We do not see any discussion in Section 3.3 about how changes to floodplains could be modeled by SVIHM. In its current form, SVIHM seems ill-equipped to model floodplain recharge scenarios, because: 1) the monthly timestep for inflows likely does not have a good representation of overbank flows because presumably those occur at shorter time scales (i.e., primarily hours and days, but possibly also weeks), 2) most tributary inflows gages are not rated for high flows, so the model inputs for high flows periods may not be very accurate. Are we mis-understanding something? Another comment we have on this section is that it should specifically		Updated future versions of SVIHM would be used for the assessment.

Quartz Valley Indian Community	QVIC-118	C	PM	Projects and Management actions		4	31	4.4	953-957	“The floodplain reconnection/expansion program will reverse some of these historical effects on groundwater dynamics by reconnecting the river to the floodplain and thus, avoiding further channel incision and leading to stable or even increased water level elevations from flooding.” Overall, we like this sentence, but it is an incomplete list of potential benefits. We recommend adding the following sentence: “It is possible that reversing channel incision through aggradation (i.e., raising the channel bed) would not only increase recharge by increasing the frequency of overbank flows, but would also reclaim (increase) aquifer storage by reducing the depth to which the water table is lowered by drainage to the channel during the spring recession.”		Proposed edits have been implemented.
Quartz Valley Indian Community	QVIC-119	C	PM	Projects and Management actions implementation, suggested edit to plan		4	32	4.4	1009	Discussion of the “High Mountain Lakes” PMA neglects to mention many factors which make this idea not feasible. This PMA should also mention the Wilderness Act which is likely to substantially restrict what can be built in designated Wilderness Areas and the construction methods that would be allowed. Given these legal constraints, in addition to other factors like the aesthetic concerns and a lack of road access, we think that high mountain lakes are unlikely to be a feasible means of meaningfully increasing surface supply and therefore recommend that effort be places into other PMAs. We recommend adding the following sentence: “DWR (1991) recommended against developing mountain lakes as water sources to augment Scott River flows because there were not enough benefits to offset all the negative aspects which include aesthetic concerns in addition to access, logistical, and legal constraints.” The exact quote from DWR (1991) was: “Under present law no development inside a wilderness area is permitted. Special legislation may be required to implement this alternative. Second, access and construction methods may make many of these enlargements impractical. Third, while these enlargements may benefit the individual creeks, their cumulative impact on the Scott River is difficult to judge. Water would enter the river from seven different tributaries distributed over the entire Scott Valley. It would not be a concentrated water source. Fourth, it would be difficult, or impossible, to coordinate releases from the 29 lakes to maximize the benefit to the Scott River fishery. Fifth, enlarging the lakes may disturb their natural aesthetic value. DWR does not recommend developing these lakes for water sources to augment the streamflow of the Scott River. There are not enough benefits to offset all the negative aspects of this alternative. ”	MCR-27	The placement of "High Mountain Lakes" PMA reflects the discussion in the AC. DWR's findings have been added to the discussion.
Quartz Valley Indian Community	QVIC-120	C	PM	Projects and mangement actions - offstream reservoir		4	33	4.4	1012	We support evaluation of surface reservoirs as means to augment water supply and river flows, if such reservoirs can be constructed in a way that minimizes impacts to fish habitat and would result in meaningful increases in river flows. An off-stream reservoir is particularly appealing. In watersheds like the Scott River that currently have little surface storage, the changes in runoff timing expected to occur with climate change will make surface storage even more important in the future than it is now. Given the water quality impacts to surface water with reservoirs and the associated water rights challenges, this type of project will require careful thought and planning, but it is worth the effort.	MCR-26	Noted. No response needed.
Quartz Valley Indian Community	QVIC-121	C	PM	Projects and Management actions - clarification requested		4	33	4.4	1043	The “Sediment Removal and River Restoration” PMA is summarized as: “A river restoration project to remove significant sediment from the main stem Scott River from Fort Jones to the mouth of the canyon is envisioned to improve in-stream flow, channel geomorphology, and habitat for fish.” We are extremely skeptical of this PMA. Please either provide additional information including a more detailed rationale, citation, and project proponent, or delete this PMA. What is the physical mechanism by which removing sediment could improve instream flow (wouldn’t removing sediment cause further incision which would further reduce aquifer storage capacity)? Wouldn’t removing sediment decrease floodplain connectivity and be counter to the “Floodplain Reconnection/Expansion” PMA? What specifically is meant by “improve channel geomorphology” (that is vague and could be interpreted many different ways)?	MCR-27	Description of benefits has been modified. This PMA was suggested by the irrigator Ad Hoc committe and is included as a Tier III PMA with a statement of the need for further investigation and assessment of benefits is stated .
Quartz Valley Indian Community	QVIC-122	C	PM	Projects and Management actions		4	33	4.4	1052	We support the Strategic Groundwater Pumping Curtailment PMA. This would be particularly valuable in drought years when there is limited water available for MAR/ILR.	MCR-26	Noted. No response needed.
Quartz Valley Indian Community	QVIC-123	C	PM	Water mastering		4	34	4.4	1069	We strongly support a properly designed and implemented Watermaster Program; however, we have serious concerns with the lack of transparency with the current Scott Valley and Shasta Valley Watermaster District program. Watermastering should be returned to the State of California, implemented basinwide, with well-organized publicly accessible records of diversions.	MCR-26	Noted. No response needed.
Quartz Valley Indian Community	QVIC-124	C	PM	Projects and management actions - suggested edit to plan, data accessibility		4	35	4.4	1126	The “Well Inventory Program” section does not mention anything about data management. The results of this inventory should be made publicly accessible.		Noted. Many of the propsed PMAs will have similar needs for documentation and public acess.
Quartz Valley Indian Community	QVIC-125	A	PM	Projects and management actions - well metering, data transparency		4	35	4.4	1135	Regarding “Voluntary Well Metering,” we understand the political sensitivity of well metering, but it seems like the first step in good management is measurement and transparency. At least some subset of the wells should be mandated to be metered. Examples could include the largest wells, or new wells drilled after the passage of the SGMA legislation or after adoption of the Scott Valley GSP. How can existing ordinances, such as the prohibition on the use of groundwater for cannabis production or the requirement for permits being needed for inter-basin transfers of groundwater, be enforced without the well metering? The lack of metering requirements suggests a lack of transparency, which further suggests a lack of will to actually manage groundwater extraction.	MCR-25	MCR-25
Quartz Valley Indian Community	QVIC-126	C	GE	Implementation, annual reporting, data accessibility		5	4	5.1.1	128	The Annual Reporting section does not clarify if the data presented will be figures or actual tables with numbers. The report should include electronic appendices with easily accessible data, so others could run their own analyses on the data.		DWR will set the format of the annual reporting requirements.
Quartz Valley Indian Community	QVIC-127	B	HM	SVIHM, Implementation		5	9	5.1.2	Figure 1	The Figure 1 flow chart says “Model update and calibration using new data (annually for the first five years)”. Is it really feasible and desirable to re-calibrate the model every year? That seems like a lot of work for an unclear benefit. Wouldn’t it be better to re-calibrate every two to five years rather than every year? There are certainly improvements we’d like to see in the model, and we’d rather have the GSA focus on incorporating these refinements rather than just re-calibrating the model with additional years. These model refinements are described in more detail in a separate comment document (not in this comment form), but are briefly summarized here: 1) use a better method for filling the large gaps in tributary inflows (e.g., considering other model types beyond linear regression, and using Salmon River gage as an alternative to the Scott River gage for filling tributary data gaps at least for some months and/or sites), 2) incorporate fall/winter stockwater diversions, 3) shorten the MODFLOW model timestep to something shorter than a month, 4) do a sensitivity analysis to quantify how sensitive modeled outflows are to tributary inputs (especially during September and October).		We clarified the text. Model updates, with respect to the simulation period, may occur as frequent as annually. Model re-calibration is proposed to be done every 5 to 10 years.
Quartz Valley Indian Community	QVIC-128	C	HM	Clarification requested, Model validation		App 2-a	10-Jul			This section refers to comparing SVIHM modeled outflow from the river flow observed at the USGS for the 2012-2018 period as “validation” because the model was not recalibrated for this period. However, this section fails to note that this is not a truly independent validation because the largest input to the model is tributary flow, which for the 2012-2018 was 100% estimated (i.e., no tributary gages) based on regression with measured flows at the USGS gage at the outlet of the valley. That same USGS gage is then used to “validate” the model’s predicted outflows. To be clear, it is not the act of comparing the model predicted outflows to the gaged flows that we object to (indeed, those are the only flow data that are available); however, we assert that when these comparisons are presented it should be clearly noted that these comparisons are somewhat circular and not truly independent.		The documentation clearly identifies these assumptions, including the fact that tributary stream inflows are estimated from the measured Basin outflow at the Fort Jones gage. That does not make the model validation a circular problem. It is correct that high winter outflows at the Fort Jones gage are dominated by the (estimated) stream inflows to the basin. To the degree that the regression model is erroneous - much as any other upper watershed model - the outflows at the Fort Jones gage will be erroneous during this period. However, some habitat-critical functional flow dynamics at the Fort Jones gage (shape and dynamics of spring recess and fall flush flow, amount of summer basflow) are closely related to a wide range of factors in the Basin, including groundwater flow dynamics, recharge dynamics, and pumping. Furthermore, water level elevations in the basin are also used for the model validation, not only Fort Jones flow. The validation is therefore considered sufficiently independent.
Quartz Valley Indian Community	QVIC-129	C	GE	General Comment		App 4-a				This appendix presents a lot of great information in an accessible format. We appreciate the maps and graphs showing effects by month.		Thank you.

Quartz Valley Indian Community	QVIC-130	C	PM	Suggested edit to plan		App 4-a				It would be good to also include the Summary Table somewhere in the main text of the GSP rather than solely having it be in the appendix. In addition, the column headers in summary table should be revised to clarify if Sep-Nov means Sep 1-Nov 30 or Sep 1-Nov 1 (i.e., see comment regarding caption of Figure 2 on page 63 of Chapter 3, Section 3.4.5.1).		The Summary Table includes simulations that don't directly correspond to most of the PMAs; for this reason it is considered to be only a reference and not an actual recommendation, so it is included only in the Appendix and not in the text itself. The table citation in Section 3.4.5.1 has been corrected to reflect Sep 1-Nov 30.
Quartz Valley Indian Community	QVIC-131	C	PM	Suggested edit to plan		App 4-a		Slide 23		"Restrictions on tributary flow diversions for irrigation at low FJ flows" Since the SVIHM only includes diversions for irrigation, ignoring the fall/winter diversions for stockwater, this scenario should be renamed to clarify that it is regarding irrigation diversions only (i.e., not stockwater).		Stockwater diversions are considered small compared to irrigation water diversions.
Quartz Valley Indian Community	QVIC-132	C	HM	Clarification requested		App 4-a		Slide 25		The irrigation efficiency scenarios "…assume an unspecified change in irrigation equipment that results in either an increase or decrease in irrigation efficiency on all irrigated fields." Wouldn't it make more sense (i.e., more realistic), to instead have the efficiency increase or decrease depend on the current efficiency of the field? For example, assume all fields with flood irrigation (currently assumed in SVIHM model as 70% efficient [Foglia et al. 2013]) and wheel-line sprinkler (currently assumed in SVIHM model as 75% efficient [Foglia et al. 2013]) were upgraded to 90% efficient center pivot sprinklers? Or maybe that should be added a new scenario?		These could be scenarios to be implemented after GSP submittal.
Quartz Valley Indian Community	QVIC-133	C	GE	Clarification requested		App 4-a		Slide 8		This slide defines the Sept-Nov period as "Critical dry window, Sept. 1 – Nov. 30", which seems to contradict other places in the GSP. For example, "Sep 1 to Nov 1" in caption of Figure 2 on page 63 of Chapter 3, Section 3.4.5.1. Given that the model's primary time scale is monthly, the correct time period is probably Sept. 1 – Nov. 30, right?		Correct, that table caption was a typo and has been revised to be "Sep 1 - N
Quartz Valley Indian Community	QVIC-134	C	PM	Clarification requested		App 4-a				The slide describing the "Alfalfa irrigation schedule change" scenarios states "Would presumably involve an incentive or compensation program (a back-of-the-envelope estimate of the value of the 3rd cutting of alfalfa is approximately $7.5 million)." Can you provide any more information on the justification for that estimate? This seems somewhat high given that the Siskiyou County annual crop report (https://www.co.siskiyou.ca.us/sites/default/files/fileattachments/agriculture/page/4581/agd_20200909_2019_cropreport.pdf) reported the total value of countywide field crops (including alfalfa but also other crops such as wheat, barley, pasture, etc.) as $86 million in 2019. Scott Valley is just one (though perhaps the largest?) of the alfalfa growing regions within the county and two cuttings of alfalfa would still occur under these scenarios.		Noted. We have added an economic analysis to the appendices.
SRCD	SRCD-001	C	PO	Public Outreach and coordination						The Plan specifically mentions "coordination with local resource conservation districts" as a means to "effectively advance SGMA implementation" (Ch. 1, p. 7). We agree, but such coordination did not seem to occur during the development of GSP implementation ideas. Our ongoing and proposed RCD projects that are related, directly or indirectly, to groundwater management were not included in Chapter 4's table of Projects & Management Actions (PMAs). We have tried correcting that omission in our detailed comments.		Noted and addressed in the detailed comments.
SRCD	SRCD-002	B	PM	PMAs, Monitoring						As you are aware, the Siskiyou RCD also has extensive experience with surface water, groundwater, and fisheries monitoring in our watershed, but grant funding has not been consistently available to sustain continued data collection, leaving gaps in everyone's understanding of their interrelationships. The UCD Integrated Hydrologic Model for Scott Valley will benefit in its accuracy from such additional data. Adding "Monitoring" as a category to Ch. 4's Table 1 and listing needed monitoring efforts will help focus funding attention to this critical need.		Monitoring needs have been identified in Chapter 3 and will be addressed as outlined in the Implementation Plan, Chapter 5.
SRCD	SRCD-003	C	PM	Project and Management Actions - Implementation and Prioritization						In addition to the above issues, Chapter 4's Table 1 currently appears to be a laundry list of ongoing and potential projects, with no ranking of "cost-effectiveness". Buried in Appendix 5-A is a draft "PMA Prioritization and Scoring System", which offers an initial method to help sort out good projects from ineffective ones. Working through these criteria and scoring options with the GSP Committee before final adoption of the plan, or shortly thereafter, by your Board would provide a more useful list of PMAs that could pursue immediate funding.	MCR-26	MCR-26
SRCD	SRCD-004	B	PM	Project and Management Actions, Suggested edit to plan		4	7	4.1	Line: 224 Table: 1	The following projects fits within the PMA framework **Tier: I** **Title**: South Fork Scott River Floodplain Connectivity Project Description: This three-phase project reconnects historical floodplains in the South Fork of the Scott River that were disconnected as a result of historical mining activity. In addition to reconnecting floodplains, the project creates habitat improvements through engineered log jams and wood loading in a mile-long stretch of the South Fork of the Scott River. **Lead Agency**: Siskiyou Resource Conservation District **Category**: Supply augmentation, Habitat Improvement **Status**: Existing/ Ongoing **Anticipated Time Frame**: Phase I and II complete. Phase III completion by 2021-2022 **Targeted Sustainability Indicator(s)/ beneficiaries**: Increased groundwater levels, interconnected surface water, instream habitat improvement, improved habitat for GDEs (coho salmon)	MCR-27	Thank you, this has been added to the PMA Table
SRCD	SRCD-005	B	PM	Project and Management Actions, Suggested edit to plan		4	7	4.1	Line: 224 Table: 1	**Tier:I** **Title**: Lower Scott River Side Channel Connectivity and Habitat Enhancement project **Description**:As a continuation of the recently constructed off-channel pond (2020), SRCD will complete restoration efforts within the mainstem and oxbow side-channel area to improve channel function and enhance access to slow water habitat. This project will incorporate side channel activation, BDA (beaver dam analogs) and engineered log jams. **Lead Agency**: Siskiyou Resource Conservation District **Category**: Habitat Improvement **Status**: Existing / Ongoing **Anticipated Time Frame**: Off channel pond complete in 2020. Channel connectivity and instream habitat improvements completion by 2022. **Target Sustainability Indicator(s)/ beneficiaries**: Increased groundwater levels, interconnected surface water with off-channel pond, instream habitat improvement, improved habitat for salmonids	MCR-27	Thank you, this has been added to the PMA Table
SRCD	SRCD-006	B	PM	Project and Management Actions, Suggested edit to plan		4	8	4.1	Line: 224 Table: 1	**Tier: II** **Title**: Instream Habitat Improvement on the East Fork Scott River. **Description**: Improve stream flow, create scour pools, and increase habitat for spawning and over summering salmonids in the E Fork of the Scott River on the Beaver Valley Headwater Preserve. **Lead Agency**: Siskiyou Resource Conservation District **Category**: Habitat improvement **Status**: Planning Phase **Anticipated Time Frame**: Planning Phase **Target Sustainability Indicator(s)/ beneficiaries**: increased surface water connectivity, habitat improvement for GDE (coho salmon)	MCR-27	Thank you, this has been added to the PMA Table

SRCD	SRCD-007	B	PM	Project and Management Actions, Suggested edit to plan		4	8	4.1	**Line:** 224, **Table:** 1	**As a tier II PMA, the SRCD would like to include a section for trend line monitoring of water levels, temperature, and water quality in the tributaries of the Scott River. Earlier in the 2000s, the RCD maintained a network of monitoring wells. Such activities are no longer supported. However, this network could be revived and expanded and fulfill needs laid out in Section 4.5, lines 1116-1123** **Tier**: II **Title**: Scott River Basin Stream Flow Monitoring **Description**: Reinstate historic stream flow monitoring activated throughout the watershed to improve knowledge of stream flow response in relation to existing and modified conditions. The SRCD will reinstall instream monitoring devices and monitoring wells to measure water levels, temperature, and water quality across all tributaries to the Scott River. This network will assess surface water contributions to groundwater and will augment and inform the SVIHM (as laid out in Chapter 3, Section 3.3, lines 238-246). This network will also be used to inform agencies involved with protecting and conserving GDEs in the system. **Lead Agency**: Siskiyou Resource Conservation District **Status**: Planning Phase **Anticipated Time Frame**: Current, TBA **Targeted Sustainability Indicator(s)/ benefits**: Realtime data available to developers of the SVIHM, water users, and various conservation organizations in the Scott Valley.	MCR-27	Thank you, this has been added to the PMA Table
SRCD	SRCD-008	B	PM	Project and Management Actions, Suggested edit to plan		4	7	4.1	Line: 224 Table: 1	**Tier**: I **Title**: Scott River Groundwater Monitoring **Description**: This project will provide monitoring services related to groundwater enhancement and recharge projects. During the 2020 drought, the SRCD will be involved with groundwater transactions in Reach 9 of the Scott River (between Highway 3 and the National Forest Land). This includes daily monitoring of the groundwater response to curtailments in irrigation in both Scott River and in adjacent fields through temporary wells and established wells. **Lead Agency**:Siskiyou Resource Conservation District **Category**: Supply augmentation, recharge **Status**: Ongoing and in development **Anticipated Time Frame**: Current, TBA **Targeted Sustainability Indicator(s)/ benefits**: Increased groundwater levels, interconnected surface water, improved water temperature, improved habitat for GDEs (coho salmon)	MCR-27	Thank you, this has been added to the PMA Table
SRCD	SRCD-009	B	PM	Project and Management Actions, Suggested edit to plan		4	7	4.1	**Line:** 224, **Table:** 1	*This project is complementary to and in conjunction with other projects mentioned in Chapter 4 namely:* "MAR&ILR -NFWF Scott Recharge Project" *and* "MAR & ILR" **Tier**: II **Title**: Scott Valley Managed Aquifer Recharge Projects **Description**: The SRCD continues to work with landowners, water districts, and ditch companies to develop potential managed aquifer recharge projects within critical areas of the Scott River Basin. Project implementation will improve groundwater to surface water interactions via recharge efforts and enhance stream quantity during periods of low flow. **Lead Agency**: Siskiyou Resource Conservation District **Category**: Supply augmentation, recharge **Status**: In development **Anticipated Time Frame**: TBA **Targeted Sustainability Indicator(s)/ beneficiaries**: Increased groundwater levels, interconnected surface water, improved water temperature, improved habitat for GDEs (coho salmon)	MCR-27	Siskiyou Resource Conservation District has been added to the Table under lead agency for MAR & ILR. Description is now included in the MAR& ILR discussion.
Salmonid Restoration Federation	SRF-001	C	GE	Surface water depletion, environmental beneficial users						The rivers and streams in the Scott and Shasta watersheds are severely depleted of water throughout large portions of each year. Due in large part to this flow depletion, salmon populations are in these two watersheds have declined precipitously from historical abundance over the past century and have continued their decline in recent decades and years. There are multiple factors contributing to this water depletion, including excessive diversion of surface water, excessive extraction of groundwater, and a warming climate that is diminishing snowpack and increasing the prevalence of droughts.	MCR-26	MCR-26
Salmonid Restoration Federation	SRF-002	B	IS	Surface water depletion, groundwater pumping						Groundwater extraction from areas where wells can be regulated under SGMA are just one of these causes of flow depletion. Therefore, GSPs are not responsible for reversing the streamflow depletion caused by surface diversions or groundwater outside SGMA jurisdiction (e.g., wells near the mainstem Scott River, in the zone subject to surface water adjudication). However, the draft GSPs do not meet the SGMA requirements for addressing the impacts of groundwater extraction from wells inside SGMA jurisdiction.	MCR-26	MCR-26
Salmonid Restoration Federation	SRF-003	B	IS	SMC definition, environmental beneficial users						SGMA requires that a GSP define minimum thresholds for streamflow depletion that cause adverse impacts on beneficial uses of the surface water, and then propose actions to ensure that such thresholds are avoided. Instead, the Scott Valley GSP does that process backwards, first defining actions that are easily achievable by groundwater users and then setting the minimum thresholds based on that. There is no consideration of the actual effects of streamflow depletion on surface water beneficial uses. This approach does not meet SGMA requirements.	MCR-4	MCR-4
Salmonid Restoration Federation	SRF-004	C	GE	Data transparency						The lack of transparency in the GSPs is troubling. Effective water management requires reliable data upon which to develop scientific understanding of how the hydrologic system operates, how the system is likely to respond to potential management actions, and ongoing monitoring to track progress in meeting goals. The methods and data used must be transparent and verifiable.	MCR-26	MCR-26
Salmonid Restoration Federation	SRF-005	C	PM	Metering, data transparency						There is currently a lack of basic information such as the amount of groundwater extracted. Neither the Scott or Shasta GSP require metering of groundwater extraction, nor public sharing of groundwater elevation data in a form that is transparent and verifiable (i.e., sharing the actual raw data rather than summaries). Without metering and data sharing, GSP policies such as "Avoiding Significant Increase of Total Net Groundwater Use from the Basin" are illusory and easy to game.	MCR-26	MCR-26
Salmonid Restoration Federation	SRF-006	C	PM	Management actions, metering, well prohibition						In the absence of universal metering, the only other way to ensure avoiding increases in net groundwater use would be to not allow new well construction and not allow irrigation in areas not currently irrigated; however, the GSPs contain no such prohibition.	MCR-28	
Scott River Watershed Council	SRWC-001	C	GE	Suggested edit to plan		2	6	2.1.1.1	153	The Scott River Decree, Schedule C "Acreages irrigated by claimants from Groundwater Interconnected with the Scott River" states 12,975 acres and not 10,015 acres	MCR-27	The text has been updated to conform to the Decree.
Scott River Watershed Council	SRWC-002	C	GE	Total basin approach, suggested edit to plan		2	8	2.1.1.2	221	Table 1 does not address the upland land use and therefore is not the "Acreage and percent of total Basin area" so either needs to be relabeled or data on the total basin land use needs to be added which includes all upland acreage.		The Basin specifically refers to the Scott Valley groundwater basin as identified in Bulletin 118, which does not include the uplands of the watershed.
Scott River Watershed Council	SRWC-003	C	GE	Public wells		2	12	2.1.1.3	244	There are no public wells that lie above the City of Etna.	MCR-26	MCR-26
Scott River Watershed Council	SRWC-004	C	GE	Suggested edit to plan		2	17	2.1.3	396	Please add Scott River Watershed Council to Table 2. **Activity Type** **Management** **Name of Organization**: Scott River Watershed Council **Plan/Program**: Riparian and habitat protection and restoration, instream and groundwater enhancement projects. **Year(s)**: 2014 – present **Regulatory**: N	MCR-27	Document has been changed per the suggestion.
Scott River Watershed Council	SRWC-005	C	GE	Suggested edit to plan		2	18	2.1.3	396	Please change date Scott River Watershed Council to Table 2. **Activity Type** **Monitoring** **Name of Organization**: Scott River Watershed Council **Year(s)**: 2014 – present	MCR-27	Document has been changed per the suggestion.

Scott River Watershed Council	SRWC-006	C	GE	Suggested edit to plan		2	25	2.1.3	613-616	The description in this section of the rights set forth in the Scott River Decree are misleading. The Decree clearly states (1) all surface water, spelling out exceptions (2) all rights to supporting underflow and (3) all rights to ground water in the interconnected zone. Please restate to include the underflow rights.	MCR-27	Restated to include underflow rights.
Scott River Watershed Council	SRWC-007	C	PM	Suggested edit to plan		4	5	4.1	182	Habitat Improvement: Please add Scott River Watershed (website) to list	MCR-27	Document has been changed per the suggestion.
Scott River Watershed Council	SRWC-008	C	PM	Suggested edit to plan		4	11	4.2	241	Please revise statement to "Implementation of completed in 2018, 2019 and 2021, additional work is ongoing."	MCR-27	Document has been changed per the suggestion.
Scott River Watershed Council	SRWC-009	C	PM	Suggested edit to plan		4	12	4.2	250	Please remove "with a second phase scheduled to begin late summer of 2021"	MCR-27	Document has been changed per the suggestion.
Scott River Watershed Council	SRWC-010	C	PM	Suggested edit to plan		4	20	4.3	481	This is an extremely misleading statement. Please either remove or qualify this statement to reflect the seasonal and many times, annual overdraft that occurs which results in a dewatering of the Scott River surface flows.		As defined in Bulletin 118, overdraft refers to a long-term trend in groundwater storage, not to short-term fluctuations in water levels that may seasonally lead to some undesirable results.
Scott River Watershed Council	SRWC-011	C	PM	Suggested edit to plan		4	22	4.3	560-574	Please add Scott River Watershed Council's efforts to bring prescribed fire by the development of the Siskiyou Prescribed Fire Burn Association which resulted in several burns in 2021.	MCR-27	Document has been changed per the suggestion.
Sari Sommarstrom	SS-001	C	GE	General		Overview				It's very frustrating to see that many corrections for Ch. 1-3 that I've offered over the past year are still not made in this "final draft" version. These are factual, not opinion, changes that are needed for accuracy.	MCR-26	Comment noted. No comment response required.
Sari Sommarstrom	SS-002	C	GE	General, citations		Overview				Please be very careful when using online databases as sources without confirmation of accuracy by locally knowledgeable sources. Citations should use primary references, not secondary, especially for groundwater topics. Example: Cite DWR for changes in well numbers over time, rather than SRWC's plan (which is citing DWR).	MCR-26	Comment noted. No comment response required, references have been updated.
Sari Sommarstrom	SS-003	C	GE	Suggested edit to plan		1	7	1.4.3.1	243-249	RCDs are specifically listed here but are not specifically listed in the C&E Plan, as implied and should be. Please connect the dots also in Ch. 5.		RCDs were not highlighted specifically in the communication and engagement plan but were included in the public outreach efforts outlined. Future communication and engagement with RCD has been added to the discussion of implementation of the GSP in Chapter 5.
Sari Sommarstrom	SS-004	C	GE	Suggested edit to plan		1	8	1.4.3.2	271	Add "nurseries" to list under Ag.	MCR-27	MCR-27
Sari Sommarstrom	SS-005	C	GE	Clarification requested		1	9	1.4.3.3	302-303	Clarify whether the GSP Committee will continue as an advisory body to County. Unclear what "working groups" status will be during implementation, which "may be formed". Implementation phase will need serious opportunities for broad engagement to reach consensus on appropriate actions. PMAs in CH. 4 did not get serious discussion during GSP process, so the difficult lifting has yet to come.		The revised chapter 5 addresses this issue.
Sari Sommarstrom	SS-006	C	GE	Clarification requested		1	9	1.4.4	321-324	Clarify that RWB is involved with GSP for the Scott's Temperature TMDL, as the Sediment TMDL is not related to groundwater management.	MCR-27	MCR-27
Sari Sommarstrom	SS-007	C	GE	Suggested edit to plan		1	9	1.4.4	342	State what year the tour happened.	MCR-27	MCR-27
Sari Sommarstrom	SS-008	C	GE	Ad hoc committee process		1	10	1.4.4	347-353	This ad hoc group seems to have been quite narrow and informal, and had no public input beyond those invited. **The projects listed here were not all shared or discussed by the GSP Committee, so appear to have been developed outside the official, formal SGMA process!!** Their "wish list" of projects in Ch.4 should not have precedent over a formal, public process where fact-checking could be involved. **This method of "input" to the GSP just makes the SGMA process seem irrelevant.**		Ad hoc committees were formed as stipulated in the Scott Valley Advisory Committee Charter. Outcomes and action items from Ad hoc committee meetings were reported out to the Advisory Committee.
Sari Sommarstrom	SS-009	C	GE	Suggested edit to plan, basin characteristics		2	4	2.1.1	120	State the entire size of the Scott River watershed here (804 sq.mi.), so context of the Basin can be understood, including basin's 15.3% of watershed above the USGS gage (653 sq. mi.). Decree's interconnected zone represents 10% of the total gw basin.		The total watershed size (812 square miles, according to National Hydrography Dataset spatial layers) has been added to the first paragrah in 2.1.1. Information about the percentage of the watershed that drains to the USGS gauge has been added to the Hydrology section (2.2.1.6),
Sari Sommarstrom	SS-010	C	GE	Suggested edit to plan, citations		2	5	2.1.1	Fig. 1	Legend would be clearer if reworded to: "Scott River Valley Groundwater Basin and Adjudicated Groundwater Zone in Scott River Decree". Cite references for figure's info: DWR 2004 and Superior Court 1980.		Legend and figure caption has been amended for clarity.
Sari Sommarstrom	SS-011	C	GE	Suggested edit to plan		2	6	2.1.1.1	155-161	The Scott Decree covered the Scott River Stream System (not already adjudicated) and "interconnected groundwater" in a defined zone along the mainstem river was considered part of the stream system. So correct the statement that this was a "groundwater adjudication" (unlike other solely groundwater adjudications in CA). And correct the sentence about the extent of the 1980 decree, as all other tribs were included too.	MCR-27	MCR-27
Sari Sommarstrom	SS-012	C	GE	Basin characteristics, suggested edit to plan, clarification requested		2	8	2.1.1.2	218-226 / Table 1	State clearly that the USFS - Klamath National Forest is the major landowner in the Scott watershed at 35% of the total, with 63% private. Table needs to have acreage TOTAL on the bottom from the DWR survey, as total only comes to 40,688 acres of the 64,000 acres (100 sq. miles) of the basin. What is the other land use? "native vegetation" perhaps? Please amend this table so totals match.	MCR-27	Document has been changed per suggestion.
Sari Sommarstrom	SS-013	C	GE	Suggested edit to plan, mapping		2	9	2.1.1.2	Fig. 3	"Selected roads" cannot be seen, only river and Hwy 3. Eastside and Scott River Road at least should be indicated as lines distinct from river.		There are multiple selected roads on Fig. 3, including Eastside and Scott River Rd. The legend has been updated to reflect the accurate color of Hwy 3 and local roads.
Sari Sommarstrom	SS-014	C	GE	Suggested edit to plan		2	11	2.1.1.3	238	Add an intro sentence to state when well drilling reports became required to submit to DWR, as well as the County. Earlier wells would not be included in OSWCR. Check with Co. Env. Health – was in after 1990?	MCR-27	The document has been changed per the suggestion. *Added intro sentence with date that CWC 1351 went into effect, requiring well completion reports to be submitted to DWR.*
Sari Sommarstrom	SS-015	C	GE	Suggested edit to plan		2	13	2.1.2	293-298	Eliminate redundancy about Scott Valley Area Plan	MCR-27	MCR-27
Sari Sommarstrom	SS-016	C	BR	Suggested edit to plan		2	14-15	2.1.2	340-342	Update public trust court case: In 2018, the California Court of Appeal (Third Appellate District) opinion in *Environmental Law Foundation v. State Water Resources Control Board* case decided that the public trust doctrine applies to California's groundwater resources; and the application of that doctrine has not been displaced and superseded by the California Legislature's 2014 enactment of SGMA.	MCR-27	MCR-27
Sari Sommarstrom	SS-017	C	GE	Suggested edit to plan		2	17	2.1.3	Table 2	Caption should state "Groundwater-related Monitoring, Plans, Programs and Tools in Scott Valley" to reflect actual contents of table. DWR is not regulatory for monitoring and other programs. Add CDFW's regulatory 1602 permit process for diversions. Add SWRCB: Monitoring – Required annual measuring and reporting of water use > 10af/y under SB 88 for all diversions. Wells within Decree's interconnected zone required to report annually since 1980 (Cummings 1980).	MCR-27	MCR-27
Sari Sommarstrom	SS-018	C	GE	Suggested edit to plan		2	18	2.1.3		Monitoring: Add both UCCE and County NR as doing well monitoring, monthly. Data for CASGEM & UCD model.	MCR-27	Text added to the CASGEM subsection for clarity per suggestion.
Sari Sommarstrom	SS-019	C	GE	Suggested edit to plan		2	20	2.1.3	416-418	Include a new table listing the USFS instream rights in the Scott Decree, which as 1st priority right are equal to other 1st priority rights (such as riparian and well rights). Very important to acknowledge here, and more directly relevant than Table 3's wish list by CDFW (see p. 21). The USFS flows do have a regulatory role.	MCR-27	MCR-27
Sari Sommarstrom	SS-020	C	GE	Suggested edit to plan		**2**	22	2.1.3	496-499 510	Add: Chinook salmon adult counts by CDFW (cite Knechtle 2021). CDFW would also be involved in permitting for MAR diversions during winter.	MCR-27	MCR-27
Sari Sommarstrom	SS-021	C	GE	Suggested edit to plan		**2**	23	2.1.3	553-561	State how frequently the CASGEM wells are monitored and by whom (UCCE and County NR)	MCR-27	Text added to the CASGEM subsection for clarity per suggestion.
Sari Sommarstrom	SS-022	C	GE	Clarification requested		**2**	24	2.1.3	595-597	Who, if anyone, is implementing this monitoring plan? RCD used to get grants for this but not done in years. DATA GAP.		The sentence "The extent to which monitoring has been carried out in years after plan adoption is unclear." has been added per suggestion.
Sari Sommarstrom	SS-023	C	GE	General		**2**	28	2.1.3	760	DWR served as Watermaster for 5 streams from the 1950s until 2012.	MCR-27	Added to the text.
Sari Sommarstrom	SS-024	C	GE	Suggested edit to plan		**2**	31	2.1.3	897	UCCE is currently monitoring x number of wells monthly for input into UCD model. Add: Orloff measured applied water use on 7-8 alfalfa farms in Scott Valley, important data for the SVIHM.	MCR-27	MCR-27
Sari Sommarstrom	SS-025	C	GE	Suggested edit to plan		**2**	32	2.1.3	925	Add: In 2005-06, the RCD partnered with others to develop the Community Groundwater Measuring Program (see below.)	MCR-27	MCR-27

Sari Sommarstrom	SS-026	C	GE	Suggested edit to plan		**2**	33	2.1.3	970 986 993	"The monthly data…". Note that this effort discontinued in 2018(?). Reword: "The diversion dam at Young's Point, east of Etna at river mile 46, has a large fish ladder to provide passage for adult and juvenile salmon and steelhead. Clarify: "…must avoid impacting the SVID water right, which is a post-1914 appropriate right." Add: In 2015-2016, a groundwater recharge study was done with SVID and UCD on a small piece of property within the district (Dahlke 2016 – her brief report needs to be added to References). It is anticipated that more Managed Aquifer Recharge projects will be performed with SVID during GSP implementation.	MCR-27	Document has been changed per suggestion.
Sari Sommarstrom	SS-027	C	GE	Suggested edit to plan		**2**	37	2.1.4.2	1162	Add: The Town's water supply is solely dependent upon groundwater, with its primary well located within the Scott River Decree's interconnected zone.	MCR-27	MCR-27
Sari Sommarstrom	SS-028	C	GE	Suggested edit to plan		**2**	38	2.1.4.2 2.1.4.4	1182 1194	Add: The city's water source is solely surface water from a diversion off of Etna Creek above town. Add new section: "Siskiyou Land Trust: Conservation Easements": Several large ranches in Scott Valley, primarily on the eastside, have entered into conservation easements with the Siskiyou Land Trust. Primary restrictions pertain to further limits on non-agricultural development beyond existing governmental land use plans, in exchange for financial compensation.	MCR-27	MCR-27
Sari Sommarstrom	SS-029	C	GE	Suggested edit to plan		**2**	38	2.1.5.1	1200	Add at end of sentence, "…based on ordinance adopted in 1990."	MCR-27	MCR-27
Sari Sommarstrom	SS-030	C	GE	Suggested edit to plan, basin characteristics		**2**	42	2.2.1	1325-26 1340	Double check watershed size at 714 sq. mi., as other sources state 804 sq mi. Correct: Highest point in the watershed is China Mountain at 8,551 ft. (in the Scott Mountains), not Boulder Peak.		This has been corrected as suggested
Sari Sommarstrom	SS-031	C	GE	Suggested edit to plan, citations		**2**	44	2.2.1.2	1368 1373 1384	Cite original source for these figures, not secondary source of SRWC. Average (mean) annual rainfall at Callahan since 1943 is 20.5 inches, not 18 inches. Correct this number, to be in agreement with Fig. 7A. The reason the USFS-Fort Jones data has days missing is because they rarely read their gage on weekends or holidays, so daily totals can be skewed though monthly totals are usually accurate. NOTE: Getting accurate daily precipitation data at Fort Jones is a Data Gap to be filled, as a priority. Give citation for source of snowpack data. Link text to Table 5 for CDEC snow stations.		The SRWC report does not cite a source for this number and this is the only document we have found that estimates the population of the whole valley (not just the towns). If a primary source can be found we would very happily reference it.
Sari Sommarstrom	SS-032	C	GE	Clarification requested		**2**	45	2.2.1.2	Table 4	Fort Jones weather station data did not end on 4-17-20, nor did the Yreka station. You mean that date is when you last downloaded the data for your analysis of Record Length and No. Missing Days. Correct the Caption to clarify.	MCR-27	MCR-27
Sari Sommarstrom	SS-033	C	GE	Suggested edit to plan		**2**	49	2.2.1.2	Table 5	KNF- Ranger District measures Scott Mountain, not BuRec. Also Marble Valley and Log Lake, when feasible. Add Length of Record for these sites, like you did for Table 4, which vary considerably. Describe range and mean of snow depths for each station. For April 1 and May 1 dates, which influence spring runoff flows and groundwater storage. (cite Deas and Tanaka 2006 for earlier data.) Scott River is a snow-rain based hydrology, as opposed to the Shasta's spring-fed hydrology. Important to state clearly someplace.		The first year and last year of the record, and the average maximum snow depth, have been added to the table. The importance of snow is stated in the Hydrology section.
Sari Sommarstrom	SS-034	C	GE	Suggested edit to plan, clarification requested		**2**	62	2.2.1.5	Missing 1691 1704	Important to state somewhere the Total Water Use in Scott Valley. DWR's Land and Water Use Surveys have that data (2017 most recent?. Need use in acre-feet by type of use. The ~5 mile Tailings Reach is a significant perturbation in the river system and needs to be clearly identified as such here and elsewhere! The loss of fines means that the soil profile for water storage has been lost and this large reach does not retain water as well as other parts of the alluvium. "Timber harvest", not just "timber".		DWR's Total Water Use estimates for 2011-2015, and water use by major crop, have been added to the text. Text about the Tailings Reach has been added.
Sari Sommarstrom	SS-035	C	GE	Suggested edit to plan		**2**	63	2.2.1.5	1713-1715	Roads of all types, including USFS, county and residential, on steep and erodible soils created the majority of the sediment impacts, not just "logging" roads (Sommarstrom et al. 1990). The sediment data from our study was cited by the RWB as the basis for listing the Scott River as "impaired" for sediment, resulting in the Sediment TMDL.	MCR-27	MCR-27
Sari Sommarstrom	SS-036	C	GE	Suggested edit to plan, citations		**2**	63	2.2.1.5	1746-47	Cite original source for groundwater use changes (i.e., DWR Land and Water Use Surveys), not a secondary reference. **Much more credible source about this very important point related to SGMA!**	MCR-27	
Sari Sommarstrom	SS-037	C	GE	Suggested edit to plan		**2**	64	2.2.1.5	1756-1758 1766 1768-1773	LESA-type systems can offer significant water savings and are increasing in use. Delete "not common" and get a quote from UCCE crop advisor in Yreka (Giuliano Guida) about their current and potential use, including % water savings. Very important for later PMAs! Very little irrigation diversions during the fall, after last cutting and when crops go dormant (cite UCCE again, even if pers. comm.). ~~Refer reader back to "Scott River Adjudication" section on pp.26-27 for more information. This description here is too brief for "Water Diversions". State that there is only on permanent diversion dam on the Scott River system, which is SVID's at RM 46. Other diversion structures (gravel push ups) are temporary and removed at end of the season. You don't need to cite DWR 1991 for the fact about the USFS right, just cite "Superior Court…1980" that you already have used. Go to the direct source whenever you can, PLEASE.~~		We consulted the UCC crop advisor and have added explanatory text about irrigation systems/adoption rates as suggested. A reference to the Adjudication section has also been added as suggested.
Sari Sommarstrom	SS-038	C	GE	Suggested edit to plan		**2**	64	2.2.1.6	1780 1793	Someplace in this paragraph (and maybe in intro to the GSP), please state that the Scott River is one of the few undammed major rivers left in California. It's a relevant point when talking water management! And most outsiders don't get it. Thank you for finally stating that snowpack is an important water source! It took a while for this plan to say it, but snowpack is a distinguishing feature for the Scott's hydrology. Hence, why you need to at least spend more time under Climate on p. 48-9, Table 5, etc.		Added to the beginning of Section 2.1
Sari Sommarstrom	SS-039	C	GE	Suggested edit to plan		**2**	65	2.2.1.6	Figure 15	Not cited in text. Gages noted on map are not all active, so legend should distinguish between Current and Historic. Only 1 USGS gage. RCD had pressure transducer gages on Kidder, Patterson, Etna for awhile too, but not on CDEC. This map is misleading unless you correct it. Add a Table with the gage names and numbers and years active, including RCDs, to be helpful. Would be very relevant for Ch. 3 Monitoring later. See below also about gages.		The figure has been updated to reflect Active vs Inactive gauges according to available data resources. A statement has been added to reference the RCD gauges not available on CDEC. Also, a table of record dates has been added to section 2.2.1.6.
Sari Sommarstrom	SS-040	C	GE	Suggested edit to plan		**2**	66	2.2.1.6	1804-1844	These descriptions (all from SRWC 2005) don't really add much to the hydrology discussion but would fit better maybe under Geography 2.2.1.1 as an overview of the watershed.	MCR-27	MCR-27
Sari Sommarstrom	SS-041	C	GE	Suggested edit to plan		**2**	67	2.2.1.6	1848-1872	Add a bar graph to show these 5 flow periods, or at least mean flows by month for USGS gage. More graphs would help here. Add citations for data in last 2 paragraphs: just look at USGS Station Description. Error in peak discharge: NOT 39,500 Maximum discharge, 54,600 ft^3/s, Dec. 22, 1964.		A new figure of total annual river discharge, and references other figures which show some illustrations of functional flows and median flows by month for the Fort Jones gauge, have been added for clarity. In the data currently downloadable from the USGS Water Data Services (downloaded with the dataRetrieval library in RStudio), the maximum flow was 39,500 cfs, on 12/23/1964. If you can point us to the source for the higher number we can investigate the discrepancy.
Sari Sommarstrom	SS-042	C	GE	Suggested edit to plan		**2**	68	2.2.1.6	Figure 16	Top graph is not helpful, especially without text describing what may be seen, like more extremes since 1980 or so?? Add text to describe why 2nd graph is focusing on just these 4 water years.		The caption has been expanded, and a sentence has been added to the last paragraph before the graphs, for clarity.
Sari Sommarstrom	SS-043	C	GE	Suggested edit to plan		**2**	69	2.2.1.6	1878-1888 1889 1891-1904 1907-1910	Refer to Fig. 15 here, though gage info would be better in a table. Correct the "end date" for ongoing, active gages: Shackleford (QVIR)/ French / Sugar / East Fk / South Fk, all operated by DWR. Footnote does not help clarify. There is no "strong" correlation between trib & river flows during summer. Distinguish someplace between perennial and ephemeral streams. Include Figure of 1882 USGS map, showing ephemeral tribs. I can re-send if needed. Redundant with lines 1845-1857, though here is more detail. Give citation for this finding.		Reference to the figure with named tributaries has been added. Text clorifying the end date of these tributary flows has been added. Text discussing ephemeral nature of some streams, and a citation, has been added. USGS map has not been referenced in this section.
Sari Sommarstrom	SS-044	C	GE	Suggested edit to plan		**2**	70	2.2.1.6	1911-1918	**This paragraph needs significant rewording**. Again, a good place to talk about naturally perennial and ephemeral streams! The 1882 map helps here. These alluvial fan reaches were called "arroyos" in 1852 (Gibbs). You're giving the strong impression that these alluvial fans would never dry out naturally, which is not accurate. Add that South Fork and East Fork are perennial in all years. And it's in very dry years, or multiple drought years, when few tribs flow at confluences with Scott, though still contributing sub-surface to groundwater ("cold springs" felt in river). **Upper reaches of all of the westside tribs have continuous flows, even during drought years,** which is where the juvenile coho and steelhead rear in colder waters. Fig. 18 indicates these upper reaches too. Cite SRWT for such flow data, which is where it leases water.		This section has been revised for clarity per the recommendation.

Sari Sommarstrom	SS-045	C	GE	Suggested edit to plan		**2**	70	2.2.1.6	1919-1929	What "previous section"? Add graph to depict change in baseflow. Here you're moving beyond just the existing Hydrology of the Basin and into "it would be nice" expectations of others, which are debatable. Cite USFS flow minimums as from Decree, with some legal legitimacy. CDFW flows were from an in-house report that was never publicly reviewed and had a lot of flaws, in my opinion. But not of the same legal standing as the decree's flow for USFS, which is a 1st priority right equal to all other 1st priority rights (i.e., wells and riparian). So please be careful how you depict these. Based on CDFW's flows, the Scott would almost never have received any coho or Chinook adult spawners in the fall, yet the fish data show that's not true. Scott has had improving coho runs for 20 years, and average Chinook runs when precip is >50%. Again, this paragraph does not objectively describe the hydrology. **This subjective description needs to be moved to a later section, so the fish data can be balanced with the hydrology data**.		A specific section reference and a reference to the relevant figure showing low flows has been added. Additional explanatory text has been added regarding low flows. The text has been amended to remove the subjective text.
Sari Sommarstrom	SS-046	C	GE	Suggested edit to plan		**2**	70	2.2.1.6	1936-1941	Here you're talking about precipitation patterns "below average and dry" years, which needs its own graph to depict. Fig. 16 only refers to flows and the top graph is too busy to see well. Overlaying WY type bar graph with line graph of mean annual flows between 2000 and 2020 might help show this pattern, which is really very relevant to GSP. You do conclude that low precip has led to lower baseflows, yet you need to present a graph of precip. Also, much less rainfall during September in past decades. I'll attach a spreadsheet I have of this data. Connecting the dots between precip and flows is helpful here.		A graph of total annual flow, broken into quartiles, has been added to illustrate water year type distribution. Additional clarifying text has been added to the section describing the occurrence of low baseflow conditions.
Sari Sommarstrom	SS-047	C	GE	Suggested edit to plan		**2**	71		Figure 17	As noted above, this graph of "desired flows" misrepresents actual fish passage during the fall months. So it shouldn't be here in this section, but later when comparing Expected vs Actual vs Fish Access. The Scott's Chinook spawning numbers usually have mimicked the pattern of the entire Klamath River's, with the exception of a few extreme drought years. That indicates access was not usually the barrier (see Knechtle 2021).		Figure 17 is included prior to the discussion of interconnected surface waters and groundwater-dependent ecosystems. Flow graphs and quantitative values are not included in the GDE discussion. Knechtle (2021) has been used to expand GDE section discussing fish.
Sari Sommarstrom	SS-048	C	GE	Suggested edit to plan		**2**	73	2.2.1.7	1960 1981 Missing	Fig. 18 as intended is missing, as text does not describe the actual Fig. 18 presented. An important figure to include! Figures 25 and 26 are missing too. Location and size of wells seems to be an important indicator of stream depletion. Somewhere in this section, it would seem appropriate to cite the USGS report by Barlow & Leake (2012): Streamflow depletion by Wells. "When discussing stream depletion of a well with a cyclic pumping rate (daily or annually) the calculated stream depletion from a well within 300-500 feet of the stream is about 33% of the pumping rate. The further the well is from the stream, the lower the depletion rate. (Page 28). Using a simulation, with a well pumping about 700 gpm and a distance of about 1,400 feet from the stream, the infiltration rate was zero. (Page 37, Fig 28)"		The red and blue stream-aquifer heat flux figure (referred to as Fig 18 here) has been added. The water budget figures (referred to here as Fig 25 and 26 were in the public draft document, but they were referred to out of order; some clarifying text has been added. The distribituon and size of wells is not discussed in this section, since all surface waters in Scott Valley are presumed connected to groundwater.
Sari Sommarstrom	SS-049	C	GE	Suggested edit to plan		**2**	74	2.2.1.7	2008	No Figure 4 is included.		Figure 4 refers to the much earlier map showing the locations of Etna and Fort Jones.
Sari Sommarstrom	SS-050	C	GE	Suggested edit to plan, clarification requested		**2**	75	2.2.1.7	2038	Unclear what assumption is about Sept-Oct rainfall with these estimates. Please clarify.		We have simplified the table to include only the September-November critical window used in other stream depletion calculations. We have also updated the calculation used for this table to simplify the values to be only one (mean) value, rather than the ranges from the earlier version, which were somewhat unclear.
Sari Sommarstrom	SS-051	C	GE	Suggested edit to plan		**2**	78	2.2.1.8	Table 8	*Populus tricocarpa* or Black Cottonwood is the common species found in Scott Valley, with Fremont found only along Moffett Creek near Hwy 3. There also is no Valley Oak in the valley. Please correct the table. Check with any local botanist, or Tom Jopson, horticulturalist.	MCR-27	MCR-27
Sari Sommarstrom	SS-052	C	GE	Suggested edit to plan		**2**	81	2.2.1.8	Figure 19	Dredger Tailings reach, a severely disturbed river bottom area, should be delineated on this map, as its existing riparian locations are not natural.		Dredger tailings has been added to Figure 19 (and the new Appendix 2-A, an enlarged version of Figure 19 with added parcel boundaries).
Sari Sommarstrom	SS-053	C	GE	Suggested edit to plan		**2**	82	2.2.1.8	Table 9	Bald Eagle was removed from the ESA in 2007. Delete here and in text. Clarify Status of each species as under State and/or Federal designation.		Bald Eagle is still listed as endangered at the State level. Table has been changed to distinguish state and federal status.
Sari Sommarstrom	SS-054	C	GE	Suggested edit to plan, citations		**2**	84	2.2.1.8	2264-65 2274-76 2277-78 2280-83	"…several species of anadromous fish…" It's home to many species of other fish. Redundant. Add: "…during critical life stages." Coho and steelhead prefer to spawn in the coldwater tributaries, where their young can rear for one year before returning to the ocean. Steelhead use all tribs, not just those listed. Chinook prefer the larger gravels of the mainstem for spawning in the fall and their juveniles leave the system before summer. Timing is everything! PLEASE use primary sources here – like CDFW - and not SRWC. (i.e., Knechtle 2021; Maria 2006)	MCR-27	Document has been changed per suggestion.
Sari Sommarstrom	SS-055	C	GE	Suggested edit to plan		**2**	85	2.2.1.8	Missing 2292-2299	Add heading: Population Trends. Insert graph of coho adult numbers from 2007-2020 from CDFW's annual report (Knechtle 2020). The Scott's coho population is the highest in the Klamath and one of the highest in the State. An important POINT!! So much emphasis on the Scott's rumored coho "going extinct", that this omission is HUGE here. Ugh. Describe the 3 different brood years. Coho in the Scott spawn in the cold water, perennial sections of tribs, when accessible, where juveniles can survive the summer. State here under Life Cycle.	MCR-27	Document has been changed per suggestion.
Sari Sommarstrom	SS-056	C	GE	Suggested edit to plan		**2**	86	2.2.1.8	2339 2366 – Table 10 missing	IP reaches were based mainly on GIS evaluation of slope access by spawners, not perennial flows. No field data were used, unlike RCD. Scott River Water Trust has prioritized trib reaches for leasing of water for coho summer rearing habitat in: French-Miners, Shackleford, Patterson, South Fork (SRWT website). Note which tribs are in canyon below valley in Table. "Flow Problems": If the mainstem has sufficient flow to get coho spawners into Scott Valley, as it did in Fall 2013 at 50-60 cfs, there still needs to be flow access into their natal tribs. In 2013, over 2,700 coho adults were stuck spawning in the mainstem Scott due to lack of rain creating runoff into tribs. Precipitation came as snowfall in the higher elevations but rain in the valley, and this large brood year was stuck. They spawned on top of Chinook redds previously laid. With an extreme drought year, flow conditions in 2014 demanded a cooperative effort to rescue and relocate 160,000 juvenile coho from the mainstem into the upper tribs where cold water habitat was available. Cite: Magranet, 2015, RCD (I can send to you. Excellent data and analysis.)	MCR-27	Document has been changed per suggestion.
Sari Sommarstrom	SS-057	C	GE	Suggested edit to plan, citations		**2**	87	2.2.1.8	2375-76 2378 Missing	Provide citation for statement that spring-run Chinook were historically found in Scott River. I've never found any credible source. If none, please delete or say "rumored". Chinook may enter the mouth of the Scott River in late September, but CDFW video weir data shows they do not move up until October. Outmigrant timing can also be found in CDFW's annual salmon report (Knechtle 2021). Add that outmigrants then need to navigate the Klamath River's habitat for 143 miles before reaching the ocean. **"Population Trends"**: add Heading. Include graphs from CDFW (Knechtle 2021). Add text.	MCR-27	
Sari Sommarstrom	SS-058	C	GE	Suggested edit to plan, citations		**2**	88	2.2.1.8	2390-2391 Missing	Cite RCD & USFS Chinook spawning surveys. Cite Knechtle for concerns about flow access during spawning. "Population Trends" for Steelhead: Here you can see there's too little data to conclude. Outmigrant data can be found in Knechtle and other CDFW reports.	MCR-27	Document has been changed per suggestion.
Sari Sommarstrom	SS-059	C	GE	Suggested edit to plan		**2**	89	2.2.1.8	2423 2431 2452	Lamprey habitat is VERY different from salmonids, as the young need lots of sand and mud to burrow. State that much more habitat and population data have been collected since 2005 (CDFW, RCD, SRWC). Note that no water quality trend data has been collected for many years on sediment and temperature, due to lack of funding. Delete bald eagle. Bank swallow's use of river banks is seasonal: only during spring nesting.		Habitat requirement section revised to state differences with salmonid habitat requirements and additional habitat and population data collection is noted. Bald Eagle is still listed as endangered at the State level. Bank swallow seasonal use of riverbanks noted. Water quality and trend data has been added as a data gap.
Sari Sommarstrom	SS-060	C	GE	Suggested edit to plan		**2**	90		Table 11	Delete bald eagle.		Bald Eagle is still listed as endangered at the State level. Table has been changed to distinguish state and federal status.

Sari Sommarstrom	SS-061	C	GE	Suggested edit to plan		**2**	91	2.2.2.1	2488 2494-98 2518-2520	Identify source of data. Need text for Fig. 21 and relevance. ~~Cite primary, credible source for this critical fact: DWR, not SRWC (and I wrote that section for SRWC, citing DWR's Land and Water Use Surveys).~~ Valuable observation but would benefit from graph of rainfall for this time period here or earlier. ~~Connect to Fig. 22 someplace?~~		A data source, more explanatory text regarding the seasonal contour maps, a primary source, a reference to the Total Annual Flow figure, and a reference to Fig. 22 have been added to the text.
Sari Sommarstrom	SS-062	C	GE	Suggested edit to plan		**2**	94	2.2.2.2	Missing	Add a map here of these 6 areas from Harter & Hines (2008) to be helpful.		This map has been added as suggested.
Sari Sommarstrom	SS-063	C	GE	Suggested edit to plan		**2**	115	2.2.3.2	3148	Pertinent Figure 22 missing here, and previous Fig. 22 not relevant.		The figure reference has been corrected.
Sari Sommarstrom	SS-064	C	GE	Suggested edit to plan		**2**	131	2.2.5	2574 Text Box	Figure on groundwater use amount at 42,000 ac-ft. But where did that figure come from? How does it compare to current use, as estimated by DWR's Land & Water Surveys (based on AW by crop type acreage)? Text is fine until you get to specific examples of PMAs, which may or may not be deemed cost-effective if evaluated seriously. It seems that climate change is the Big Gorilla in the room about Input of water, yet that's not mentioned here.	MCR-27	The description of sustainable yield has been modified to more clearly explain why it is not expected to remain constant in the future.
Sari Sommarstrom	SS-065	C	GE	Suggested edit to plan, citations		**2**	133-141	References	Missing / errors	Combine DWR refs with CDWR. Add the following: **exact titles & pdfs will be sent soon.* *Dahlke. 2016. (Recharge study results with SVID). Lee. 2016. (see line 1299) Siskiyou Land Trust – website. Barlow, P.M and Leake, S.A. 2012. Streamflow depletion by wells – Understanding and managing the effects of groundwater pumping on streamflow.USGS Circular1376.84 p. Knechtle, M. 2021. "2020 Scott River Salmon Studies". CDFW, Yreka. *Maria, Dennis. 2006. "Juvenile Steelhead Surveys in French Creek: 1990-2005" CDFG, Redding. *Magranet, Lindsay. 2015. "Juvenile Coho Salmon Rescue and Relocation Cooperative Effort in 2014, Scott River". Siskiyou RCD, Etna.	MCR-27	Document has been changed per suggestion.
Sari Sommarstrom	SS-066	C	GE	Clarification requested		**3**	3	3.1	99	SGMA has a baseline date of 2015 conditions for groundwater – please clarify here or soon for this chapter.		Document has been changed per suggestion.
Sari Sommarstrom	SS-067	C	GE	Clarification requested		**3**	4	3.2	171	"not allowed to worsen" beyond what baseline?		Discussion of baseline added.
Sari Sommarstrom	SS-068	C	GE	Suggested edit to plan		**3**	6	3.3	Table 1- Levels	DWR is going to start doing airborne electromagnetic technology from helicopters to survey groundwater basins in high and medium priority SGMA basins. Data creates an image of the subsurface down to depth of 1,000 feet. See DWR's website under SGMA/AEM.		DWR's AEM data for the Scott Valley should be available sometime in mid-2022. The data may be used in the future to improve the SVIHM model. Because this does not pertain to routine monitoring, no change has been made to this section.
Sari Sommarstrom	SS-069	C	GE	Suggested edit to plan		**3**	7	3.3	290-296	Need to add: "**Well Activity**", as inactive wells are much more useful than active wells due to drawdown effect on data. Our Community Well Program had this as one of its selection criteria, so their data for UCD would be useful. However, current well monitoring for CASGEM and maybe by UCCE does not appear to indicate whether the well is active at time of measurement, making data interpretation problematic. Is intent to be manually measured monthly or continually via data logger?		"Well Activity" has been added as a criteria for selection. In some cases recent pump activity is noted during manual measurements; currently there is no plan for guaranteeing static water levels in manual measurements.
Sari Sommarstrom	SS-070	C	GE	Suggested edit to plan		**3**	8	3.3		Distinguish between TREND and PROJECT monitoring purposes.		Description of trend and project monitoring added.
Sari Sommarstrom	SS-071	C	MN	Monitoring wells, available data		**3**	10-11	3.3.1.1	391-394/Table 2 411-415	My husband and I own 2 wells as RMPs: P0002M and G31. The 1st well is actively used most days at our nursery, more so in recent years during the May-Sept period. Due to drawdown effect while being pumped, we're not sure the data will be as useful as you hope. County and UCCE collected data for this well need to be compared for accuracy. Monthly data seems optimum versus bi-annual (too little) and daily (too much) frequencies. Please recommend what is best for GSP monitoring.		Monthly recommendation text added to the "Measurement schedule" section.
Sari Sommarstrom	SS-072	C	GE	Suggested edit to plan		**3**	29	3.3.5.2	065-1071 / Table 4	DWR gages already exist on East & South Fk, French & Shackleford! Data source of % trib inflows?		The data source for the % of tributary inflows is the SVIHM inflow values. Some clarifying text has been added to the text and to the caption of Table 4 in Ch. 3 to reflect this. As described in Appendix 2-D, Scott Model Documentation, missing daily values for tributary inflow were estimated using a linear regression for each month between the FJ gauge flows and each tributary flow. See Section 2.2.1.6, Hydrology for the time periods of available flow records for each tributary, and Appendix 2-D [SVIHM Model Structure Summary] for more information regarding the streamflow regression model.
Sari Sommarstrom	SS-073	C	PM	Management actions - implemntation and prioritization		4	7-8	4.1	Table 1	These PMAs are quite a mish-mash and laundry list of ongoing and potential projects. "Habitat Improvement" does not belong on this list as not directly relevant to Demand & Supply needs, with funding available elsewhere, or put in a separate table as "Indirect PMAs". Much better strategy is to use **App. 5-A PMA Prioritization & Scoring System** sooner than later, as many now listed will not be cost-effective. Add MONITORING as a Category, or your proposed Ch.3 actions will not be funded without attention here.	Chapter 5 has been revised to include action on PMA evaluation as a priority during the begining of the implmeentation phase.	
Sari Sommarstrom	SS-074	C	PM	Management actions - implemntation and prioritization		4	23			Move Irrigation Efficiency to Tier 1 as a High Priority and expand description based on UCCE Crop Advisor's input. Costs are known. Benefits are being quantified by UCCE and others. Orloff measured water use and crop yield with different center pivot emitter styles, and ongoing studies now by Yreka office. Add Measurable Objective based on well meter records, with incentive for metering (already required on Decree's wells). Incentives are there for well owners and irrigators, saving pumping costs too. Up to 30% reduction in use seems credible with best center pivot design, along with using soil moisture probes and fallowing corners.		Irrigation efficiency is included as a Tier 1 PMA (existing and/or ongoing). Additional efforts to improve irrigation efficiency, or an expansion in irrigation efficiency improvements is included under Tier 2 (near-term projects). Metering of water use added under monitoring in this project description
Sari Sommarstrom	SS-075	B	GE	Policies, PMAs, Public Trust Doctrine			WHAT's MISSING MOST			This GSP is lacking a key component of all effective plans – **POLICIES**. These come after Goals/Objectives and before Actions, as they direct how actions will be taken. Just because DWR's template didn't require them doesn't mean they're not needed. The County's General Plan has policies, for example. What about "Well Drilling Permits" as a PMA, for example, as an improved direction by County? Is the status quo fine, or are changes needed? I think most observers will say improvements are needed. Possible Policy: "*County will work to improve the quality of its well permitting program, including data storage and retrieval, identifying abandoned wells, and meeting legal requirements of the Scott River Decree and the Public Trust Doctrine*." Might be a tough pill to swallow, but it is what is needed.		The Advisory Committee decided to follow the DWR Guidelines for the structure of the GSP. As for the well permitting program, the County (not the GSA) is currently working on a revision to the well permitting program for Scott Valley. The technical team has had consultation with the County to inform county staff of the draft GSP and its implications for revising the well permitting program. The purpose of the consultation has been to ensure that the well permit program is consistent with the GSP objectives.
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-001	C	IS	SMC definition						ISW MT should not be defined based on a proportion or partial contribution to an undesirable result. SGMA requires that an MT define the minimum threshold for a full undesirable result. The whole concept of defining the ISW MT on what the PMA can achieve is putting the cart before the horse. The MT is a numeric value used to define an undesirable result (this may be why the GSP spends so much time confusing and twisting the definition of undesirable result). The MT, if exceeded, may cause an undesirable result. PMAs are a means to avoid exceeding an MT, not a mechanism to define an MT.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-002	A	IS	SMC definition and approach						The approach taken in the GSP is backwards. Rather than first defining an arbitrary endpoint based on what groundwater users can relatively easily tolerate (i.e., the approach outlined the GSP), the first step should be to determine the instream flows needed by fish, then calculate the difference between those needed flows and current flows, and then assign the same percent reductions needed by all water users (surface, adjudicated groundwater, and unadjudicated groundwater) to meet that difference. This approach should be applied to all parts of the year that have flows that are not meeting fish needs, not just September through November. To use a hypothetical example (we have not actually done the calculations), if overall water use needs to be reduced by 40% to meet instream flow targets, then surface water users, adjudicated groundwater users, and unadjudicated groundwater users should each be responsible for reducing their water use (or coming up with projects that produce an equivalent amount of seasonal supply) by that same 40%.		

Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-003	A	IS	SMC Defintion, Public Trust, ESA						15% streamflow reversal proposed is far short of the non-adjudicated groundwater users' responsibility meeting existing laws and regulations such as the Public Trust Doctrine, Total Maximum Daily Loads (TMDLs), and the Endangered Species Act.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-004	B	IS	SMC definition						The GSP proposes an MT for streamflow depletion only for the September–November period. The September–November this period is the time of year with the lowest flows and is very important for migration and spawning of adult salmon, but streamflow depletion also has adverse impacts at other times of year, such as during winter when salmon eggs are incubating, during spring when fish are rearing and outmigrating, and during summer when low flows can exacerbate high water temperatures.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-005	C	PM	Projects and management actions - incorporate water year types						MAR and IRL only work if there is "excess" surface water available. In critical drought years, there is very little excess water and thus MAR and IRL do not provide much benefit to instream flows. This is unfortunately because reversing streamflow depletion is arguable more important in critical drought years that in normal and wet years. The GSP should have proposed management strategies that are tailored to water year type, so that streamflow depletion could be substantially reversed in all water year types.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-006	C	GE	Data accessibility						How will transparency and public access to data be incorporated into reporting and data sharing agreements? All data that is paid for with public money should be accessible to the public. All GSP reporting (i.e., annual and five-year review reports) should include electronic appendices with easily accessible data, so others could run their own analyses on the data.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-007	C	PM	Metering, Transparency, Data availability						We understand the political sensitivity of well metering, but how can groundwater be managed at a basinwide scale without metering? At least some subset of the wells should be mandated to be metered. Examples could include the largest wells, or new wells drilled after the passage of the SGMA legislation or after adoption of the Scott Valley GSP. How can existing ordinances, such as the prohibition on the use of groundwater for cannabis production or the requirement for permits being needed for inter-basin transfers of groundwater, be enforced without the well metering? How can the effects of efficiency projects be verified without metering? The lack of metering requirements suggests a lack of transparency, which further suggests a lack of will to actually manage groundwater extraction.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-008	C	GE	Water mastering						Watermastering should be returned to the State of California, implemented basinwide, with well-organized publicly accessible records of diversions.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-009	B	PM	Projects and management actions - suggested edit to plan						The GSP full of things like that sound great like the "Avoiding Significant Increase of Total Net Groundwater Use from the Basin" project and management action (PMA), but when we look closely at the details we see that the wording is loosely defined so that it does not actually guarantee anything. Since all well metering is voluntary, how is it possible to verify this? If the GSP is to actually achieve the stated objectives, it needs more things that can actually be readily verified. Examples that we recommend include: No additional wells for new land use or additional cropping will be permitted in the basin. Only new wells intended to replace old wells and existing crops will be permitted, and these replacement wells will be metered. The intent here is to avoid net increase in groundwater use. Wells intended to replace stream diversions will not be permitted, even if there will be no additional net water usage (i.e., pumped groundwater will be used to replace surface water irrigation of existing crops). The intent here is to allow the SWRCB to ascertain and regulate surface water rights and stream and spring flows. The use of groundwater wells in place of stream or spring diversions simply moves the point of diversion and lessens the ability of the SWRCB to carry out its mission.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-010	C	GE	Climate change sceniarios, water budget						The GSP does include model runs for future climate change, these results are not presented in a coherent way that highlights the major challenges that climate change will pose to water management. A warming climate will cause a shift in precipitation form (less snow, more rain) that will in turn shift the seasonal timing of tributary surface flows into the valley. Regardless of what happens to total precipitation or total runoff, this change in precipitation form and runoff timing is a huge issue that water management is going to need to recon with.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-011	C	HM	SVIHM, 5-year update						We agree with the SVIHM's overall approach and appreciate the many years of work that the modeling team has invested in developing and refining the model. While the model has been peer-reviewed, we have some concerns that we think should be addressed in future updates (i.e., the five-year review). Details regarding the following suggestions are provided in the modeling section of comments: 1) need for a sensitivity analysis to quantify how sensitive SVIHM modeled outflows are to tributary inputs (especially during September and October); 2) need to incorporate fall/winter stockwater diversions into SVIHM; 3) need to reduce the MODFLOW model timestep to something shorter than a month; and, 4) need to use a better method for filling the large gaps in tributary inflows (e.g., considering other model types beyond linear regression, and using Salmon River gage as an alternative to the Scott River gage for filling tributary data gaps at least for some months and/or sites).		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-012	C	GE	SVIHM assumptions, Basin Characteristics, Requested clarification		ES	8	ES-2	214-215	"…lateral flux of Mountain Front Recharge (MFR) is assumed constant at <18 TAF." Seems odd that this would be assumed constant between years. See comment below regarding Chapter 2, page 117, section 2.2.3.2.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-013	C	GE	Suggested edit to plan - citations		2	13-15	2.1.2	259-369	It would be very helpful to provide citations for most (or all) of the documents listed on these pages, rather than the current few. The top of the sections says "This chronology was provided by Sari Sommarstrom (2019), with additional details from select sources", but Sommarstrom (2019) is not listed in the references at the end of this chapter.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-014	C	GE	suggested edit to plan		2	15	2.1.3	378	Should Karuk Tribe be added to the list of monitoring entities because they monitor water quality at the mouth of the Scott River, or is this list only for monitoring within and upstream of the Scott Valley? Even though the Karuk Tribe monitoring is downstream, it is informative to conditions within the basin.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-015	C	GE	Susggested edit to plan		2	18	2.1.3	Table 2	For Quartz Valley Indian Reservation Environmental Department, Plan/Program columns should be updated to: "Flow monitoring, groundwater elevation, and ~~Annual~~ surface and groundwater quality monitoring". Also, "Regulatory?" column should be changed to "Yes" and "What is regulated?" column should be changed to "Surface and groundwater quality", because QVIR has been approved by U.S. EPA for Treatment as a State status for regulating those with tribal trust lands.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-016	C	GE	Suggested edit to plan		2	19	2.1.3	Table 2	In the "Tool" section of the table, a row should be added for "Quartz Valley Indian Reservation Environmental Department", with "Plan/Program" of "Statistical model to predict water temperature at Scott River USGS gage"		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-017	C	GE	Suggested edit to plan		2	30	2.1.3	839	Add new sentence to end of paragraph: "QVIR was approved by U.S. EPA for Treatment as a State status for regulating water quality within the tribal trust lands."	MCR-27	Document has been changed per suggestion.

Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-018	C	GE	Suggested edit to plan		2	30	2.1.3	840	Add new paragraph: "QVIR and Riverbend Sciences have developed a statistical model to predict daily water temperatures at Scott River USGS gage using flow and air temperature data. The model was calibrated with 24 years of data is currently undergoing peer review (Asarian and Robinson 2021). It is freely available from an online repository." In addition, we recommend the first sentence on line 840 be revised to: "The QVIR Environmental Department has made this water quality and water level monitoring data and statistical model available for use in GSP development." Citation to add to references section: "Asarian, J. E., & Robinson, C. (2021). Modeling Seasonal Effects of River Flow on Water Temperatures in an Agriculturally Dominated California River [Preprint]. Earth and Space Science Open Archive; Earth and Space Science Open Archive. https://doi.org/10.1002/essoar.10506606.1" We are hopeful that the final peer-reviewed version of the article will be complete in late 2021 or early 2022.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-019	C	HM	SVIHM, clarification requested		2	39	2.1.5.2	1241-1245	"The Advisory Committee discussed modeled scenarios using the Siskiyou County Sheriff Department's estimate of 2 million illicit cannabis plants and a consumptive use of 4-10 gallons of water per plant per day, to consider the potential impacts to groundwater resources from this activity under current and future conditions. This information can be found at Appendix [ ]." What appendix is this referring to? Also, it would be good to clarify if the estimate of 2 million plants is regarding the whole county or just the Scott basin.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-020	C	GE	suggested edit to plan - citations		2	41	2.1.5.2	1299	The Lee 2016 document cited here is not included in the references at the end of the chapter.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-021	C	SC	Basin characteristics, suggested edit to plan		2	44	2.2.1.2	1379-1391	This paragraph discusses trends at 9 snow stations. The up-to-date data are appreciated, but it would also would be good to cite previous analyses of regional snowpack data, something like "Since the 1940s, the percent of precipitation falling as snow has decreased in the region (Lynn et al. 2020) and April 1 snowpack has decreased, especially at lower elevations (Van Kirk and Naman 2008)." Citation: "Lynn, E., Cuthbertson, A., He, M., Vasquez, J. P., Anderson, M. L., Coombe, P., Abatzoglou, J. T., & Hatchett, B. J. (2020). Technical note: Precipitation-phase partitioning at landscape scales to regional scales. Hydrology and Earth System Sciences, 24(11), 5317–5328. https://doi.org/10.5194/hess-24-5317-2020"		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-022	C	GE	Suggested edit to plan		2	69	2.2.1.6	1878	"Some of these flow gauges (notably French Creek and Sugar Creek) have later end dates than the years listed…"		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-023	C	GE	Suggested edit to plan		2	70	2.2.1.6	1934-1936	In contrast, lower baseflow in September and October since the 1970s has been attributed to climate change as the dominant factor (ibid. Figure 6; Drake et al., 2000), although Asarian and Walker (2016) found that flow declines in August, September, and October were much larger than could be explained by precipitation alone." Suggested language is based on Figure 8 from Asarian and Walker (2016) which shows declines in precipitation-adjusted flow. Citation: Asarian, J. E., & Walker, J. D. (2016). Long-Term Trends in Streamflow and Precipitation in Northwest California and Southwest Oregon, 1953-2012. Journal of the American Water Resources Association, 52(1), 241–261. https://doi.org/10.1111/1752-1688.12381		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-024	B	SC	Basin characteristics, suggested edit to plan, clarification requested		2	70	2.2.1.6	1936-1939	"Over the past 22 years, the relative frequency of below average and dry years has been much higher than during any period in the 20th century during which Scott River flows at Fort Jones have been measured (Figure 16). This has resulted in more frequent occurrence of baseflow conditions of less than 20 cfs, although low flows measured in recent years have not been lower than low flows measured prior to 2015 (Figure 16)." These sentences are unclear and should be re-worded. The phrase "below average and dry years" implies precipitation, but Figure 16 shows flows not precipitation, so should probably be re-worded as "years with low-flows". Are water year types (and methods used to derive water years types) explicitly defined somewhere in the GSP (i.e., see comment on Chapter 2, Section 2.2.3, page 108, line 2991)? The purpose of the statement "although low flows measured in recent years have not been lower than low flows measured prior to 2015" is unclear and should either be deleted or explain why that is notable. Minimum flows have clearly declined over the period of record (e.g., see Figure 16, or the statistical analyses in Asarian and Walker 2016). Looking at Figure 7 on page 26 which shows precipitation, the period 2000-2021 does not look obviously drier than 1977-1999.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-025	C	GE	Suggested edit to plan		2	73	2.2.1.7	1960-1963	"Figure 18 illustrates the monthly variations in the amount and direction of water exchange between groundwater and surface water. Losing sections are indicated by red colors and the positive value of the logarithm of the rate of stream leakage to groundwater. Gaining stream sections are indicated by blue colors…" The Figure 18 on page 72 (a map of dry and wet river/stream reaches from SRWC 2018) does not match the description on page 73. Page 73 appears to instead describe Figure 5 from Tolley et al. (2019) which we do not see in the GSP document.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-026	C	GE	Suggested edit to plan		2	73	2.2.1.7	1975	Tributary names should be labeled on subject Figure.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-027	C	SC	Basin characteristics - stream flow depletion, clarification requested		2	75	2.2.1.7	2040	When talking about summer baseflow period depletion, what is the rationale for only presenting estimates for the Sept.-Oct. period? What is going on earlier in the summer and in the late fall?		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-028	C	SC	Basin characteristics - stream depletion, clarification requested		2	75	2.2.1.7	2026-2051	Table 7 provides summaries of stream depletion. Values are presented as ranges (e.g., 43-65 cfs). Please clarify what these ranges are (e.g., is the minimum and maximum of the seasonal averages observed across all years?) and briefly discuss in the text if there are any apparent patterns driving the variation between years (e.g., is stream depletion generally greater in low snowpack/flow years?).		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-029	B	GD	GDEs		2	76	2.2.1.8	2063-2065	"For purposes of this section, 'GDE' is used to refer to a spatial area covered by vegetation that is observably distinct from dry-land terrestrial vegetation." What about areas that historically had groundwater-dependent riparian vegetation but do not current support this vegetation because of groundwater depletion. For example, the valley reach of Moffett Creek used to have large riparian trees but they are nearly all dead now, with a few standing skeletons remaining. Moffett Creek is not mapped as GDE in Figure 19, should it be?		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-030	B	GL	Groundwater level mapping, clarification requested		2	80	2.2.1.8	2172-2174	What depth to groundwater mapping analysis performed? What seasonal (winter vs. summer) groundwater level information used to inform the DTW determination?		Interpolated depth-to-water spatial layers were created for iGDE classification using all available groundwater elevation measurements. These were averaged for each well over the years 2006-2020.
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-031	B	GD	Identification of GDEs - mapping, clarification requested		2	80	2.2.1.8	2179-2180	The GDE mapping appears to be based solely on visual or aerial map inspection. Were all iGDEs assumed to be GW dependent or were some removed due to excessive DTW? What iGDEs dropped and why, if any?		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-032	C	GD	suggested edit to plan		2	82	2.2.1.8	Table 1	Shouldn't cascade frogs and willow flycatchers be added to Table 1 (or related text), even they were not listed by the Nature Conservancy?		

Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-033	C	GE	Water year types, clarification requested		2	108	2.2.3	2991	It is unclear how water year types were defined. Tolley et al. (2019) used the “Sacramento Valley water year hydrologic classification” (though no citation is provided so it is unclear what that is) while Foglia et al. (2013) used an analysis of Fort Jones and Callahan precipitation data. Please clarify here how water year types were defined.	
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-034	B	WB	Clarification requested		2	112	2.2.3	3030-3050	In Table 15, the SW Irrigation values do not add up to the Farmers and SVID Div. values presented in Table 14. Where do the SW Irrigation values in Table 15 come from? Similarly, the GW Irrigation values in Table 15 don’t equal the “Wells” values presented in Table 16 – where do the GW Irrigation values come from and why do they differ from the Wells values?	
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-035	C	WB	Water budget - suggested edit to plan		2	112	2.2.3	3030-3050	The Median SW budget values indicates a 10 TAF deficit in stream flow. This suggests a long term chronic condition of stream outflows exceeding inflows during most years. It would also be helpful to present the Average values on Tables 14-16 for comparison.	
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-036	C	HM	Suggested edit to plan		2	113	2.2.3	3079-3081	“The streamflow regression model is a statistical tool used to estimate tributary inflows at the valley margins when upper watershed flow data are unavailable (‘streamflow regression model’) (Foglia et al. 2013).” While true, this statement is somewhat misleading. During the 1992-2018 model period, most tributary inflows are estimated not measured. It would probably be more accurate to revise this to: “…used to estimate tributary inflows at the valley margins, supplemented by gaged upper watershed flows when data are available (‘streamflow regression model’) (Foglia et al. 2013).”	
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-037	C	HM	Water Budget, irrigation efficiency		2	113	2.2.3.1	3090	“Agricultural irrigation is calculated based on daily crop demand.” should be revised to “Agricultural irrigation is calculated based on daily crop demand, with an efficiency assigned to each field based on source of irrigation water and type of irrigation.” Efficiency is an important component of the model that merits brief explanation here even if the details are explained in Appendix 2-C.	
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-038	B	WB	Water Budget assumptions		2	114	2.2.3.1	3096-3097	All precipitation falling on cultivated fields and native vegetation is assumed to infiltrate completely and “runoff is neglected”. Yet, the SW budget indicates runoff (overland flow). So, are the water budget models double accounting for runoff? (i.e., ppt. runoff contributing to SW flow and ppt. runoff being infiltrated into soil budget and possibly being transferred to GW recharge).	
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-039	C	GE	Clarification requested		2	114	2.2.3.1	3121	What does “weakly coupled” mean?	
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-040	B	HM	SVIHM - assumptions		2	114	2.2.3.1	3130-3134	“However, for the MODFLOW model, daily values of stream inflow from the upper watershed, pumping, and recharge, including canal and mountain front recharge, are aggregated (averaged) to each calendar month and held constant within a calendar month. In MODFLOW, the calendar month is referred to as a ‘stress period’”. This seems like an un-necessary coarsening of the data, given that the computationally intensive part is the daily time step of the daily model, right? Why do that? The surface water budget is calculated on a daily basis. Flow data could be estimated on a daily basis. The model is used for purposes such as predicting the date when flows in the fall first increase to above 20 cfs, so a monthly model seems less than desirable for those purposes. Foglia et al. 2013 wrote: “However, if warranted, the budget model described here can also be applied to an integrated hydrologic modeling scenario with weekly or bi-weekly varying stress periods or to stress periods of varying period length.” This issue is particularly pertinent in the fall, when the model does not do well at representing the timing and magnitude of flow increases (i.e., as discussed in Appendix 2-D).	
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-041	B	WB	Suggested edit to plan, water budget assumptions		2	116	2.2.3.2	3197	“Surface water irrigation diversions are computed as a function of irrigation demand. Fall/winter diversions for stockwater are not included in the current version of SVIHM, but will be added in the future.” If we understand correctly, the SVIHM assumes that no surface water diversions occur outside of the irrigation season (i.e., after September 30? or is it weather driven?). In reality, there are substantial diversions for stockwater, with many diversions remaining in place after the end of irrigation season. In years when there is not much fall rain (i.e., 2009, 2020), these stockwater diversions can divert the flow of entire creeks and leave downstream reaches dry during salmon spawning season. Not including these diversions is a considerable deficiency of the SVIHM. The effect of these winter stockwater diversions on fall/winter flows is an important management question that we need tools like the SVIHM to answer. These diversions inadvertently (from a water rights perspective, though we cannot rule out that recharge might be part of diverters’ motivation) provide some amount of beneficial aquifer recharge in late winter or spring once surface flows are reconnected throughout the valley. On the other hand, during fall these diversions likely extend the period of low river flow by some unknown number of days because they take water from the channel and recharge the aquifer in locations far from the river where the water may take weeks or months to return. Stockwater diversions in the fall cause recharge during the worst possible time of year (managed aquifer recharge should occur in the late winter and spring, not the summer and fall!). Incorporating these stockwater diversions into the model would be difficult because these diversions are unreported and unmetered. One approach for dealing with the data gaps would be to bookend the estimates in a sensitivity analysis with low and high scenarios. The low scenario could assume that the diversions match demand including transmission losses (i.e., recent State Water Boards emergency regulations set maximum diversion rates based on the number of animals and assumed 90% conveyance losses, see https://www.waterboards.ca.gov/drought/scott_shasta_rivers/docs/surface_water_stockwater_diverters_090121.pdf). The high scenario could assume that the diversions match the irrigation season right (i.e., from the adjudication), since the stockwater diversions utilize the same ditches as the irrigation diversions. We are not very familiar with the day-to-day operation of these stockwater diversions and thus are unclear if they are pulsed (i.e., on for a few days, off for a few days, etc.) or continuous, but hopefully local farmers and ranchers could provide information on that as well as advise on the volume of the diversions.	
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-041 (contd.)	C	Water budget	Water budget		2	116	2.2.3.2	3197	One exception to the data gaps on winter stockwater diversions is that the Scott Valley Irrigation District (SVID) diversions are reported monthly for the years 2010–2020 in the State of California’s eWRIMS database. For example, SVID diversions for the October 2019 for “1000- 1800 cattle-sheep-horses” were reported as 260.4 AF (https://rms.waterboards.ca.gov/LicensePrint_2019.aspx?FORM_ID=476977). This equates to 4.2 cfs during a month when flows at the USGS gaged average 7.1 cfs. Assuming that each head of livestock needs 15 gallons per day (cattle value from https://www.waterboards.ca.gov/drought/scott_shasta_rivers/docs/surface_water_stockwater_diverters_090121.pdf), then 1800 cattle would need 27,000 gallons/day. In comparison the 260.4 AF diversion equates to 8.4 AF/day, or 2.7 million gallons/day, which is 100x greater than the amount of water actually needed to sustain the livestock. Is this a “reasonable” use of water at a time when mainstem river flows were so low that salmon could not access their spawning grounds? Conversion of winter stockwater diversions to stock tanks fed by small wells could be the lowest hanging fruit for achieving meaningful increases in fall river flows while having little or no economic cost to agriculture (assuming the conversions are paid for with public money). We recognize that the GSP cannot dictate management of surface flows; however, the analyses and models used in the GSP should consider the real-world water budget and not ignore important drivers of key groundwater management endpoints (i.e., fall flows).	

Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-042	B	WB	Water Budget assumptions		2	116	2.2.3.2	3197-3200	“Surface water diversions are computed as a function of irrigation demand. The conceptual diversion points from tributary flows are just outside the Basin boundary, except for two internal diversions (6 TAF, see below), which is consistent with most diversions occurring near the Basin margin.” Due to data constraints, the approach of estimating diversions based on irrigation demand (i.e., deduct diversion from gages surface inflows) makes sense. However, since some tributary flow gages are located downstream of substantial diversions (e.g., French Creek), it seems like the flows at these gages should be treated differently than gages that are upstream of diversions, but we do not see this mentioned anywhere in the documentation. For fields irrigated with water diverted upstream of flow gages, shouldn’t the water demand not be deducted from the gaged flows? Deducting the demand seems like double-counting the diversion (first it is already implicitly deducted prior to the gage measurement because the water is not physically there, then it is explicitly deducted during data processing).		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-043	B	HM	SVIHM assumptions, Basin Characteristics, Requested clarification		2	117	2.2.3.2	3209-3214	“Mountain Front Recharge, the phenomenon of diffuse water flow through mountain soil or fractured bedrock into the alluvial sediments of an aquifer along a valley margin, is simulated along the western edge of the model domain. It is estimated to be a volume that changes month-to-month (i.e., greater recharge during the wet season) but which is identical year over year (see Appendix 2-C for more details).” We have reviewed the Appendix 2-C documents as well as the S.S. Papadopulos (2012) report that is cited for the original estimate. Mountain Front Recharge is estimated at <18 TAF (thousand acre-ft), so is quite small relative to other inputs (i.e., it is <5% of the other inflows [stream inflow and precipitation] on average). While we sympathize with the difficulty of estimating this parameter, we do not understand why it should be constant between years, given that it is derived from a water balance of terms that vary considerably between years (i.e., precipitation minus evapotranspiration minus surface flows). Seems like it would make more sense to scale it to be larger in wet years than dry years?		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-044	B	SC	Basin characteristics, recharge		2	120	2.2.3.2	3330-3331	“Recharge from the land surface occurs primarily in winter months but is limited – except under flood irrigation – during the summer months.” This ignores fall/winter stockwater diversions, which are substantial but not included in the SVIHM. See comments above regarding chapter 2, page 116, section 2.2.3.2, line 3197.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-045	C	WB	Future water budget		2	125-126	2.2.4	3437-3515	The “Future Water Budget” section is lacking discussion of some key factors. For example, what changes are expected to snowpack and tributary inflow hydrographs (i.e., runoff timing) of the four climate change scenarios evaluated? What are the greenhouse gas emissions trajectories associated with the climate scenarios (i.e., does it assume “business as usual” or that aggressive efforts are made to reduce greenhouse gas emissions, or something intermediate?). Listing the degrees Celsius (or Fahrenheit) of air temperature increase associated with each scenario would be helpful for context.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-046	C	GE	Susggested edit to plan - citations		2	125	2.2.4	3473	DWR 2018 citation is not included in the references cited at the end of the chapter.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-047	C	GE	Susggested edit to plan - citations		2	126	2.2.4	3499-3502	Figure citation should be fixed: “Importantly for sustainable groundwater management, none of the future climate scenarios indicate that the lowest groundwater storage points decrease over repeated drought occurrence (Figure 3128).” Also, please explain the significance/implications of this. Does it mean that long-term overdraft and subsidence are unlikely? Or that late summer streamflows will not be lower with climate change?		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-048	B	HM	Climate Scenarios, suggested edit to plan		2	130	2.2.4	Figure 32	“Figure 32. Projected flow at the Fort Jones Gauge, in difference (cfs) from Basecase, for four future projected climate change scenarios. Near and Far scenarios show minimal differences from historical basecase flow conditions.” Perhaps we are mis-understanding what these scenarios are, but are extremely skeptical of any claims that the temperature-driven changes in precipitation form due to climate change (i.e., more rain and less snow) are not going to substantially decrease river flows in summer and fall, regardless of what happens to total annual amount of precipitation. The GSP should acknowledge these realities and then describe how the model predicts that this will seasonally change river flow and groundwater. The format of the graph makes it very difficult to see meaningful seasonal patterns. The y-axis scale that ranges from -2,000 to +12,000 cfs makes it impossible to see what is happening during low flows. Can you add a second panel that to graph so that the low-flow period is legible (maybe -100 to +100 cfs?)? Or maybe limit the months to just show April through October?		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-049	C	GE	Suggested edit to plan - citations		2	137	References	3775-3777	Langridge, Ruth, Abigail Brown, Kirsten Rudestam, and Esther Conrad. 2016. “An Evaluation of California’s Adjudicated Groundwater Basins.” https://www.waterboards.ca.gov/water_issues/programs/gmp/docs/resources/swrcb_012816.pdf ~~https://doi.org/10.1038/nmicrobiol.2016.214~~		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-050	B	MN	Monitoring, data accessibility		3	9	3.3	351-353	“Where it is necessary, the GSA will coordinate with existing programs to develop an agreement for data collection responsibilities, monitoring protocols and data reporting and sharing.” How will transparency and public access to data be incorporated into these data reporting and sharing agreements? All data that is paid for with public money should be accessible to the public.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-051	B	MN	HM, Monitoring network - additional monitoring points		3	21	3.3.5.1	748+	Surface water flow estimates in SVIHM appear to only be calibrated to the Ft. Jones gauge. Comparing simulated stream flow against only one calibration point for such a large river system calls into question how well the model is at simulating stream flow in other reaches that may be experiencing different management and hydrogeologic conditions. The proposed monitoring plan does not call for any additional river flow monitoring along the mainstem river. We recommend adding additional stream flow monitoring gauges along the mainstem river to better calibrate/validate the stream flow estimates along the entire reach, not just at the downstream Ft. Jones outflow point. Given the need for additional tributary gages as model inputs, we are not sure how we would rank the priority of additional mainstem gages. Perhaps these additional mainstem gages should just be operated for a few years, long enough to capture different water year types. Or perhaps there are discrete flow measurements collected during other sampling or special projects (i.e., in the early/mid 2000s in preparation of the TMDLs) that could be used for calibration and verification?		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-052	B	HM	SVIHM, suggested edit to plan		3	26	3.3.5.2	935-972	In this “Assessing and Improving SVIHM” section, we recommend several additional tasks. These model refinements are described in more detail in a separate comment document (not in this comment form), but are briefly summarized here: 1) use a better method for filling the large gaps in tributary inflows (e.g., considering other model types beyond linear regression, and using Salmon River gage as an alternative to the Scott River gage for filling tributary data gaps at least for some months and/or sites), 2) incorporate fall/winter stockwater diversions, 3) shorten the MODFLOW model timestep to something shorter than a month, 4) do a sensitivity analysis to quantify how sensitive modeled outflows are to tributary inputs (especially during September and October).		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-053	C	GL	Clarification requested		3	30	3.4.1	Figure 5	The definition of Minimum Threshold in Figure 5 is confusing: “Minimum Threshold: historic low – (10 % of max historical depth to water or 10 ft, whichever is less)” Maybe revise to “Minimum Threshold: historic low minus either 10% of max historical depth to water or 10 ft, whichever is less”		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-054	B	GL	SMC definition, IHM		3	30-38	3.4.1	1088-1265	As currently proposed, the Actions Trigger occurs if water levels at a well fall below the historic level for two consecutive years and the Minimum Threshold occurs if a well falls more than 10% (or 10 ft, whichever is less) of the historic level. We have not actually tried an experiment with hypothetical or real well data, but it seems possible that well levels could have long-term declines but not ever violate the Actions Trigger and Minimum Threshold if the decline is “bumpy”, meaning there are not consecutive drought years. For example, well levels could alternate between moderate/high levels in wet or normal years, followed by a severe drought year in which well levels drop to historically low levels (but not exceeding the 10 ft or 10%), followed by moderate/high levels in wet or normal years, followed by a severe drought year in which well levels drop to historically low levels (but not exceeding the 10 ft or 10%), etc. This seems very problematic because conditions could progressively deteriorate but never violate the AT or MT.		

Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-055	B	GE	Inclusion of Climate change		3	34	3.4.1.1	1173-1183	This paragraph of the GSP, similar to other sections of the GSP, does not mention one of the key elements of climate change for which there is high certainty- there will be a shift in precipitation form (less snow and more rain) that will shift the seasonal timing of tributary surface flows into the valley. Regardless of what happens to total precipitation or total runoff, this change in precipitation form and runoff timing is a huge issue that water management is going to need to deal with.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-056	C	GL	Suggested edit to plan		3	35	3.4.1.2	1236-1237	As these are depth to groundwater values in Table 5, shouldn't the MO values have less-than signs, not greater than signs?		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-057	C	GE	Clarification requested		3	35-36	3.4.1.2	1227-1245	Is "primary trigger (PT)" here the same as "Action Trigger" in Figure 5 (on page 30)? If the meaning is the same, then it would be better (i.e., easier to understand) to use the same phrase/abbreviation rather than have two separate terms that mean the same thing. On the other hand, if they are different, then shouldn't Figure 5 also show the PT in addition the Action Trigger?		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-058	B	WQ	SMC definition		3	44	3.4.1.3	1495-1531	The water quality triggers are all based on the 75th percentile of wells, so it is conceivable that water quality conditions could deteriorate horribly at 20% of wells and that would not violate any triggers. Seems like it might make sense to also have some metric that would reflect conditions in the wells with the worst water quality?		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-059	C	WQ	Water quality, suggested edit to plan		3	46	3.4.3.1	1591-1593	Same comment from March Draft: Irrigating with water containing moderate to high nitrate levels may also increase nitrate concentrations in underlying groundwater.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-060	B	WQ	SMC definition, clarification requested		3	46	3.4.3.2	1618-1621	Same comment from review of draft in May: This language is very confusing and unclear how it translates to concentrations. One way it reads suggests that a 14% annual increase per year over a 10 year period in no more than 25% of wells is acceptable. However, compounding a 14% increase over a 10 year period results in a 370% increase in concentration. Perhaps the intent of the statement is, "Monitoring well concentrations shall not exceed the Maximum threshold by 15% in more than 25% of wells during any given year". One could also argue that it isn't warranted - a Maximum threshold should be treated as a just that - a Maximum threshold. Why are exceptions warranted? Theoretically, reaching/exceeding the trigger concentrations should trigger corrective actions. Perhaps the 15% annual exceedance in 25% of wells exception should be applied to trigger values, not Maximum thresholds.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-061	C	IS	Suggested edit to plan, citations		3	54	3.4.5.1	1868-1870	Asarian and Robinson (2021) would be a good citation for this sentence: "Excessive stream temperatures are also related to earlier completion of the snowmelt/spring flow recession…" Full reference is: Asarian, J. E., & Robinson, C. (2021). Modeling Seasonal Effects of River Flow on Water Temperatures in an Agriculturally Dominated California River [Preprint]. Earth and Space Science Open Archive; Earth and Space Science Open Archive. https://doi.org/10.1002/essoar.10506606.1		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-062	C	HM	SVIHM		3	54	3.4.5.1	1885-1889	"Some consumptive uses of groundwater may have a more immediate impact on streamflow than others; for example, a well that begins pumping groundwater 66 ft (20 m) from the river bank may cause stream depletion hours or days later, while a well that begins pumping two miles (3 km) west of the river bank may not influence streamflow for months or even a year." This is an important point. Unfortunately, the SVIHM is not capable of simulating the short-term impacts. Prudic et al. (2004) provide the following statement on the associated limitations on MODFLOW's streamflow routing package: *"The mass-balance or continuity approach for routing flow and solutes through a stream network may not be applicable for all interactions between streams and aquifers. The SFR1 Package is best suited for modeling long-term changes (months to hundreds of years) in ground water flow and solute concentrations using averaged flows in streams. The Package is not recommended for modeling the transient exchange of water between streams and aquifers when the objective is to examine short-term (minutes to days) effects caused by rapidly changing streamflows."*		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-063	C	IS	Suggested edit to plan		3	58	3.4.5.1	2032-2034	"The reasonableness of groundwater use that may contribute to stream depletion could depend on a number of circumstances, including the benefits of pumping groundwater and the resource benefits of pumping groundwater" This statement distracts from the issue as it addresses the beneficial uses of groundwater consumers, not the beneficial uses of surface waters.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-064	B	IS	SMC definition and approach, suggested edit to plan		3	58	3.4.5.1	2044-2047	"In the context of assessing MTs for the ISW SMC, it is reasonable to only hold groundwater users~~producers~~ outside the adjudicated zone to a modest percentage of stream depletion reversal because any greater responsibility would unreasonably constrain groundwater users in the basin." We agree that groundwater users outside the adjudicated zone are not responsible for solving all the water issues in the Scott River. However, the approach taken here is backwards. Rather than first defining an arbitrary endpoint based on what groundwater users can relatively easily tolerate, the first step should be to determine the instream flows needed by fish, then calculate the difference between those needed flows and current flows, and then assign the same percent reductions needed by all water users (surface, adjudicated groundwater, and unadjudicated groundwater) to meet that difference. To use a hypothetical example, if overall water use needs to be reduced by 40% to meet instream flow targets, then surface water users, adjudicated groundwater users, and unadjudicated groundwater users should each be responsible for reducing their water use (or coming up with projects that produce an equivalent amount of seasonal supply) by that same 40%.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-065	C	GE	Clarification requested		3	58	3.4.5.1	2044-2047	What is "modest" and how is it quantified in terms of groundwater use?		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-066	B	IS	Definition of unreasonable		3	59	3.4.5.1	2089-2090	"…that is, what is an "unreasonable" amount of stream depletion, which could 2089 be reframed as: what is a "reasonable" amount of avoided groundwater use?". This statement is not how SGMA defines an unreasonable impact for ISW. The GSA can't replace "unreasonable impacts on beneficial uses of surface water" with reasonable use of groundwater.	MCR-4	
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-067	C	IS	SMC definition		3	60+	3.4.5.1	2108-2209	ISW MT should not be defined based on a proportion or partial contribution to an undesirable result. SGMA requires that an MT define the minimum threshold for a full undesirable result. The whole concept of defining the ISW MT on what the PMA can achieve is putting the cart before the horse. The MT is a numeric value used to define an undesirable result (this may be why the GSP spends so much time confusing and twisting the definition of undesirable result). The MT, if exceeded, may cause an undesirable result. PMAs are a means to avoid exceeding an MT, not a mechanism to define an MT.	MCR-4	
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-068	C	IS	Clarification requested		3	63	3.4.5.1	Table 7	The caption here says that streamflow depletion is summarized across the "Sep 1 to Nov 1" period. Is that correct, or should it be "Sep 1 to Nov 30", as is stated on the Slide 8 of Appendix 4-a? Given that the model's primary time scale is monthly, the correct time period is probably Sept. 1 – Nov. 30, right?		

Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-069	B	PM	PMAs implementation, SVIHM		4	3	4.1	107-110	"In developing PMAs, priorities for consideration include effectiveness toward maintaining the sustainability of the Basin, minimizing impacts to the Basin's economy, seeking cost-effective solutions…" Based on the description here, it seems like increasing the efficiency of fall/winter stockwater diversion and delivery systems (so these diversions could be dramatically reduced with little economic impact) would be low-hanging fruit that should have been included as a PMA. This would not improve groundwater conditions, but could (we do not know, in part because the SVIHM is not currently set up to be able to provide answers to this important question) mitigate some of the fall streamflow depletion caused by groundwater pumping. While ditches currently used for stockwater could be very useful for managed aquifer recharge (MAR), this activity should only occur during times when there is abundant surface water, such as late winter and spring of normal and wet years, and should utilize a MAR-specific water right so it can be appropriately managed to benefit, rather than harm, instream flows. See our comments on Chapter 2, page 116, section 2.2.3.2 for additional information on this topic.	MCR-29	MCR-29
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-070	C	PM	Clarification requested		4	5	4.1	205	Which "Existing reports, proposals" were used to develop the PMAs for recharge? Please provide specific citations.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-071	C	PM	suggested edit to plan		4	5	4.1	206	Shouldn't the Scott River Watershed Council be listed as an entity that is engaged in planning and implementing habitat improvement projects? Table 1 on page 7 lists several PMAs being implemented by the Council.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-072	B	PM	Projects and Management actions		4	7	4.1	Table 1	Increasing the efficiency of fall/winter stockwater diversion and delivery systems (so these diversions could be dramatically reduced with little economic impact) should be included as a PMA. See our comments on Chapter 2, page 116, section 2.2.3.2 for additional information on this topic.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-073	C	PM	SVIHM, PMAs		4	8	4.1	Table 1	Beaver Dam Analogues (BDAs) are listed solely in the "Habitat Improvement" category. Aren't they also designed to increase groundwater storage and recharge? Why weren't model runs conducted on the effects of BDAs? Is the model not capable of simulating BDAs? If not, what modifications to the model would be needed to simulate BDAs?		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-074	C	PM	Projects and management actions, suggested edit to plan		4	8	4.1	Table 1	Prescribed fire should be added to the list of activities described in the Scott River Watershed Council's "Upslope Water Yield Projects" PMA.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-075	C	PM	Suggested edit to plan		4	9	4.1	Table 1	In the "Voluntary Managed Land Repurposing" PMA, we recommend adding groundwater recharge. See our comments on Chapter 4, Section 4.3, pages 24-28, lines 640-809 for additional discussion of this topic.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-076	C	PM	Projects and Management actions - clarification requested		4	13	4.3	316	The "Avoiding Significant Increase of Total Net Groundwater Use from the Basin" PMA does not provide a definition of what "significant" means, so we suggest removing that word. Without a definition, isn't this PMA meaningless? It should probably either be percent (e.g., 1%) or volume? See related comment regarding Chapter 4, page 17, section 4.3, lines 454-456.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-077	B	PM	Management actions - clarification requested		4	13	4.3	340-344	We are unable to understand exactly what the "Avoiding Significant Increase of Total Net Groundwater Use from the Basin" PMA means, especially, this excerpt: "Due to the direct relationship between net groundwater use and ET, implementation of the MA is measured by comparing the most recent five- and ten-year running averages of agricultural and urban ET over both the Basin and watershed, to the maximum value of Basin ET measured in the 2010-2020 period, within the limits of measurement uncertainty." Can it be re-stated more clearly, such as, "The goal of this MA is for X not to exceed Y by Z percent?" Can you provide information on the limits of measurement uncertainty? What is the rationale for using the maximum as the basis for the comparison? Is the purpose of the running averages to smooth out climatic variation (i.e., is ET higher in wet years than dry years)? If there is substantial variation between water year types, then should the goal be different in different water year types? What about the contribution of surface water irrigation to ET? We anticipate that climate change will cause increased reliance on groundwater because surface water flows are going to recede earlier in the irrigation season (due less snowmelt), which could result in ET staying the same but groundwater extraction will increase and flows be lower, all without violating this MA.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-078	C	PM	PMAs		4	13	4.3	348-352	"To provide an efficient, effective, and transparent planning tool that allows for new urban, domestic, and agricultural groundwater extraction without increase of total net groundwater use. This can be achieved through exchanges, conservation easements, and other voluntary market mechanisms while also meeting current zoning restrictions for open space, agricultural conservation, etc. (see Chapter 2)." Exchanges and markets need real, verifiable information if they to operate properly. Without widespread metering, it would be far too easy to game the system.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-079	C	PM	Comment on PMAs		4	14	4.3	354-356	"To be flexible in adjusting the limit on total net groundwater extraction if and where additional groundwater resources become available due to additional recharge dedicated to later extraction." Groundwater is already over-extracted. Additional recharge should be used to reverse streamflow depletion, not enable more extraction.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-080	C	GE	Suggested edit to plan		4	15	4.3	414-415	"The Basin has negligible groundwater inflow and outflow across its aquifer boundaries. As a result, pumping and recharge outside the Basin do not affect groundwater levels." Negligible is probably too strong a word, probably should be "relatively little" instead? Mountain Front Recharge ("the phenomenon of diffuse water flow through mountain soil or fractured bedrock into the alluvial sediments of an aquifer along a valley margin") is estimated constant at <18 thousand acre-feet (TAF), compared to total inflow which ranges from 149 TAF in the driest year to 788 TAF in the wettest year (i.e., see Chapter 2, page 17, Section 2.2.3.2)? Mountain Front Recharge is estimated to be 12% (18/149) of total inflow in the driest year, which isn't really "negligible," is it?		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-081	C	PM	Suggested edit to plan, clarification requested		4	17	4.3	454-456	"The permitting program would ensure that construction of new extraction wells does not significantly expand current total net groundwater use in the Basin (to the degree that such expansion may cause the occurrence of undesirable results)." How are "undesirable results" defined? Please add a definition or citation here. See related comment regarding Chapter 4, page 13, section 4.3, line 316.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-082	B	PM	PMAs, clarification requested		4	17	4.2	460	"Here are two illustrative examples of an appropriate use of well replacement…" … "Example 2: Replacement of a 1,000-gpm agricultural well that will be properly decommissioned with a new 2,000-gpm capacity agricultural well is permissible with the explicit condition that the 10-year average total net groundwater extraction within the combined area serviced by the old and the new well does not exceed the average groundwater extraction over the most recent 10-years." Since groundwater use is mostly unmetered (much less publicly accessible), how would this be tracked or enforced?		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-083	C	PM	Clarification requested		4	21	4.2	543	The discussion of Beaver Dam Analogues (BDAs) discusses habitat, but aren't BDA's also designed to increase groundwater storage and recharge? See comments on Chapter 4, Section 4.1, page 21, Table 1 for additional information.		

Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-084	C	PM	Projects and management actions, suggested edit to plan		4	22	4.2	574	Prescribed fire should be added to the list of activities described in the Scott River Watershed Council's "Upslope Water Yield Projects" PMA.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-085	C	PM	Suggested edit to plan, clarification requested		4	23	4.2	609-639	For the Irrigation Efficiency Improvements, "Potential benefits were quantified through modelled scenarios of a 10% increase, 20% increase, and 10% decrease in irrigation efficiency. Relative stream depletion reversals resulting from these scenarios were 4%, 12% and -2%, respectively (Appendix 4-A)." Can you add a sentence or two here describing how improved efficiency affects the monthly/annual water budgets and reduces streamflow depletion in the September November period? There's a widespread misconception among the public and agencies that increasing irrigation efficiency magically creates water, so it would be helpful if the text here provided specific estimates of how it changes the water budget. Increased efficiency would have zero impact on ET, but would decrease pumping and diversions and would decrease recharge, right? Does efficiency reduce some of the streamflow depletion because the reductions in pumping and diversions outweigh the decreases in recharge?		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-086	C	PM	Projects and management actions - clarification requested, metering		4	23	4.2	631-639	The proposed monitoring of irrigation efficiency omits a key tool– metering of water use. Without metering, how can we know if the efficiency projects are actually working?		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-087	C	PM	SVIHM, clarification requested		4	23	4.2	631-639	The proposed monitoring of irrigation efficiency lists "Assessment of the increase in irrigation efficiency, with particular emphasis on assessing the reduction or changes in consumptive water use (evaporation, evapotranspiration) based on equipment specification, scientific literature, or field experiments." Doesn't efficiency usually not affect consumptive water use but instead just change recharge (that's how it is represented in the SVIHM, right?). What is the physical basis for thinking efficiency would affect consumptive use for crops like pasture and alfalfa that have low-lying continuous canopy cover (i.e., in contrast to orchards or row crops like tomatoes where efficient delivery systems like drip irrigation could reduce evaporation from bare soil)?		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-088	A	PM	Projects and management actions - clarification requested, water rights		4	27	4.3	764	The Permitting and Regulatory Process section explains the legal basis for how water could be diverted for managed aquifer recharge (MAR) though a SWRCB temporary permit, but we are unclear how the water rights would work for in lieu recharge (ILR). Is switching from groundwater to surface water really legal under California water law? If so, please explain in this section. Would the ILR utilize existing surface water rights (but don't farmers generally already exhaust their surface water rights each year before switching to groundwater)? Or would ILR require a separate temporary permit than MAR? Or would ILR require new permanent surface water rights? It seems very unlikely that SWRCB would grant new surface water rights for irrigation after the start of the April 1 irrigation season, but there might be new rights available in March.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-089	B	PM	Suggested edit to plan		4	24-28	4.3	640-809	How about voluntary (i.e., paid) permanent conversion of land in key areas (i.e., where that water would not flow the river for many months) for MAR during the spring to extend the season for groundwater recharge into the active growing season? On agricultural lands, MAR would normally have to cease once pasture or crops emerge from dormancy, but if lands were solely dedicated to MAR then the recharge season could be extended. Also, during period (i.e., summer) when there is not sufficient water for MAR, if these areas were not irrigated then they could also contribute to demand reduction. Would doing this require new ditches (because all ditch capacity is already used during irrigation season?), or is there sufficient capacity?		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-089	C	PM	Projects and management actions - Clarification requested, suggested edit to plan		4	24-28	4.3	640-809	The documentation provided in the GSP leaves many unanswered questions. Given the prominence of MAR/ILR in the GSP, we would have expected to see a more detailed level of analysis and discussion. For example: - What MAR/ILR diversion volumes are feasible in individual dry and severe drought years (e.g., 1977, 2001, 2020, 2021), and what effects does this have on river flow during the spring diversion period and the summer/fall period? We see Table 7 in Chapter 3, and the figures in Appendix 4-a, but we would like to see daily hydrographs (comparing the in-river flow and diversions with/without MAR/ILR) for individual severely dry years. - How were the parcels selected for the primary MAR/ILR scenario? Why not also use Farmer's Ditch in addition to Scott Valley Irrigation District (SVID)? - How was 43 cfs selected? Is that capacity of SVID? - What are the "CDFW requirements"? If that the same as CDFW (2017) Interim Instream Flow Criteria, then that document should be cited. - It might also be appropriate to use tributary ditches for MAR during winter high flows? We are hesitant to open this can of worms, but if done carefully (limiting the diversions to limited high-flow periods and only diverting a small percentage of flow [i.e., 5-10%] it could have benefits. - The GSP does not explicitly define the time period for ILR. For example, Appendix 4-a says "in the early growing season, as long as surface water is available." Does this mean a set start date of March 1, or April 1, or a custom date that changes each year depending on the weather? Does it end when there is no water at all, or when flows drop below CDFW requirements?		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-089	C	PM	MAR/ILR implementation, stream flow depletion		4	24-28	4.3	640-809	We support the concept of managed aquifer recharge (MAR) in winter and in lieu recharge (ILR) during the irrigation season, but have some concerns. The largest concern is that we do not think that MAR/ILR alone are sufficient to reverse enough of the streamflow depletion to make meaningful improvements to river flows. We are also concerned that there has not been sufficient analysis of the effects of MAR and ILR on river flows (and resulting biological effects) during the period of increased diversions (i.e., winter and spring). As shown in the figures in the "Percentile Flows and Flow Regime Comparison" section of Appendix 4-a, the CDFW (2017) flows are very low compared to the historic range of observed flows during March through May (i.e., always <25th percentile and sometimes approach or even drop below the lowest flows ever recorded). For example, CDFW's recommended April flows are 134 cfs, which if that volume remained instream after a full ILR diversion of 43 cfs would mean that 20% of the 168 cfs river flow would being diverted during a severe drought which seems like quite an aggressive rate of diversion. It probably would make more sense to increase the rate of diversion above 43 cfs when flows are higher, but drop to rate far below 43 cfs (or even to zero) when flows are low. Increased diversions after May 1 could have detrimental effects on water temperatures (Asarian and Robinson 2021).		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-090	C	PM	Suggested edit to plan		4	28	4.3	810	In the "Voluntary Managed Land Repurposing" PMA, we recommend adding groundwater recharge. See our comments on Chapter 4, Section 4.3, pages 24-28, lines 640-809 for additional discussion of this topic.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-091	C	PM	Projects and management actions - suggested edit to plan		4	29	4.3	841	The "Voluntary Managed Land Repurposing" PMA discusses "For example, a corner of a field may be well suited for wildlife habitat or solar panel". This is an interesting idea. Would it be possible to convert some agricultural land to solar photovoltaic (i.e., electricity-producing) farms and still use those lands for groundwater recharge? Such a project could accomplish four things: reduce irrigation demand, increase groundwater recharge, generate electricity, and provide a new income stream to the landowner through lease payments.		

Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-092	B	PM	Projects and management actions - clarification requested, SVIHM		4	32	4.4	984	We strongly support the Floodplain Reconnection/Expansion PMA due to its benefits to instream habitat, and potentially its effects on hydrology as well; however, we are confused by the statement that the "Floodplain Reconnection/Expansion" PMA "…will be evaluated and assessed with SVIHM using the methodology described in Section 3.3 and using monitoring data that describes the implementation of the floodplain reconnection/expansion program." We do not see any discussion in Section 3.3 about how changes to floodplains could be modeled by SVIHM. In its current form, SVIHM seems ill-equipped to model floodplain recharge scenarios, because: 1) the monthly timestep for inflows likely does not have a good representation of overbank flows because presumably those occur at shorter time scales (i.e., primarily hours and days, but possibly also weeks), 2) most tributary inflows gages are not rated for high flows, so the model inputs for high flows periods may not be very accurate. Are we mis-understanding something? Another comment we have on this section is that it should specifically		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-093	C	PM	Suggested edit to plan		4	31	4.4	953-957	"The floodplain reconnection/expansion program will reverse some of these historical effects on groundwater dynamics by reconnecting the river to the floodplain and thus, avoiding further channel incision and leading to stable or even increased water level elevations from flooding." Overall, we like this sentence, but it is an incomplete list of potential benefits. We recommend adding the following sentence: "It is possible that reversing channel incision through aggradation (i.e., raising the channel bed) would not only increase recharge by increasing the frequency of overbank flows, but would also reclaim (increase) aquifer storage by reducing the depth to which the water table is lowered by drainage to the channel during the spring recession."		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-094	C	PM	Projects and Management actions implementation, suggested edit to plan		4	32	4.4	1009	Discussion of the "High Mountain Lakes" PMA neglects to mention many factors which make this idea not feasible. This PMA should also mention the Wilderness Act which is likely to substantially restrict what can be built in designated Wilderness Areas and the construction methods that would be allowed. Given these legal constraints, in addition to other factors like the aesthetic concerns and a lack of road access, we think that high mountain lakes are unlikely to be a feasible means of meaningfully increasing surface supply and therefore recommend that effort be places into other PMAs. We recommend adding the following sentence: "DWR (1991) recommended against developing mountain lakes as water sources to augment Scott River flows because there were not enough benefits to offset all the negative aspects which include aesthetic concerns in addition to access, logistical, and legal constraints." The exact quote from DWR (1991) was: "Under present law no development inside a wilderness area is permitted. Special legislation may be required to implement this alternative. Second, access and construction methods may make many of these enlargements impractical. Third, while these enlargements may benefit the individual creeks, their cumulative impact on the Scott River is difficult to judge. Water would enter the river from seven different tributaries distributed over the entire Scott Valley. It would not be a concentrated water source. Fourth, it would be difficult, or impossible, to coordinate releases from the 29 lakes to maximize the benefit to the Scott River fishery. Fifth, enlarging the lakes may disturb their natural aesthetic value. DWR does not recommend developing these lakes for water sources to augment the streamflow of the Scott River. There are not enough benefits to offset all the negative aspects of this alternative."		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-095	C	PM	Projects and mangement actions - offstream reservoir		4	33	4.4	1012	We support evaluation of surface reservoirs as means to augment water supply and river flows, if such reservoirs can be constructed in a way that minimizes impacts to fish habitat and would result in meaningful increases in river flows. An off-stream reservoir is particularly appealing. In watersheds like the Scott River that currently have little surface storage, the changes in runoff timing expected to occur with climate change will make surface storage even more important in the future than it is now.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-096	C	PM	Projects and Management actions - clarification requested		4	33	4.4	1043	The "Sediment Removal and River Restoration" PMA is summarized as: "A river restoration project to remove significant sediment from the main stem Scott River from Fort Jones to the mouth of the canyon is envisioned to improve in-stream flow, channel geomorphology, and habitat for fish." We are extremely skeptical of this PMA. Please either provide additional information including a more detailed rationale, citation, and project proponent, or delete this PMA. What is the physical mechanism by which removing sediment could improve instream flow (wouldn't removing sediment cause further incision which would further reduce aquifer storage capacity)? Wouldn't removing sediment decrease floodplain connectivity and be counter to the "Floodplain Reconnection/Expansion" PMA? What specifically is meant by "improve channel geomorphology" (that is vague and could be interpreted many different ways)?		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-097	C	PM	Projects and Management actions		4	33	4.4	1052	We support the Strategic Groundwater Pumping Curtailment PMA. This would be particularly valuable in drought years when there is limited water available for MAR/ILR.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-098	C	PM	Water mastering		4	34	4.4	1069	We strongly support a properly designed and implemented Watermaster Program; whoever, we have serious concerns with the lack of transparency with the current Scott Valley and Shasta Valley Watermaster District program. Watermastering should be returned to the State of California, implemented basinwide, with well-organized publicly accessible records of diversions.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-099	C	PM	Projects and management actions - suggested edit to plan, data accessibility		4	35	4.4	1126	The "Well Inventory Program" section does not mention anything about data management. The results of this inventory should be made publicly accessible.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-100	A	PM	Projects and management actions - well metering, data transparency		4	35	4.4	1135	Regarding "Voluntary Well Metering," we understand the political sensitivity of well metering, but it seems like the first step is good management is measurement and transparency. At least some subset of the wells should be mandated to be metered. Examples could include the largest wells, or new wells drilled after the passage of the SGMA legislation or after adoption of the Scott Valley GSP. How can existing ordinances, such as the prohibition on the use of groundwater for cannabis production or the requirement for permits being needed for inter-basin transfers of groundwater, be enforced without the well metering? The lack of metering requirements suggests a lack of transparency, which further suggests a lack of will to actually manage groundwater extraction.	MCR-25	
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-101	C	GE	Implementation, annual reporting, data accessibility		5	4	128	128	The Annual Reporting section does not clarify if the data presented will be figures or actual tables with numbers. The report should include electronic appendices with easily accessible data, so others could run their own analyses on the data.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-102	B	HM	SVIHM, Implementation		5	9	5.1.1	Figure 1	The Figure 1 flow chart says "Model update and calibration using new data (annually for the first five years)". Is it really feasible and desirable to re-calibrate the model every year? That seems like a lot of work for an unclear benefit. Wouldn't it be better to re-calibrate every two to five years rather than every year? There are certainly improvements we'd like to see in the model, and we'd rather have the GSA focus on incorporating these refinements rather than just re-calibrating the model with additional years. These model refinements are described in more detail in a separate comment document (not in this comment form), but are briefly summarized here: 1) use a better method for filling the large gaps in tributary inflows (e.g., considering other model types beyond linear regression, and using Salmon River gage as an alternative to the Scott River gage for filling tributary data gaps at least for some months and/or sites), 2) incorporate fall/winter stockwater diversions, 3) shorten the MODFLOW model timestep to something shorter than a month, 4) do a sensitivity analysis to quantify how sensitive modeled outflows are to tributary inputs (especially during September and October).		

Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-103	C	HM	Clarification requested, Model validation		App 2-a	7-10	5.1.2		This section refers to comparing SVIHM modeled outflow from the river flow observed at the USGS for the 2012-2018 period as “validation” because the model was not recalibrated for this period. However, this section fails to note that this is not a truly independent validation because the largest input to the model is tributary flow, which for the 2012-2018 was 100% estimated (i.e., no tributary gages) based on regression with measured flows at the USGS gage at the outlet of the valley. That same USGS gage is then used to “validate” the model’s predicted outflows. To be clear, it is not the act of comparing the model predicted outflows to the gaged flows that we object to (indeed, those are the only flow data that are available); however, we assert that when these comparisons are presented it should be clearly noted that these comparisons are somewhat circular and not truly independent.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-104	C	GE	General Comment		App 4-a				This appendix presents a lot of great information in an accessible format. We appreciate the maps and graphs showing effects by month.		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-105	C	PM	Suggested edit to plan		App 4-a				It would be good to also include the Summary Table somewhere in the main text of the GSP rather than solely having it be in the appendix. In addition, the column headers in summary table should be revised to clarify if Sep-Nov means Sep 1-Nov 30 or Sep 1-Nov 1 (i.e., see comment regarding caption of Figure 2 on page 63 of Chapter 3, Section 3.4.5.1).		The Summary Table includes simulations that don't directly correspond to most of the PMAs; for this reason it is considered to be only a reference and not an actual recommendation, so it is included only in the Appendix and not in the text itself.
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-106	C	PM	Suggested edit to plan		App 4-a		Slide 23		“Restrictions on tributary flow diversions for irrigation at low FJ flows” Since the SVIHM only includes diversions for irrigation, ignoring the considering fall/winter diversions for stockwater, this scenario should be renamed to clarify that it is regarding irrigation diversions only (i.e., not stockwater).		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-107	C	HM	Clarification requested				Slide 25		The irrigation efficiency scenarios “…assume an unspecified change in irrigation equipment that results in either an increase or decrease in irrigation efficiency on all irrigated fields.” Wouldn’t it make more sense (i.e., more realistic), to instead have the efficiency increase or decrease depend on the current efficiency of the field? For example, assume all fields with flood irrigation (currently assumed in SVIHM model as 70% efficient [Foglia et al. 2013]) and wheel-line sprinkler (currently assumed in SVIHM model as 75% efficient [Foglia et al. 2013]) were upgraded to 90% efficient center pivot sprinklers? Or maybe that should be added a new scenario?		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-108	C	GE	Clarification requested				Slide 8		This slide defines the Sept-Nov period as “Critical dry window, Sept. 1 – Nov. 30”, which seems to contradict other places in the GSP. For example, “Sep 1 to Nov 1” in caption of Figure 2 on page 63 of Chapter 3, Section 3.4.5.1. Given that the model’s primary time scale is monthly, the correct time period is probably Sept. 1 – Nov. 30, right?		
Riverbend Sciences on behalf of Tribes of the Klamath Tribal Water Quality Consortium	TC-109	C	PM	Clarification requested						The slide describing the “Alfalfa irrigation schedule change” scenarios states “Would presumably involve an incentive or compensation program (a back-of-the-envelope estimate of the value of the 3rd cutting of alfalfa is approximately $7.5 million).” Can you provide any more information on the justification for that estimate? This seems somewhat high given that the Siskiyou County annual crop report (https://www.co.siskiyou.ca.us/sites/default/files/fileattachments/agriculture/page/4581/agd_2020 0909_2019_cropreport.pdf) reported the total value of countywide field crops (including alfalfa but also other crops such as wheat, barley, pasture, etc.) as $86 million in 2019. Scott Valley is just one (though perhaps the largest?) of the alfalfa growing regions within the county and two cuttings of alfalfa would still occur under these scenarios.		
Theodora Johnson, et al.	TJ-001	C	GE	General Comment						Please note, comments were submitted on the first draft of the GSP by the abovementioned 42 commentors. Most of these individuals are Scott Valley farmers and ranchers who will be directly affected by this GSP. Yet, our comments were largely ignored in the latest iteration of the GSP. The below comments are largely copied and pasted from the original comments. One thing, however, is different in this draft: our name. Scott Valley is called just that—Scott Valley, not “Scott River Valley.” Please remove all such references. Renaming our valley is an insult to our residents and an erasure our history. A primary goal of this GSP should be to preserve and protect agriculture. The people who live in Scott Valley love it. Why is this place so special? It’s beautiful, clean, rural, and safe. We know our neighbors because we’ve been able to establish deep roots in agriculture. Without agriculture, what would Scott Valley be? We have an obligation to allow our kids the opportunity to pursue the productive and honorable trade of agriculture, just as we have. The importance of agriculture to our nation’s health and security need not be explained. Yet we must recognize that, on a local level, agriculture is just as crucial. We must protect it in order to preserve Scott Valley as we know and love it. Benefiting agriculture and fish can be done by increasing our water supply—or, more appropriately, holding onto our water supply. During 7 to 10 days of high spring flows, enough water flows out of the valley to supply all of Scott Valley’s farmers and ranchers with the water they need for the whole irrigation season. We must implement water storage projects, both above- and below-ground, in order to hold onto that water. This will benefit ALL beneficial users in Scott Valley. Any project that puts increased regulatory burden on agriculture should not be considered in this plan. SGMA does not require punitive measures; the law simply asks the GSA to address groundwater quality and supply issues. Water storage measures are included in SGMA and therefore are attainable.		Comment noted. Scott River Valley Groundwater Basin is the name used by DWR in Bulletin 118. The in-text references have been changed to "Scott Valley" and the name used by DWR in Bulletin 118 is included in a footnote.
Theodora Johnson, et al.	TJ-001 (contd.)	C	GE	General Comment						Proposals to turn off pumps and repurpose land away from agriculture will do damage to our economy, culture, and environment. Fallowed fields generally make bad neighbors: hotbeds for noxious weeds and fire danger. The more we discourage farmers and ranchers from being productive, the more we invite subdivisions and urban sprawl. Also, by discouraging above-board productivity, we inadvertently encourage below-board, illegal activities such as marijuana cultivation, which is dangerous to our citizens and damaging to our environment--including water quality. Furthermore, adding damaging regulations will invite a “snitch” culture where people turn in their neighbors for trying to be productive, care for their land, and provide for their families. Regulations that go against human nature will only cause conflict. We who live in Scott Valley must stand firm against any proposals to divide us and transform our landscape and culture away from agriculture. Again, SGMA allows for a wide variety of projects and management actions and does not mandate the use of punitive regulations. Please see the attached flyer that has been circulating with Scott Valley residents since mid-April. It encourages water storage, groundwater recharge, fish-friendly structures, and other projects and opposes well metering, fees and fines for water use, and forced pump turn-off dates. It’s been stated by more than one member of the Advisory Committee that this GSP development process “felt like a runaway train.” Productive ideas that have had support from almost the entire committee—if not the entire committee—have been given very little attention by the Tech Team. It’s time to put this plan back on track so that it suits the needs of Scott Valley.		Noted.
Theodora Johnson, et al.	TJ-002	C	GE	General Comment		ES	8			**As noted above, we lose most of our water as flow down the river and to the ocean:** “Annual outflow from the Basin occurs largely as Scott River flow exiting the Basin to the northwest (ranging -689 to -85 TAF, median of -292), though a significant portion leaves as ET (-130 to -90 TAF, median of -112).”		

Theodora Johnson, et al.	TJ-003	C	PM	Management Actions - Implementation and Prioritization		ES	11			This GSP relegates our most promising water storage projects to “Tier III” implementation—meaning “Additional PMAs that may be implemented in the future, as necessary 284 (initiation and/or implementation 2027–2042).” Meanwhile, “Tier II” projects have concrete plans to start right away. One of those projects, “voluntary managed land repurposing,” is problematic for Scott Valley. Removing ag land from the equation means our kids will have lower chances of continuing our farming and ranching tradition. What will take its place?		
Theodora Johnson, et al.	TJ-004	C	GE	GSP Development, public outreach		1	6			“Consensus building is a foundational principle of all committee discussions, and membership is intended to reflect the diversity of beneficial groundwater uses and users in Scott Valley.” **Comment: It can't be said that every PMA listed has consensus among AC members. On numerous occasions, members of the irrigation ad hoc committee have voiced their disapproval of proposals to turn off pumps, yet that option remains in the plan.** **Furthermore, the Tech Team held separate “ad hoc” committee meetings but never provided the full AC with an opportunity to meet in-person to find common ground. The subcommittees seemed to be working in silos.** **To the question of whether the AC represents the diversity of Scott Valley, it should be noted that cattle producers are not represented on the Committee, even though they represent a sizeable portion of the valley’s economy, affected land area, and culture.**		
Theodora Johnson, et al.	TJ-005	C	PO	C&E Plan, Public Outreach		1	7			“The final section of the C&E Plan describes outreach strategies which the local GSA employs to effectively advance SGMA implementation. Specific tools and forums include the following: • Advisory committee meetings • Constituent briefings with local organizations • Tribal engagement • Public meetings and workshops • GSA Board meetings • Coordination with local resource conservation districts • Coordination with state and federal agencies • Integration of relevant studies and materials • Interested parties list • Informational materials • County SGMA website • Local media and public service announcements” **Comment: The listed public outreach goals have, unfortunately, not been met. A very important group of stakeholders—landowners who use enough water to be affected by SGMA regulations—has been largely unaware of the GSA’s activities to date, and until very recently has not been educated about SGMA. “Broad stakeholder input and feedback” has not been happening, at least among Scott Valley’s farmers and ranchers.** **The excuse of “COVID” should not prevent our affected stakeholders from having meaningful engagement in this process. Zoom meetings led by the Tech Team do not constitute an open, accessible forum for most farmers and ranchers. Most of the “meetings” were held in the middle of the work day. In-person meetings should be held, at times convenient for farmers and ranchers.**		
Theodora Johnson, et al.	TJ-006	C	GE	Suggested edit to plan		2	37			“The [Scott Valley Area Plan] includes multiple goals and policies that align with those in the GSP. Specifically, the focus on managing growth in a sustainable way while protecting priority agricultural lands and natural resources is an overarching theme in both the SVAP and the GSP.” **Comment: The SVAP is explicit about protecting agricultural land. The GSP draft should explicitly protect ag, as well. (This comment was also made in the first draft, which means “agriculture” was deliberately left out. Why?)**		
Theodora Johnson, et al.	TJ-008	C	GD	Affected species, beneficial users		2	42			“The Valley and headwater tributaries of the mountains surrounding Scott Valley provide key spawning and rearing habitat for native anadromous fish species, including Oncorhynchus tschawytscha (Chinook salmon), Oncorhynchus kisutch (coho salmon) and Oncorhynchus mykiss (steelhead trout). Coho salmon in the Southern Oregon Northern California Coast Evolutionary Significant Unit (SONCC ESU) are listed as threatened at both the federal and state levels (NCRWQCB 2005).” **Comment: It should be noted that the Scott has never been prime habitat for coho. We are at the very bottom of the coho’s natural range. Coho are harvested in great numbers off the coast of Alaska. This assertion is supported by the Shasta Indian tribe, which has stated that the Klamath (and by extension the Scott) is, “since time immemorial,” historically unfit for coho. Additionally, a CDFW publication from 2007 refers to coho as a coastal fish that doesn’t like to spawn farther than 20 miles inland (California Finfish and Shellfish Identification Book - a companion guide to the California Fishing Passport, California Department of Fish and Game, 2007).** **It should further be noted that the Chinook is also harvested commercially in the northern Pacific.** **Both Coho and Chinook populations are affected by many factors, such as gill netting (some Yuroks say they “don’t know how a single fish gets up the river”); predation at the mouth of the Klamath; oceanic decadal oscillation; and more. This SGMA process must not be used as a weapon to target groundwater pumping when in fact many variables affect these species.**		Scott River has been identified as a major salmon spawning tributary (see Knechtle 2021, as referenced in Chapter 2 of the GSP, and coho salmon numbers from Scott River Fish Counting Facilities and CDFW spawning surveys from previous years). Additionally, CDFW identifies Scott River Watershed as a priority area for coho salmon recovery (https://wildlife.ca.gov/Conservation/Watersheds/Instream-Flow/Studies/Scott-Shasta-Study). Text has been added to highlight that there are numerous factors that can effect coho and Chinook salmon populations and the list of factors discussed is not exclusive.
Theodora Johnson, et al.	TJ-009	B	GD	Suggested edit to plan, Comment on ad hoc committee organization		2	76			“Identification of Groundwater Dependent ETJystems”. This section is troubling. No agricultural members of the Advisory Committee were invited to join the “Surface Water” subcommittee that helped create this section. Nor were ag members given a very clear picture of what the Surface Water subcommittee was doing. Meanwhile, the Surface Water subcommittee was doing some pretty major things: “The group was created to assist with the identification of high-priority habitat, define a healthy hydrologic system in the Basin, and define metrics indicative of eTJystem health to assist in the definition of measurable objectives, undesirable results, and associated monitoring activities.” Clearly, these important aspects should have had the entire Advisory Committee’s consultation. This does not appear to have been the case. It seems the drafters of the GSP expected some blowback on this. On page 81, the GSP states, “A total of seven meetings [of the Surface Water subcommittee] were held between February 2020 and March 2021.” No other subcommittee meetings were documented this way in the GSP. This seems to be an attempt to legitimize the somewhat cover-of-darkness process by which this section was developed. Some details about GDEs that should be addressed are: -Maps: Presence of a GDE on one’s property seems as though it could have real ramifications. The GDE map on p 81 lacks any detail. Landowners should be able to see whether they are a target of extra scrutiny. -In two instances (western pond turtle and yellow-legged frog, p 85), the language points explicitly to “groundwater pumping” as potentially damaging. This is inappropriate. The main threat is drought. Placing blame on pumping implies the GSA’s intent to curtail pumping. This is not necessary; we should pursue supply-side projects, which would alleviate the potential threats to these species.		
Theodora Johnson, et al.	TJ-010	C	WB	Sustainable Yield, Future Groundwater Pumping		2	131			“For the Scott Valley, the sustainable yield is equal to the 28 year average groundwater pumping of 42 thousand acre-feet per year minus any future reduction in groundwater pumping resulting from the implementation of project and management actions (see Chapter 4)…” **This should be removed. Reductions of groundwater pumping should not be part of the GSP. As noted in numerous instances, there is no overdraft of water in Scott Valley, unlike some other basins developing GSPs. (Example: “Historical water levels indicate that there is no overdraft and no long-term decline in water levels” in Scott Valley (Ch 3 p 41).)**		
Theodora Johnson, et al.	TJ-011	C	MN	Monitoring and data gaps		3	25			“The GSA plans to collaborate with other entities to add monitoring locations to fill data gaps.” **Comment: The GSA should make clear that it will only accept verifiable data. Trust could become an issue for the public with the GSA accepting data from third parties.**		
Theodora Johnson, et al.	TJ-012	C	IS	streamflow depletion reversal		3	59			“that is, what is an “unreasonable” amount of streamflow depletion, which could be reframed as: what is a “reasonable” amount of avoided groundwater use?” **Comment: The latter question is flawed. Streamflow depletion reversal should be achieved by adding water to the equation, not by cutting back on current use (unless voluntary irrigation efficiencies are made).**		

Theodora Johnson, et al.	TJ-013	C	PM	Management Action		3	60			"The MAR-ILR scenarios, once fully implemented, provide a relative streamflow depletion reversal that averages 19% during September–November…" **Comment: I support this PMA but I am concerned 19% may be a high estimate. How many of the landowners in the proposed areas have been contacted to see if it will work for them? Also, more detailed maps than what's available in Appendix 4a would be helpful.**		
Theodora Johnson, et al.	TJ-014	B	IS	SMC definition, Suggested edit to plan		3	61			"The average relative stream depletion reversal of the implemented PMAs during September–November must exceed 15% of the depletion caused by groundwater pumping from outside the adjudicated zone in 2042 and thereafter." **Comment: Since this self-imposed percentage is in bold and is so specific, the GSP should give a brief explanation of how it was arrived at.**	MCR-4	The revised plan, in chapter 3, explains in more detail than the draft plan how the minimum threshold was arrived at. Also see MCR-4.
Theodora Johnson, et al.	TJ-015	B	IS	SMC Definiton, PMA		3	61			**These five-year goals for stream depletion reversal (5% by 2027, 10% by 2032, 15% by 2037) may need to be revised in order to accommodate the less expedient but more beneficial supply-side projects, such as reservoir-building and MAR/ILR.**		
Theodora Johnson, et al.	TJ-016	C	PM	Management Actions		3	64			"This explicit linkage between the measurable objective with the aspirational watershed goal also provides flexibility for compliance with potential future regulations or actions, in an integrated water management approach." **Comment: Agreed. As such, we should be proposing projects related to water storage, groundwater recharge, and instream structures to slow the flow. Regulatory hurdles, while inevitable, should not be used as a reason not to pursue these worthy projects. They are they only projects that will help achieve our groundwater goals without doing economic harm to a large swath of Scott Valley's farmers and ranchers.**		
Theodora Johnson, et al.	TJ-017	C	PM	Management Action		3	66			"Seasonal pumping restrictions in the non-Adjudicated Zone. • Voluntary pumping restrictions in the Adjudicated Zone. • Conservation easements that would limit irrigation in some or all water years." **Comment: These demand-side "solutions" will likely have undesirable results for Scott Valley's economy and environment and should be removed. Pumping restrictions will result in economic hardship, which could result in the forced sale of farms and ranches. Those properties would be divided into the smallest possible acreages, resulting in a denser population. Pressure would inevitably mount to revise the SV Area Plan to allow prime ag land to be subdivided into smaller pieces.** **Fields that are not watered will be overtaken by invasive weeds (dyer's woad, star thistle, etc). Therefore, ranches with conservation easements for non-irrigation will become bad neighbors: weed factories and fire hazards. (Note: language throughout Appendix 4a indicates that non-irrigated land will return to "native vegetation." This is not accurate. Circumstances have changed over the past 100 years: we have more drought and better drainage. "Native" vegetation will not reestablish itself. Without irrigation, invasive weeds will replace crops.)**		
Theodora Johnson, et al.	TJ-018	C	PM	Management Actions - Implementation and Prioritization, Funding		4	5			"Under the Sustainable Groundwater Management Implementation Grant Program Proposition 68, grants can be awarded for planning activities and for projects with a capital improvement component. As such, state funds for reimbursing landowners for implementation of PMAs, including land fallowing and well-shut offs, currently cannot be obtained under this program." **Comment: This funding issue speaks to the point that productive projects such as water storage should be pursued, while land fallowing and well shut-offs should be avoided.**		
Theodora Johnson, et al.	TJ-019	B	PM	Management Actions - Implementation and Prioritization		4	7			Table I PMA Summary Table. **Comment: Many promising ideas were proposed to the Tech Team to be included as Tier II or Tier III projects, with strong support from a sound majority of the Advisory Committee. Instead of including them in this table, those ideas were relegated to the last page of this report, with the reasoning that they "have not yet been investigated." Those proposals include: a study of the tailings for groundwater storage; recharge weirs; fish-friendly structures to decrease flow rates in Scott River and its tributaries; construction of a clay dam or permeable plug at the lower end of Scott Valley; and direct addition of water to the river during periods of low flow.** **It's hard to believe that none of these proposals have been investigated enough to put in the Tier II or III categories.** **Other PMAs listed in this table are addressed below.**		
Theodora Johnson, et al.	TJ-020	C	PM	Management action		4	13			"Avoiding Significant Increase of Total Net Groundwater Use from the Basin." **Comment: Although this MA does propose significant regulations on new wells, it may be appropriate to avoid overdrafts in the Valley. It embodies the principle of "first in time, first in right," which has long been used in California water law.**		
Theodora Johnson, et al.	TJ-021	C	PM	Management Action		4	13		**350**	"[No net increase in groundwater use] can be achieved through exchanges, conservation easements, and other voluntary market mechanisms." **The GSA should be mindful of unintended consequences. For example, a market exchange, which is explored in more detail on p 19, could in fact encourage urban development of ag ground.**		
Theodora Johnson, et al.	TJ-022	C	PM	Management action, Suggested edit to plan		4	19		**Cutout**	"Market instruments" cutout. **Comment: This troubling passage seems to encourage the conversion of ag land to urban development, because urban land uses less water. The example in the cutout even goes so far as to allow development of "natural lands" after a city buys out ag land—because now the city has "credits" for using less water than the ag land did. This entire section epitomizes tone-deafness and should be removed.**		
Theodora Johnson, et al.	TJ-023	B	PM	Management actin		4	21			"Beaver Dam Analogues." **Comment: this section should be expanded to include other fish-friendly structures to slow the flow of the mainstem and tributaries for aquifer recharge. This concept has the support of many landowners along the river. I am told that BDAs (in some form) were used on the mainstem of the Scott several years ago and that the project successfully raised the water table. This is not mentioned in the draft.** **Other fish-friendly structures could include inflatable bladders: rubber dams that can quickly be inflated or deflated as needed. Thousands of these are used all over the world, with decades of success. In some cases, aquifer recharge is the sole purpose (e.g., the Santa Ana Inflatable Rubber Dam Project, which supplies 100,000 Orange County residents with water each year.)** **Recharge weirs, while more permanent and potentially damaging to surrounding fields during high water events, are also used around the world to recharge aquifers. They can be designed to allow fish passage.**		The GSP does not exclude future expansion to the PMA list. If other structures to slow flow will be shown to be feasible, this PMA could be expanded to carry such projects.
Theodora Johnson, et al.	TJ-024	C	PM	Management Actions					**Ch 4 p 22**	Upslope water yield projects. **The "Green infrastructure" proposal is good and could be expanded. Clearing conifers, juniper, and brush all has potential to do good for the watershed, on both private and public land. By including such projects in this proposal, the GSA can encourage and partake in federal and private projects.**		
Theodora Johnson, et al.	TJ-025	C	PM	Management Action - Implementation and Prioritization		4	23			"Irrigation Efficiency Improvements". **Comments: As this PMA is fleshed out, the GSA should take care not to punish those who have already upgraded and invested in efficient systems, while antiquated systems get the grants. Perhaps the only fair way to go is a "First come, first serve" application system.** **This section merits more attention. While it claims that stream depletion is reversed by 4, 12 and -2 percent based on different scenarios, it doesn't describe what those scenarios are (nor does Appendix 4-A, which is referenced for more info). While irrigation efficiencies could hold potential for depletion reversal, this PMA seems to be glazed over when compared to more punitive options, such as pump turn-offs.**		

Theodora Johnson, et al.	TJ-026	C	PM	Management Actions		4	28		**Ch 4 p 28**	"Voluntary Land Repurposing". **Comment: This PMA should be used with extreme caution. From the perspective of a cattle producer, set-aside programs restrict the availability of pasture. Some would characterize term contracts, easements, etc. as "private decisions" by landowners. However, when government is offering incentives for such decisions, the concept of "free-market decisions" doesn't apply. Our local economy and culture will be affected in unforeseen ways when productive ag ground is set aside.**		
Theodora Johnson, et al.	TJ-027	C	PM	Management Action		4	28		**Ch 4 p 28**	"Irrigated Margin Reduction." **Comment: This is another example of a program that will require enforcement, and will likely result in citizen-police who turn in their neighbors for following their natural instinct of trying to be productive.**		
Theodora Johnson, et al.	TJ-028	C	PM	Management Action		4	29		**Ch 4 p 29**	"Crop Support: To support crop rotation, particularly for grain crops, access to crop support programs may be important to ensure that this option is economically viable." **Comment: This seems to rely on a federal program over which the GSA has no control. Rather than focusing on such weak possibilities, the GSP should focus on local, on-the-ground supply-side projects to increase the water table.**		
Theodora Johnson, et al.	TJ-029	C	PM	Management Action, Suggested Edit to Plan		4	29		**841**	"For example, a corner of a field may be well suited for wildlife habitat, or solar panels or water storage." **Comment: The concept of pivot corners as reservoirs was brought up by a local rancher and merits attention. "Wildlife habitat" is more likely to be noxious weeds, which farmers will have to try to beat back from encroaching on their crops. Solar panels would require considerable infrastructure at great expense. Ponds, on the other hand, are relatively inexpensive to build and could contribute to groundwater recharge.**		
Theodora Johnson, et al.	TJ-030	B	PM	Management Actions - Implementation and Prioritization		4	30			"Tier III: Potential Future Project and Management Actions". **Comment: Some of these PMAs should not be relegated to Tier III. "Potential future" PMAs sends the clear message that these projects are not priorities, even though they are the least damaging and most promising for actually increasing the water table. Although they may take time to implement, these PMAs should be acted on immediately. (Examples: High mountain lake storage; MAR/ILR; reservoirs)**		
Theodora Johnson, et al.	TJ-031	C	PM	Management action		4	30			"Alternative, lower ET crops." **This section may have some potential; however, funding dedicated to research on this topic should be minimal. Farmers and ranchers are quite aware of which crops have a market in our region. Assuming grants are in limited supply, we have plenty of other supply-side projects that merit funding.**		
Theodora Johnson, et al.	TJ-032	C	PM	Management Action		4	31			"Floodplain reconnection/expansion." **This section ties in with the concept of slowing the river/tributaries. For willing landowners, this holds potential to slow the flow and increase the water table. Conversations with landowners should be pursued. In this case, limited conservation easements may be appropriate.**		
Theodora Johnson, et al.	TJ-033	B	PM	Management Action Prioritization		4	32			"High Mountain Lakes - This potential project class supports the restoration or modification of high-altitude lakes…." **Comment: Rather than referring to this PMA as "potential," it should be pursued immediately. Also, is it possible to include what percentage of depletion reversal would be gained from the 3,500 AF of storage? Using the metric used on other PMAs would be helpful.**		
Theodora Johnson, et al.	TJ-034	B	PM	Management Action - Implementation and Prioritization		4	33			"Reservoirs….Still in the conceptualization phase, details of a reservoir project have not yet been confirmed." **Comment: This sentence insinuates a lack of interest in this PMA on the part of the GSA. This is perhaps the most promising PMA when it comes to benefits to all, and yet the topic is given one-half of one page in this chapter. Meanwhile, there are empty ponds and reservoirs that already exist in the valley, which could be used right away (albeit permitting may be required). As for potential future reservoirs, has anyone asked the landowners in those areas for their opinions? Why has this project been relegated to "Tier III" when all the most damaging options – turning off irrigation and repurposing ag ground—have had reams of research done on them?** **Several landowners have indicated they have ponds available. A survey should be conducted to assess how many existing ponds there are, and how many landowners would be willing to have new ones built on their land. Several locals have talked about using the dredger tailings and ponds to store even more water than they do now.**		
Theodora Johnson, et al.	TJ-035	C	PM	Management Action		4	33			"Strategic Groundwater Pumping Curtailment" **Comment: This section should be removed. This valley is not in an overdraft, and the GSP is on course to prevent that from happening without implementing any pump turn-offs. Including pump shut-offs as a potential future tool will result in pressure to use that tool. The mechanism should be removed entirely.**		
Warren Farnam	WF-001	C	SC	Basin Characteristics						The GSP lacks information (specifically wells, location, and area of use) delineating adjudicated from non-adjudicated groundwater use.		Some information on the adjudicated zone has been updated. No public information is available that ties specific wells to the adjudicated zone.
Warren Farnam	WF-002	C	GE	IHM, data incorporation						•Recent curtailments by the SWRCB should demonstrate to all water users in Scott Valley and the GSA the use of both surface and groundwater is intertwined both figuratively and regulatorily. Incorporating surface water data with diversions and use into the GSP will permit better modeling and successful recharge projects.	MCR-26	MCR-26
Warren Farnam	WF-003	C	GE	Economic analysis, implementation						From the start no economic analysis has ever been done by the county for acceptance of GSA responsibilities. This has resulted in no truth in cost of implementation of the GSP and potential incurred financial responsibilities for groundwater users.	MCR-26	MCR-26
Warren Farnam	WF-004	C	GE	Financial responsibility						No Flood Control District bylaws or policies have been developed that separates or incorporates financial responsibility between groundwater basins.	MCR-26	MCR-26
Warren Farnam	WF-005	C	GE	Economic analysis						The financial challenges are real and not easy to predict but some form of financial planning should have taken place and still needs to be addressed prior to submittal to the State. Good financial policies/bylaws should be determined for future guidance and risk aversion to potential litigation. This also creates a platform for transparency in the event fees are required.		Financial analysis has been implemented and is available in Appendix 5C.
Warren Farnam	WF-006	C	WQ	Monitoring						•Groundwater water quality data should have the option for field instrumentation for nitrate and specific conductivity rather than lab use every time. A simple threshold could require lab testing. Otherwise, field instrumentation is adequate and cost effective. Nothing in SGMA prevents this option for water quality monitoring.		Laboratory testing is preferred for accuracy.
Warren Farnam	WF-007	C	WQ	Monitoring efficiencies and costs						•Concern that the GSA will be required to compile multiple water quality results from many different entities. This is duplicative, costly, and inefficient. A solution would be to ask entities that take water samples forward them to the GSA upon exceedance of an MCL from an identified constituent of concern. To much data from too many locations, from different times, will be noisy data and provide little useful information as relevance to the GSP. It is important to note that a handful of users should not bear the burden of excessive data collection to satisfy other water quality programs.	MCR-26	MCR-26
Warren Farnam	WF-008	C	WQ	Monitoring costs						•The plan identifies areas such as "livestock unloading" for potential monitoring areas. Where is the correlation from groundwater extractor (thus fee payer) and livestock land use correlating to water quality? The data desire is there, but don't mix program requirements to the extent it becomes cost prohibitive or lacks other funding presenting a Prop 218 issue.		An explanation with respect to the specific groundwater quality risk associated with animal farming has been added.
Warren Farnam	WF-009	C	IS	IHM, SMC approach						The GSP doesn't explain well enough how gw elevation data is not useful as a tool for stream interaction from gw extraction. Further explanation is needed. Chapter three rather jumps to PMAs and pumping curtailments outside the adjudicated zone from surface flow measurements a great distance away (miles in most cases). A previous presentation to the Board of Supervisors surrounding the Public Trust Doctrine issue and well permitting talked about a model (developed by Larry Walker and Associates and Laura Foglia) that augmented an integrated hydrologic model of the Scott River area and created a Stream Depletion Function Map of the Scott Valley. This model is not perfect but why is this not utilized in chapter three?		The model has been used extensively in chapter 3, to develop the SMC for interconnected surface water.
Warren Farnam	WF-010	C	GE	Implementation and costs						•The GSP lacks an operational component. It appears to be set in a fashion that will continuously require hired consultation to update and operate. No mention of training, GIS requirements, or staff qualifications.	MCR-33	MCR-33

Warren Farnam	WF-011	C	HM	SVIHM						Does the GSA have the capability to use, update, and modify the SVIHM?In other words, is it an open GIS platform?		SVIHM was developed with public funding at a public university, and a version of it is currently publicly available on GitHub. The extended model period used for GSP scenario analysis is not yet finalized and is not yet currently available. In theory, once it is finalized and the updated version is made available on GitHub, it will be available to all to use. In practice, the skills necessary to run and alter the model may take some time to acquire, so the audience that can use it may be restricted by these skill barriers. The skills necessary to alter the model include: familiarity with USGS MODFLOW, with FORTRAN (for the soil water budget model [SWBM]), with ArcGIS or other spatial analysis tools (for land use changes or other spatial modifications), and with R or another scientific programming language (for extending the SWBM and MODFLOW input files, and for postprocessing the results into intepretable graphics).

SCOTT VALLEY GROUNDWATER SUSTAINABILITY PLAN
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Multiple Comment Response Directory Table

Key Topic/Comment	MCR Number	MCR Response
Water storage measures needed	1	Water storage measures will be considered under the proposed GSP.
Concerns raised that have been addressed in the GSP	2	GSP language includes measures to prevent stated concerns.
Proposed projects and management actions that will not be included in the current GSP	3	The proposed action will be considered as the GSP is being implemented. It does not require the current GSP to be modified.
Concerns about SGMA requirements for interconnected surface water not being met where the key driver is the public trust doctrine, and insufficient justification for the selection of the minimum threshold.	4	Case law does not support the assertion that the Public Trust Doctrine (PTD) requires a GSA generally, or a special act district acting in such capacity, to take specific actions with respect to public trust resources in the context of developing a GSP. Therefore, the consensus building of the Advisory Committee (AC) is a legitimate means of specifying an approach to considering the PTD, where the AC - consisting of a wide range of stakeholders - considered this MT to be a workable compromise between local economic interests, tribal interests, and environmental needs. The AC reviewed an economic analysis for the Scott Valley, written by UC Merced, which shows that a 30% cutback in pumping and production would have major economic consequences while not significantly achieving benefits that are larger than those of the proposed MT. The GSP further demonstrates, in chapter 3, what would be needed to achieve the CDFW proposed minimum instream flows: A complete retirement of all irrigated agriculture (groundwater and surface water) and active management of Scott Valley as a natural preserve. Under that scenario, some - but possibly not all - of the CDFW proposed minimum instream flows may be restored. The current instream flow recommendations by CDFW are unachievable without draconian economic measures.
This MCR has been removed	5	*This MCR has been removed.*
Clarification needed in identifying irrigation water source	6	Some irrigators use surface water early in the irrigation season, then switch to groundwater. Information was provided by the Groundwater Advisory Committee and local UC Cooperative Extension. See Foglia et al., 2013, 2018.
Quantification of ISW SMC (MT, MO) is lacking.	7	The location, quantity, and timing of the minimum threshold for depletions of interconnected surface water are defined numerically through the simulation results documented in Appendix 4A. Also see MCR-23.
Include the adjudicated area within the Basin (and/or surface water users) in the planning effort	8	California Water Code 10720.8 identifies the responsibilities of the adjudicated areas within a basin. Per 10720.8(a), other requirements of SGMA do not apply to adjudicated areas within a basin. Because the other requirements of SGMA do not apply, the GSA does not have to develop Measurable Objectives that achieve a sustainability goal for the portion of the basin in the Scott River Stream System. (Wat. Code, § 10727.2.) Without the requirement to achieve a sustainability goal for the portion of the basin in the Scott River Stream System, the GSA is not required to develop undesirable results for this area. (Wat. Code, §§ 10721(u), (w), (x).) Since the GSA has no jurisdiction in the adjudicated area, and since 10720.8 does not require the adjudicated area to address undesirable results, the statement remains correct. Nonetheless, all analysis, monitoring, and projects and management actions cover the entire basin, and the plan addresses impacts to interconnected surface waters and GDEs holistically for the entire basin.
Well construction data to be included with representative monitoring points, potentially affected groundwater users.	9	The Well Outage Appendix 3C indicates that little information is currently available to match wells with water level data to well construction information available from DWR. This has been identified as a data gap.
Public Trust Doctrine requirements - unlike SGMA requirements must be met before 2042.	10	The GSA operates under the SGMA and its associated regulations. SGMA clearly outlines a staged process to full compliance with the sustainability criteria by 2042. Furthermore, an extended implementation period for actions to protect public trust resources is not unprecedented: Several decades separate the Mono Lake court decision (National Audubon Society v. Superior Court (Supreme Court of California, 1983, 33 Cal.3d 419) from achieving its management (i.e., sustainability) goal, which has yet to be reached (https://www.monolake.org/learn/stateofthelake/).

SCOTT VALLEY GROUNDWATER SUSTAINABILITY PLAN
PUBLIC COMMENT SUMMARY – MULTIPLE COMMENT RESPONSE

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Key Topic/Comment	MCR Number	MCR Response
No monitoring described for measuring stream depletion due to groundwater pumping.	11	
DWR water level data clearly indicate long-term overdraft in the Basin.	12	The statement is a scientifically indefensible analysis that is inaccurate, misleading, and a gross misinterpretation of the excellent data available on the DWR SGMA Data Viewer. The GSP as well as analysis of water level data by UC Davis (2006-2018: https://ucanr.edu/sites/groundwater/files/153816.pdf; 2006 - current: https://ucanr.edu/sites/groundwater/Research/ScottValley/) clearly demonstrate a lack of year-to-year decline in groundwater levels, let alone year-to-year declines on the order of up to 2.5 feet. Water levels in Scott Valley are demonstrably seasonal and long-term stable, responding to long-term water-year type conditions (lower water levels during drought years and higher water levels in wet years). The extend of water level measurements - monthly measurements over a 12-year period in a monitoring network that achieves a density of more than 1 well per 3 square miles - far exceed the standards set by DWR and represent among the best characterized groundwater storage monitoring networks in the state.
SWRCB's environmental flows framework and the TNC Natural Flows database must be used to set minimum instream flows in the GSP.	13	The SWRCB Flows Framework and the TNC Natural Flows database are valuable resources. They are based on statewide statistical analyses. Scott Valley data from these models have not been calibrated against independently measured data obtained in Scott Valley. In contrast, SVIHM is a physically based model that honors the extensive range of data available for Scott Valley on land use, land management, hydrology, geography, climate, etc. Model development, calibration and sensitivity analysis has been documented, peer-reviewed, and published in well-respected scientific journals. The final GSP now includes a full validation of SVIHM (see Appendix 2D). Model uncertainties have been clearly identified. The main simulation findings provide valuable guidance and decision-support and are the best suited instrument for the assessments necessary to develop SMCs and PMAs. The SVIHM methodology conforms with a high scientific standard that fully conforms to SGMA requirements.
Include water quality data submitted to RWB by dairy operations.	14	Where available in public data repositories, the requested data has been included and the GSP's monitoring network meets and exceeds SGMA requirements.
Specific yield has not been defined/is ill-defined.	15	The GSP provides a full rationale for this definition of the sustainable yield. Also see MCR-22.
Future climate variations not appropriately accounted for.	16	The future climate models were prepared by DWR and used in accordance with DWR guidance.
SWB curtailment order needs to be reflected in a revised minimum threshold for surface water depletion due to groundwater pumping.	17	The SWRCB regulations at 23 CCR 875 et seq. identify “emergency minimum flows” and authorize the Division of Water Rights to curtail diversions where necessary to ensure Scott River flows are not reduced below the emergency minimum flows. In this regard, the emergency minimum flows serve as a target to guide the Division of Water Rights in determining whether to curtail diversions. These minimum flows do not apply outside this context such that local water use, and planning decisions must attempt to achieve the emergency minimum flows. Further, SWRCB's action only pertains to extremely dry years and/or is anchored in a governor's drought emergency declaration.
Stream depletion of surface water due to groundwater pumping must be monitored with instruments and not determined through a model.	18	The MT is directly tied to representative monitoring sites through the inclusion of streamflow monitoring networks, water level monitoring networks, climate monitoring networks, monitoring results from future research projects and others as the basis for developing and calibrating SVIHM at regular intervals during the implementation period, as outlined in detail in chapter 3.3.5.

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Key Topic/Comment	MCR Number	MCR Response
Low streamflow or low water levels occurring during the summer are anew after a period of much higher flows / water levels. Therefore, they must be considered "new" undesirable results under SGMA because they did not exist on January 1, 2015.	19	This interpretation of "new" is inconsistent with SGMA regulations and DWR guidelines. For example, Figures 3, 4, 7, and 11-14 in DWR's BMP 6 guidelines (https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/BMP-6-Sustainable-Management-Criteria-DRAFT_ay_19.pdf) all clearly identify cyclical "recurring" events rather than "new" events. The interpretation given here would require all GSPs to consider stream flow and groundwater level conditions at midnight on December 31, 2014, when SGMA came into effect. In the interpretation given here, any stream flow or water level lower than at that specific point in time would be "anew". In contrast, DWR's guidance is to consider a decadal to multi-decadal baseline period that defines the basin conditions prior to 2015 in wet, average, and dry years as well as seasonal variations typical for the basin. The GSP's findings are therefore fully consistent with SGMA regulations and DWR guidance.
Regulatory requirements under the TMDL Action Plan are not met.	20	The TMDL Action Plan does not specify any regulatory requirements with respect to said claim.
SGMA requires surface water quality monitoring in basins where groundwater discharges into (i.e., has an impact on) surface water.	21	CCR 354.28(c)(4) explicitly refers to "contaminant plumes" and "supply wells", indicating that groundwater quality must be monitored ("Degraded Water Quality. The minimum threshold for degraded water quality shall be the degradation of water quality, including the migration of contaminant plumes that impair water supplies or other indicator of water quality as determined by the Agency that may lead to undesirable results. The minimum threshold shall be based on the number of supply wells, a volume of water, or a location of an isocontour that exceeds concentrations of constituents determined by the Agency to be of concern for the basin. In setting minimum thresholds for degraded water quality, the Agency shall consider local, state, and federal water quality standards applicable to the basin."). Furthermore, in interpreting this regulation, DWR's BMP 6 guidelines (https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/BMP-6-Sustainable-Management-Criteria-DRAFT_ay_19.pdf) provide no indication that surface water quality monitoring is required where and when baseflow conditions occur. Also, with respect to surface water temperature, it is described as an undesirable result associated with low groundwater levels and storage, and insufficient baseflow. See Section 3.4.5.1.
Sustainable yield must be a single number, defined in acre-feet per year, to prevent undesirable results.	22	The undesirable results are prevented through the minimum threshold. The minimum threshold will be reached by implementation of PMAs that achieve the required level of reversal in streamflow depletion. To the degree that those PMAs require a future reduction in groundwater pumping, that amount of pump reduction must be subtracted from the current long-term average annual groundwater pumping, computed for the pre-2015 baseline period. By providing a definition of sustainable yield that is not a fixed number, but accounts for future PMAs in a well-prescribed protocol, the sustainable yield is specific and implicitly adjusts to the implementation of PMAs. The GSP's definition of sustainable yield is consistent avoids the possibility that a new pumper will claim the amount of pumping that was retired through a PMA elsewhere in the basin. This also provides for managed or in lieu aquifer recharge to not be added to the sustainable yield of the basin if that recharge is explicitly dedicated to the reversal of stream depletion. The approach is consistent with basin plans already approved by DWR (e.g., Oxnard, Mid-County Santa Cruz).
Consider the functional flows approach in the quantification of the minimum threshold and measurable objective for interconnected surface water.	23	The GSP has employed and makes reference to California's functional flow approach by quantifying changes in the timing of the spring recession, the amount of summer baseflow, and the timing of fall flush flows / reconnection, for attribution to groundwater pumping inside or outside the adjudicated zone or for attribution to all of irrigated agriculture, and also under future management scenarios. See Appendix 4A.

SCOTT VALLEY GROUNDWATER SUSTAINABILITY PLAN
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Key Topic/Comment	MCR Number	MCR Response
Using an average steam depletion reversal as a minimum threshold is not sufficient to prevent more adverse conditions some of the time.	24	As explained in the GSP, the average is used as a "label" to represent an entire future scenario, with daily and spatially varying streamflow, streamflow depletion, and streamflow depletion reversal over a minimum period of 28 years, as computed by SVIHM for specific scenarios (Appendix 4A). Furthermore, the average represents the relevant season for aquatic species from September to November (see page 12 in Appendix 4A).
Projects and management actions are insufficiently described.	25	The PMA chapter fully complies with SGMA regulations and DWR guidelines for preparing a GSP.
Comments reviewed and will not require further changes in the GSP.	26	Comment noted. No comment response required, and no document edits have been made.
Editorial comments and factual errors.	27	The document has been changed per the suggestion.
A management action is needed to avoid expansion of groundwater pumping that leads to additional consumptive use of water.	28	Siskiyou County is currently considering a revised well drilling permit.
Stockwater delivery should be more efficient to improve streamflow conditions.	29	We propose to add an assessment of options with respect to stockwater diversions as a PMA.
The benefits of higher irrigation efficiency on streamflow conditions are not clear.	30	We added clarification to the text.
NGO letter	31	This is a summary comment on the NGO Consortium letter: We appreciate the constructive comments. Unfortunately, the "Recommendations" mostly lack reference to specific pages, line numbers, tables, or figures in the GSP. In our response, we therefore consider the content of the entire GSP. The comment or recommendation may refer to a specific page or line but without knowing that information, we are unable to provide more specific responses in most cases. Therefore, unless stated in the response, reference to this MCR is meant to state that the requested information is in fact available in the GSP or has been referenced appropriately. We defer to the GSP Table of Content for finding the specific information.
Analysis of groundwater-dependent ecosystems is insufficient.	32	The GSA acknowledges the data gaps in the GDE analysis in Section 2.2.1.8 and outlines how to address them in Appendix 3-A. Additional text has been added to Section 2.2.1.8 and Appendix 3-A for clarity and an additional management action "Groundwater Dependent Ecosystem Data Gaps" has been added to Chapter 4. The GSA looks forward to working with CDFW to fill data gaps of local habitat in Scott Valley in the next 5 years for the next GSP update.
Implementation plan lacks details on how the GSA will operate after January 31, 2022.	33	The GSA will continue to be staffed with one person housed in the County Natural Resources Department. Collaboration with other entities will be sought. The GSA will apply for funding from DWR.

Table Key:
AC = Advisory Committee
BMP = best management practice
CDFW = California Department of Fish and Wildlife
DWR = Department of Water Resources
GDE = Groundwater Dependent Ecosystem
GSA = Groundwater Sustainability Agency
GSP = Groundwater Sustainability Plan
ISW = Interconnected Surface Water
MCR = Multiple Comment Response
MO = Measurable Objective
MT = Minimum Threshold
NGO = Non-Governmental Organization

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PMA = Project and Management Action
PTD = Public Trust Doctrine
RWB = Regional Water Board
SGMA= Sustainable Groundwater Management ACt
SMC = Sustainable Management Criteria
SWB = State Water Board
SWRCB = State Water Resource Control Board
SVIHM = Scott Valley Integrated Hydrologic Model
TMDL = Total Maximum Daily Load
TNC = The Nature Conservancy

Appendix 1-D Scott Valley Tribal Comment Summary

Scott Valley Groundwater Sustainability Plan

Tribal Comment Summary

January 2022

Prepared for:

Siskiyou County Flood Control and Water Conservation District

Prepared by:

Stantec Consulting Services, Inc.

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SCOTT VALLEY GROUNDWATER SUSTAINABILITY PLAN
TRIBAL COMMENT SUMMARY

January 2022

LIST OF TABLES

ABBREVIATIONS

Advisory Committee	Scott Valley Groundwater Basin Advisory Committee
CIN	Comment Identification Number
District	Siskiyou County Flood Control and Water Conservation District
DWR	California Department of Water Resources
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
Matrix	Comment and Comment Response Matrix
MCR	Multiple Comment Response
MOU	Memorandum of Understanding
SGMA	Sustainable Groundwater Management Act of 2014
Summary	Tribal Comment Summary

ATTACHMENTS

Attachment A – Tribal Correspondence

Attachment B – Annotated Tribal Comment Letters Received on Draft Groundwater Sustainability Plan

Attachment C – Scott Valley Groundwater Sustainability Plan Tribal Comment and Comment Response Matrix

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SCOTT VALLEY GROUNDWATER SUSTAINABILITY PLAN
TRIBAL COMMENT SUMMARY

January 2022

1.0 INTRODUCTION

This Tribal Comment Summary (Summary) describes the process used by the Siskiyou County Flood Control and Water Conservation District (District) Groundwater Sustainability Agency (GSA) to solicit, review, and respond to Tribal comments on the Draft Scott Valley Groundwater Sustainability Plan (GSP). This Appendix was developed pursuant to Section III Item vii of the Memorandum of Understanding (MOU) between the Karuk Tribe and the District.

The public review and notification processes were developed pursuant to the Sustainable Groundwater Management Act of 2014 (SGMA) and the California Department of Water Resources' (DWR) Groundwater Sustainability Plan Emergency Regulations, developed in May 2016.

This Summary serves to supplement Appendix 1-C – Comment Response Summary, which describes the process and tools used by the GSA to solicit, review, and respond to public comments on the Draft Scott Valley GSP. To read more about the public review period and the process and tools used to respond to public comments, refer to Appendix 1-C.

This Summary is comprised of the following four sections:

- Section 1 – Introduction: Section 1 provides an overview of the purpose and structure of the document.
- Section 2 – Notice and Communication: Section 2 describes the method by which the GSA notified Tribes within the plan area of the proposed plan and the resulting government-to-government consultation between the County and the Karuk Tribe. The notification letters, requests for consultation, and consultation meeting summary are included as **Attachment A** to this Summary.
- Section 3 – Tribal Comments: Section 3 provides an overview of the comment letters received from Tribes on the Draft GSP during the public comment period. The comment letters in their entirety are included as **Attachment B** to this Summary. This section also summarizes how the GSA reviewed and responded to the Tribal comment letters received during the public comment period, which is discussed in detail in Appendix 1-C. A copy of the tool used to categorize and respond to comments is provided as **Attachment C** to this Summary.
- Section 4 – Outcomes from December 3, 2021 Government-to-Government Consultation Meeting: Section 4 describes the outcomes of the meeting between the Karuk Tribe and the District on December 3, 2021. A full account of the meeting is provided in the consultation meeting summary which is included in **Attachment A**.

2.0 NOTICE AND COMMUNICATION

The GSA notified Tribes within the GSP area of its intention to adopt the GSP on August 11, 2021, which was at least 90 days before adoption of the Final GSP on December 7, 2021. This notification included a letter sent the Karuk Tribe, Quartz Valley Indian Community, Shasta Indian Nation, and Yurok Tribe. In addition to the letter, the public was notified about release of the Draft GSP via postings on the Siskiyou County website.

The GSA received an informal request for government-to-government consultation from the Karuk Tribe on September 7, 2021. The GSA and Karuk attempted to coordinate a meeting prior to the close of the public comment period on September 26, 2021, however, they were not able to find a time given the short window of opportunity. Subsequently, the Karuk Tribe submitted a formal request for government-to-government consultation on September 20, pursuant to Section III Item v of the MOU between the District and the Tribe. The GSA and the Karuk Tribe held a government-to-government consultation on December 3, 2021. An example of the notification letter sent to the Tribes, copies of the Karuk Tribe's requests for consultation, and the December 3 Consultation Meeting Summary are included in **Attachment A** to this Summary.

3.0 TRIBAL COMMENTS

The GSA received 3 comment letters on the Draft GSP from Tribes during the public comment period—see **Table 1** below. Copies of the comment letters received are provided in **Attachment B** to this Summary.

Table 1. Submitted Comments

Commenter Name	Date Comment was Received
Karuk Tribe	9/24/2021
Klamath Tribal Water Quality Consortium	9/24/2021
Quartz Valley Indian Community	9/24/2021

The GSA reviewed and responded to Tribal comments using the same process and methodology as comments received from other members of the public. The process is summarized here and detailed in full in Appendix 1-C.

Following the close of the public comment period, the GSA reviewed each comment letter to identify individual comments on the Draft GSP. To organize and manage the review of issue-specific comments, staff created a database, or matrix, that allowed for the categorization, grouping, and response to comments.

SCOTT VALLEY GROUNDWATER SUSTAINABILITY PLAN
TRIBAL COMMENT SUMMARY

January 2022

Of the three letters received from Tribes, GSA staff identified a total of 268 issue-specific comments for review and response. Each comment was assigned an individual comment identification number and entered into the database referred to as the Scott Valley GSP Comment and Comment Response Matrix (Matrix). GSA staff then used the Matrix to group technical or policy issues raised on the GSP, identify potential changes to the GSP to address comments, and develop comment responses. The portion of the Matrix pertaining specifically to Tribal comments is provided in **Attachment C** to this Summary. The full Matrix, which includes public comments and Tribal comments, is provided in Appendix 1-C.

Table 2 describes the types of information included in the Matrix.

Table 2. Scott Valley Groundwater Sustainability Plan Comment and Comment Response Matrix Columns

Matrix Column	Column Description
Author	Name of agency or organization that signed or submitted the comment letter.
Comment Identification Number (CIN)	Unique identifier assigned to each comment received. A single comment letter may contain multiple individual comments, each with its own comment identification number.
Multiple Comment Response (MCR) number	Comments that were similar in scope were grouped together based on the GSP sections or content they discussed. Each group of comments were assigned an MCR number, identified here.
Group	Comment grouping to facilitate structured review by Advisory Committee and GSA staff.
Sub-Category	Topic within the Draft GSP that the comment identifies with, describes, or otherwise raises questions about.
Description	Short description of the main topic or issues raised in the comment.
Code/Regulation	The code or regulation cited in the comment, if referenced.
Location in GSP	The chapter, page, and line number in the Draft GSP cited in the comment, if referenced.
Comment	Copies of the comment text directly from the comment letter.
Response/Recommended Action	Response or recommended action to address the comment.
Response Location in GSP	Location in Draft GSP text changes were made in response to comment, if applicable.

Key:
GSA = Groundwater Sustainability Agency
GSP = Groundwater Sustainability Plan

Comments of a similar nature were assigned a “Multiple Comment Response” or MCR. An MCR is a single response that applies to multiple comments of a similar nature. Draft MCRs pertaining significant technical and policy comments were shared with the Advisory Committee in advance of the Comment Response Workshop on October 27. Based on feedback from the

workshop, the MCRs were finalized and are included in **Attachment C** to this Summary. For more information about the workshop and the development of comment responses, see Appendix 1-C.

4.0 OUTCOMES FROM DECEMBER 3, 2021 GOVERNMENT-TO-GOVERNMENT CONSULTATION MEETING

The District and the Karuk Tribe agreed to several actions as a result of the government-to-government consultation held on December 3, 2021. First, GSA staff committed to providing a Tribal Comment Summary pursuant to the MOU. Second, the District agreed to amend the implementation chapter of the GSP to include specific language related to future coordination between the Tribe and the District. Third, both parties committed to future communication and collaboration with one another and agreed to meet in January 2022 as a first step, to outline the scope of the effort. As previously noted, a full account of the meeting and its agreements is provided in the Meeting Summary included in **Attachment A** to this Summary.

Attachment A – Tribal Correspondence

COUNTY OF SISKIYOU

Flood Control and Water Conservation District

P.O. Box 750 □ 1312 Fairlane Rd
Yreka, California 96097
www.co.siskiyou.ca.us

(530) 842-8005
FAX (530) 842-8013
Toll Free: 1-888-854-2000, ext. 8005

August 10, 2021
Attn: [Recipient]

Subject: Notice of Upcoming Hearing for Adoption of Groundwater Sustainability Plans

Dear [Recipient],

This letter is intended to provide the [Recipient] with notice of the Siskiyou County Flood Control and Water Conservation Districts (District) proposed adoption of a Groundwater Sustainability Plan (GSP) pursuant to California Water Code (CWC) section 10728.4. As required by the Sustainable Groundwater Management Act (SGMA) of 2014 (CWC §10720 et seq.), the District, acting as the Groundwater Sustainability Agency, must provide notice to a city or county within the area of the proposed GSP at least 90-days prior to holding a public hearing to adopt the GSP (CWC §10728.4).

The District has scheduled a public hearing to consider adoption of the Butte Valley, Shasta Valley and Scott River Valley GSP on December 7, 2021, at a time to be determined, during a meeting of the District, located in the Siskiyou County Board Chambers, 311 Fourth St, Yreka, CA 96097.

In accordance with CWC §10728.4, your city is eligible to request consultation with the District in advance of the public hearing. If you wish to consult with the District regarding the adoption of its GSP, please provide notice within 30 days of receipt of this letter.

You may also submit comments on the GSP during the scheduled public comment period. All relevant material, including instructions for commenting, can be found in a downloadable pdf format on the District's website at the following link: https://www.co.siskiyou.ca.us/naturalresources/page/sustainable-groundwater-management-act-sgma

If you have any questions, contact Matt Parker, Natural Resources Specialist at (530) 842-8019, or mparker@co.siskiyou.ca.us. This letter was approved by the Siskiyou County Board of Supervisors on August 10, 2021 by the following vote:

AYES: Director Criss, Kobseff, Valenzuela, Ogren and Haupt
NOES: None
ABSENT: None
ABSTAIN: None

Sincerely,

Ray A. Haupt, Chair
Siskiyou County Flood Control and Water Conservation District

Karuk Community Health Clinic
64236 Second Avenue
Post Office Box 316
Happy Camp, CA 96039
Phone: (530) 493-5257
Fax: (530) 493-5270

Karuk Tribe

Karuk Dental Clinic
64236 Second Avenue
Post Office Box 1016
Happy Camp, CA 96039
Phone: (530) 493-2201
Fax: (530) 493-5364

Administrative Office
Phone: (530) 493-1600 • Fax: (530) 493-5322
64236 Second Avenue • Post Office Box 1016 • Happy Camp, CA 96039

September 7th, 2021

Ray Haupt, Chair
P.O. Box 750
1312 Fairlane Road
Yreka, CA 96097

RE: Government to Government Meeting Request; Comments Sustainable Groundwater Management Plan

Ayukîi Supervisor Haupt:

The Karuk Tribe appreciates the efforts of you and the County of Siskiyou to develop Sustainable Groundwater Management Plans for the Scott and Shasta Valleys. Groundwater use impacts stream flows and fisheries habitat critical to the survival of salmon, steelhead, lamprey and other species the Karuk rely on not only for our sustenance but our cultural identity as well. Therefore, we are very interested in the development of a Sustainable Groundwater Management Plan for the Scott and Shasta Valleys.

We are writing to request an informal consultation meeting pursuant to the Memorandum of Understanding (MOU) between the Siskiyou County Flood Control and Water Conservation District and the Karuk Tribe, Section III (v). the purpose of the meeting is to discuss the timeline for comments on the draft Sustainable Groundwater Management Plan and specific concerns with the Plan.

As per the MOU, we would like to convene two elected offices from the County and the Tribe along with pertinent staff. Current COVID protocols are such that an electronic teleconference would be most appropriate.

Barbara Snider is the Tribal Council executive secretary and can work with a designated counterpart from the County to arrange meeting details. Barbara can be contacted either via phone, (530) 493-1600 extension 2036, or email bsnider@karuk.us.

Yootva,

Russell "Buster" Attebery
Chairman

Enclosure: Memorandum of Understanding between the Siskiyou County Flood Control and Water Conservation District and the Karuk Tribe

Karuk Community Health Clinic
64236 Second Avenue
Post Office Box 316
Happy Camp, CA 96039
Phone: (530) 493-5257
Fax: (530) 493-5270

Karuk Tribe

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Fax: (530) 493-5364

Administrative Office
Phone: (530) 493-1600 • Fax: (530) 493-5322
64236 Second Avenue • Post Office Box 1016 • Happy Camp, CA 96039

October 20th, 2021

Ray Haupt, Chair
PO Box 750
1312 Fairlane Road
Yreka, CA 96097

RE: Government to Government Meeting Request

Ayukîi Supervisor Haupt:

On September 7, 2021, pursuant to section III. (v.) of the Memorandum of Understanding (MOU) between the Siskiyou County Flood Control District (District) and the Tribe signed in March of 2020, the Tribe transmitted a request for an informal consultation meeting to discuss "the timeline for comments on the draft [Scott and Shasta] Sustainable Groundwater Management Plans and specific concerns with the Plan."

District staff communicated by email that there were no available meeting times to meet our request prior to the deadline for comments on the draft Plans.

On September 24, 2021 the Tribe received a letter from the District offering to meet with the Karuk Tribe. However, one of our key issues was the deadline for comments. Because the District did not release all of the 600+ pages of technical information used to develop the draft Plans when the draft Plans were released, it was difficult for Tribal staff and consultants to prepare thorough comments. By failing to meet with the Tribe in a timely manner, the District provided no opportunity to resolve issues arising from the development of the Plans.

Because our issue was not addressed or resolved in a timely manner consistent with section III. (v.) of the MOU, the Karuk Tribal Council invites the District to participate in an official Government to Government consultation meeting that would include a majority of the Karuk Council and the District Board and held in accordance with the Ralph M. Brown Act pursuant to section III. (vi.) of the MOU. The meeting will be held virtually due to COVID-19, please have appropriate staff contact Executive Secretary Barbara Snider to schedule at 530-493-1600 ext2036 or bsnider@karuk.us

The agenda of this meeting shall include a discussion of the ground water crisis the Plans are supposed to address, the consequences of failing to address the groundwater crisis, and our specific concerns with the draft Plans. Any unresolved issues in addition to our already filed comments shall be documented and forwarded to the District Board in accordance with Section III (vii.) of the MOU.

Yôotva,

Russell "Buster" Attebery
Karuk Tribe Chairman

Siskiyou County Sustainable Groundwater Management
Facilitated Meeting: County of Siskiyou/Karuk Tribe
MEETING NOTES

Friday December 3, 2021
9:00 – 11:00 AM

Meeting Objective: Siskiyou County Flood Control District (County) to listen to and discuss Karuk Tribe's concerns regarding the timeline for comments on the draft Groundwater Sustainability Plans (GSPs) and specific concerns with the GSPs in Scott and Shasta Valleys.

Attendees:

Karuk Tribe	County of Siskiyou	SGMA Technical Team	Facilitation Support
Russell "Buster" Attebery	Michael Kobseff	Laura Foglia	Katie Duncan
Archie Super	Nancy Ogren	Thomas Harter	Marisa Perez-Reyes
Robert Super	Natalie Reed		
Elizabeth Bentley	Aaron Ferguson		
Arron Hockaday	Matt Parker		
Renee Stauffer	Elizabeth Nielsen		
Darrel Aubrey			
Joshua Saxon			
Grant Johnson			
Craig Tucker			
Earl Crosby			

Agenda:
1. Welcome and Introductions
2. Opening Statements
3. Summary of Karuk Comments on the GSPs
4. Next Steps, Closing Remarks

Meeting Summary

1. Welcome and Introductions

The Karuk Tribal Councilmembers made self-introductions. Supporting staff to the Karuk Tribe made self-introductions. The Siskiyou County Flood Control District Board Members made self-introductions, followed by GSA supporting staff. The technical team made self-introductions, followed by the Stantec facilitator and note-taker.

The Karuk Tribe relayed that Anecita Agustinez, Tribal Policy Advisor to the Department of Water Resources (DWR), had been invited to join the meeting and may enter, later in the call. The County requested a five-minute recess to confer amongst themselves, regarding Anecita's role in the meeting.

Note that the recess was ten minutes long. Anecita Agustinez entered the meeting during the recess.

The County reported back that they are not prepared to move forward with the consultation with a third-party present, given the non-public meeting setting. Chairman Russel Attebery of the Karuk Tribe countered that the Memorandum of Understanding (MOU) between the County and the Tribe permits the participation of DWR as a third-party facilitator (Section III, Item IV). ["The Parties agree that each Party may request DWR facilitation services to ensure the Parties continue working together."]. The County contested whether Anecita Agustinez's participation would fall under Section III, Item IV of the MOU.

Anecita Agustinez requested permission to make a statement, which was denied by the County.

The Facilitator asked the Karuk Tribe if they would be willing to move forward with the consultation without Anecita's participation. The Karuk Tribe requested a recess to discuss the request. The Facilitator released the group for a ten-minute recess.

After a ten-minute recess, the Karuk Tribe conveyed that they were willing to continue the meeting without Anecita Agustinez, but wanted their disappointment with the meeting condition to be noted. Craig Tucker requested the note-taker add that the meeting was convened by the Karuk Tribe.

Darrel Aubrey confirmed that the Tribe received the August 10 Notice of Intent to Adopt and subsequently filed a request to meet with the GSA, on September 7. Darrel confirmed that the Tribe would like the summary of this consultation meeting to be made publicly available.

2. Opening Statements

Chairman Attebery shared that although the Tribe and the County have not always seen eye-to-eye, the Tribe has adopted the perspective of approaching the County with kindness. The Tribe has sustainably managed the environment for thousands of years. Given the current climate crisis and drought, the Tribe wants to meet to help sustainably manage the water for both farmers and fish. At this time, the Karuk feel that the SGMA process is a flawed process, because they have not been able to provide input. Instead of forming a GSA that includes the Tribes, the County formed an Agency that excluded Tribal participation. The Karuk feel that the Scott and Shasta Plans do a disservice to the people, make things worse, and create more conflict.

Director Kobseff shared the County's intention to welcome the Tribe and to work out differences where they can. He recognized that they haven't seen eye-to-eye in the past but wants to have a dialogue. The GSA wants to end water conflict in the region. He shared that in his 15-year history working for the County, he's championed projects and policies that benefit fish. Director Ogren shared her respect for the Tribes and expressed hope that they can work together to solve problems.

3. Summary of Karuk Comments on the GSPs

Craig Tucker shared that he was around when SGMA was passed into law, noting that California is far behind the rest of the Western states in regulating groundwater. Craig shared that when the legislation was passed, he advocated for the GSAs to involve Tribes like the Karuk. He noted that although the Tribes have really tried to be involved in the GSA, it has been extremely difficult for the County and the Tribe to just sit down and have a conversation. Given the obstacles they encountered on the front-end of the SGMA process, they developed this MOU with the County. Unfortunately, in the Karuk's perspective, the MOU has not worked. The Final GSPs were just released yesterday and the County is holding a public hearing to adopt on Tuesday.

Craig highlighted that there is not a separate appendix to the GSPs to share Tribal comments and responses to comments, which was a negotiated item in the MOU (section III, item vii).

Another issue the Karuk have with the GSPs relates to the topic of in-stream flows and the failure to define undesirable results. The Karuk are concerned about whether the Plans will pass muster at DWR. Craig noted that the GSA may be on a trajectory to giving away their authority to manage groundwater locally, which would certainly displease the constituents of the County. He contested that the GSA have been seating the Tribe "at the kids table" by only including them on Advisory and Ad Hoc Committees, rather than providing a governing seat on the GSA Board.

Craig asked, point-blank, if the opportunity to fix problems with the Plans exists or if it is set in stone and immutable prior to adoption. Matt Parker replied that the timeline is tight; he directed the question to the technical team.

Thomas Harter shared that the Scott and Shasta GSPs are among the most progressive in the State, regarding interconnected surface waters. These Plans are at the first step- they have more data to collect and projects to develop as implementation begins. The Minimum Threshold balances the interests involved. From a technical perspective, these plans represent the best possible path forward at this point. Craig Tucker said he would "agree to disagree" on Thomas's assertion about the Plans being among the most progressive. Craig believes that SGMA sets them on a trajectory toward Coho extinction, and the Chinook aren't far behind. SGMA is based on one of the worst water years in recent history. It's one piece of regulation, but it's not the end-all. He believes the GSA is on a trajectory for total basin adjudication.

Darrel Aubrey noted that the "significant and unreasonable stream depletion" definition of undesirable results is not quantitative. The Tribe would like it to be quantitative. Thomas shared that the desirable outcome for stream depletion reversal is specific and measurable. The mandate under SGMA is to prevent new undesirable results, from the benchmark of 2014.

Councilmember Arron Hockaday of the Karuk Tribe shared his experience, walking the Scott River in July. The stream is discontinuous, leaving fish stranded in ponds. He urged the GSA to remember that when we talk about low flow conditions, we can live with it, but the fish cannot and one day they won't be there anymore.

Thomas Harter asserted that the measurable objective and the broader watershed perspective and goal articulated in the GSPs clearly shares the priority of the protecting the fish. Thomas cited specifics from the revised version of the Plans that were published yesterday.

Craig Tucker asserted that the January 31 deadline is a policy deadline and that DWR might allow more time if the GSA requested it. GSA Legal Counsel, Aaron Ferguson, clarified that January 31 is a statutory deadline and cannot be changed. The Tribe suggested meeting with the GSA in January. Thomas explained that the process for uploading the Plans is complicated and they wouldn't want to start after January 1.

Darrel Aubrey requested clarification about whether the public is meant to have time to review the updated Plans and provide comments prior to Tuesday's hearing. Matt explained that the Plans are not officially open to comments right now and pointed to DWR's public comment period, which will open after the Plans are adopted.

Josh Saxon revisited the question of whether the Tribal comments will be pulled into a separate appendix, per the MOU. Matt recognized the oversight and conveyed that he would work with the technical team to pull those comments into separate appendices.

Laura Foglia shared information about the conversations she's had with DWR and CDFW. DWR encouraged the technical team to publish GSPs now, with the addition of explicit language to the Implementation sections of the GSPs that conveys that the GSA will coordinate with the Tribes and other agencies (like CDFW) immediately after the Plans are adopted. The Facilitator asked Laura to clarify whether that modification is already reflected in the Plans. Laura said it was not explicit in the Scott and Shasta Plans and that based on outcomes from this meeting, they could further revise the Plans.

Darrel Aubrey pointed out that it feels like the Tribe was set up to fail – the MOU sets out an order of events, starting with informal consultation, formal consultation, and finally the preparation of a memorandum. Legal Counsel Ferguson raised the question of what it means for the GSA and the Tribe to "resolve" an issue, per the MOU. County representatives suggested the Tribe should have initiated the consultation request earlier. Craig shared that they did try to accelerate the timeline. Matt noted that he attempted to initiate staff-to-staff consultation a year ago. Matt claimed he had an email from Karuk staff indicating that they were okay with the Plan. Craig expressed doubt about that. Chairman Attebery shared his frustration that the County canceled the September meeting because one Board representative couldn't make it. He shared that it sends the message that the Tribe doesn't deserve a seat at the table.

Darrel Aubrey voiced that there isn't any point in rehashing the past and the group should focus on moving forward. Director Ogren suggested the County approve the Plans because they are out of time but make a commitment to working together with the Karuk to make the Plans work to everyone's best interest. She commended the skill of the technical teams that are present today. She urged the group to focus on that.

Craig shared that the State has been a good partner to the Tribe, and they will be working with DWR to share their grievances with the Plans. Craig shared his impression that the County has neglected the value of having a large Tribe in their area and instead acted as though the Tribe were a curse. He added that the Tribe is the largest non-federal employer in the area, and he's surprised the County hasn't met with the Tribe all along. Building on Craig's point, Darrel suggested the Tribe and the County hold more regular meetings. Craig clarified that it's "easier to work with us than against us."

Councilmember Archie Super thanked Director Ogren for her statements and noted the importance of having data-driven counsel, like Craig Tucker. Councilmember Super shared that in the last year, they've been trying to meet with the County, and it hasn't happened. He shared that it sends the message that the County has an issue with the Tribe. If they do, he wants to talk about it. And if they don't, he wants to get together and try to make it work.

Chairman Attebery shared his agreement with Director Ogren's statement. He reminded the Board of when the Karuk stepped in to help the City of Montague with their water problem and the smaller agencies all thanked the Karuk for stepping in, but the County did not offer thanks and instead changed the subject to share their concern about whether the Tribe would sue them about fish. He offered his regret for bringing it up, but felt it was important to share the context. He shared additional information about the Tribe's commitment to the area.

Councilmember Hockaday shared a statement about the longevity of the farming community in the area and reiterated his belief that it's time for everyone to come together.

4. Next Steps, Closing Remarks

The Facilitator reflected that it sounds like there is a common desire to move forward. The specific solutions she has heard offered include:

- More frequent government-to-government meetings.
- Explicit language in the GSPs, or maybe a separate agreement, regarding future coordination.

The Facilitator asked the County whether they are interested in either of the solutions and solicited additional solutions.

Director Kobseff offered apologies that the County has been perceived as not agreeable to these meetings. He pushed back on the assertion that the County ever closed the door on a conversation. He drew a distinction between meeting and agreeing. One of his issues is he doesn't think SGMA can solve the fish issues; he suggested that must be addressed through a different regulatory framework. Director Kobseff mentioned an upstream storage project proposal the County submitted recently, which unfortunately was not awarded. He reiterated his commitment to working together to find solutions for fish.

Craig Tucker asked the County to meet the Tribe half-way. He expressed doubt that there is enough room upstream for additional storage, but they are willing to support the study or like-studies. In turn, the County needs to consider the Tribes' suggestions as well, such as demand reduction studies and actions to restore flows to the river, and that equal consideration is what has been lacking thus far.

Darrel Aubrey suggested that to avoid scheduling conflicts, coordination meetings should be scheduled at least one month in advance. The Facilitator spoke to the scheduling element- she proposed the group agree to quarterly meetings starting in January. Matt asked for clarification about whether DWR or

Stantec can support facilitation of such meetings, especially considering they may want to discuss environmental matters aside from SGMA.

The Facilitator noted that the agenda for those coordination meetings would need to be agreed upon in advance. The first meeting could include discussion of next steps related to SGMA. The first step is to set a meeting date. Facilitator could work with both parties to establish a joint agenda and set the duration of the meeting. That process would take place for each meeting occurrence.

Craig urged the Councilmembers and Supervisors to think bigger. The Tribe and the County are pretty far apart on fish-related issues. He noted the nexus with housing, healthcare, etc., and proposed the County and the Tribe need to find something they can "win" on. The Facilitator suggested the Directors should confer amongst themselves and suggested the group commit, by December 17, with proposals for the first meeting date, the frequency of the meetings, their scope, and associated expectations. The Facilitator will coordinate with Darrel and cc the Chairman.

The Facilitator summarized the action items from the meeting:

- The Tribal-specific comments will be pulled out, pursuant to the MOU. There will be a separate Tribal comment and response matrix and summary for both the Scott and Shasta Valley GSPs.
- The group committed to continued collaboration and coordination.
- The group discussed whether language should be added to the GSPs. The Facilitator noted that the Supervisors can provide direction to staff and the technical team to add that specific language as a condition to approval of the GSPs.
- Facilitator will coordinate with both parties to schedule a meeting for January 2022 and develop a joint agenda that reflects each party's intentions and priorities.

Director Kobseff thanked the Tribe for meeting with the County and apologized for the rough start. Director Ogren expressed her thanks and appreciation for their respect and patience as they move through this process.

Chairman Attebery expressed that it is not how you start the game, it's how you finish the game. He couldn't agree more with the others. Councilmember Hockaday asked Councilmember Archie Super to close in prayer. Councilmember Super offered a closing prayer of thanks.

The Facilitator adjourned the meeting.

Attachment B – Annotated Tribal Comment Letters Received on Draft Groundwater Sustainability Plan

Riverbend Sciences
1614 West Ave.
Eureka, CA 95501
(707) 832-4206
www.riverbendsci.com

MEMORANDUM REPORT

To: Klamath Tribal Water Quality Consortium
From: Eli Asarian, Riverbend Sciences
Date: September 21, 2021
Re: Review and comments on *Public Draft Scott Valley Groundwater Sustainability Plan*

The public draft of the "Scott Valley Groundwater Sustainability Plan" was circulated for public comment by the Siskiyou County Flood Control & Water Conservation District in August, 2021. To assist the member Tribes of the Klamath Tribal Water Quality Consortium in the preparation of their comments, Riverbend Sciences and subcontractors have reviewed the document and prepared the comments provided here for the Tribes' use.

A) COMMENT OVERVIEW

We have reviewed the public draft of the Scott Valley Groundwater Sustainability Plan (GSP) and wish to provide the following comments. Our comments are arranged into three sections: A) Comment overview in which we provide a summary of our most important big-picture comments, B) Suggestions for improving the Scott Valley Integrated Hydrologic Model (SVIHM), and C) comments on specific sections of the GSP chapters using the comment form provided.

A summary of our big-picture comments is provided in the following bullets, which are then discussed in the paragraphs below:

- The GSP falls far short of what is needed to avoid adverse impacts to interconnected surface water
- The GSP ignores adverse impacts caused by streamflow depletion outside the September–November period
- The GSP's primary management actions (managed aquifer recharge and in lieu recharge) do not work well in critical drought years
- The GSP lacks transparency
- Many GSP actions and goals sound great but are loosely defined so do not actually achieve much
- The GSP does not deal appropriately with climate change
- The Scott Valley Integrated Hydrologic Model (SVIHM) is a valuable tool but has some shortcomings that need to be addressed in future model updates

The GSP falls far short of what is needed to avoid adverse impacts to interconnected surface water

The GSP proposed to set the Minimum Threshold (MT) for the Interconnected Surface Water (ISW) Sustainable Management Criterion (SMC) based on a percent of the streamflow depletion caused by

groundwater pumping from the area not covered by the Scott River adjudication. We agree that groundwater users outside the adjudicated zone are not responsible for solving all the water issues in the Scott River (i.e., they are not responsible for impacts caused by surface water users or groundwater users inside the adjudicated zone).

ISW MT should not be defined based on a proportion or partial contribution to an undesirable result. SGMA requires that an MT define the minimum threshold for a full undesirable result. The whole concept of defining the ISW MT on what the PMA can achieve is putting the cart before the horse. The MT is a numeric value used to define an undesirable result (this may be why the GSP spends so much time confusing and twisting the definition of undesirable result). The MT, if exceeded, may cause an undesirable result. PMAs are a means to avoid exceeding an MT, not a mechanism to define an MT. TC-001

The approach taken in the GSP is backwards. Rather than first defining an arbitrary endpoint based on what groundwater users can relatively easily tolerate (i.e., the approach outlined the GSP), the first step should be to determine the instream flows needed by fish, then calculate the difference between those needed flows and current flows, and then assign the same percent reductions needed by all water users (surface, adjudicated groundwater, and unadjudicated groundwater) to meet that difference. This approach should be applied to all parts of the year that have flows that are not meeting fish needs, not just September through November. To use a hypothetical example (we have not actually done the calculations), if overall water use needs to be reduced by 40% to meet instream flow targets, then surface water users, adjudicated groundwater users, and unadjudicated groundwater users should each be responsible for reducing their water use (or coming up with projects that produce an equivalent amount of seasonal supply) by that same 40%. TC-002

The paltry 15% streamflow reversal proposed is far short of the non-adjudicated groundwater users' responsibility meeting existing laws and regulations such as the Public Trust Doctrine, Total Maximum Daily Loads (TMDLs), and the Endangered Species Act. TC-003

The GSP ignores adverse impacts caused by streamflow depletion outside the September–November period

The GSP proposes an MT for streamflow depletion only for the September–November period. The September–November this period is the time of year with the lowest flows and is very important for migration and spawning of adult salmon, but streamflow depletion also has adverse impacts at other times of year, such as during winter when salmon eggs are incubating, during spring when fish are rearing and outmigrating, and during summer when low flows can exacerbate high water temperatures. TC-004

The GSP's primary management actions (managed aquifer recharge and in lieu recharge) do not work well in critical drought years

The primary management actions proposed by the GSP to partially remedy streamflow depletion are managed aquifer recharge (MAR), in which extra surface water is diverted during January through March and infiltrated into the ground to recharge groundwater, and in lieu recharge (ILR), in which surface water is used for early season irrigation so that groundwater can be preserved (rather than solely relying on pumped groundwater to fulfill all irrigation needs). Both of MAR and IRL only work if there is "excess" surface water available. In critical drought years, there is very little excess water and thus MAR and IRL do not provide much benefit to instream flows. This is unfortunately because reversing streamflow depletion is arguable more important in critical drought years that in normal and wet years. The GSP should have proposed management strategies that are tailored to water year type, so that streamflow depletion could be substantially reversed in all water year types. TC-005

The GSP lacks transparency

Collaborative management and transparency and core tenants of SGMA. How will transparency and public access to data be incorporated into reporting and data sharing agreements? All data that is paid for with public money should be accessible to the public. All GSP reporting (i.e., annual and five-year review reports) should include electronic appendices with easily accessible data, so others could run their own analyses on the data. TC-006

We understand the political sensitivity of well metering, but how can groundwater be managed at a basinwide scale without metering? At least some subset of the wells should be mandated to be metered. Examples could include the largest wells, or new wells drilled after the passage of the SGMA legislation or after adoption of the Scott Valley GSP. How can existing ordinances, such as the prohibition on the use of groundwater for cannabis production or the requirement for permits being needed for inter-basin transfers of groundwater, be enforced without the well metering? How can the effects of efficiency projects be verified without metering? The lack of metering requirements suggests a lack of transparency, which further suggests a lack of will to actually manage groundwater extraction. TC-007

We also have serious concerns with the lack of transparency with the current Scott Valley and Shasta Valley Watermaster District program. Watermastering should be returned to the State of California, implemented basinwide, with well-organized publicly accessible records of diversions. TC-008

Many GSP actions and goals sound great but are loosely defined so do not actually achieve much

The GSP full of things like that sound great like the "Avoiding Significant Increase of Total Net Groundwater Use from the Basin" project and management action (PMA), but when we look closely at the details we see that the wording is loosely defined so that it does not actually guarantee anything. Since all well metering is voluntary, how is it possible to verify this?

If the GSP is to actually achieve the stated objectives, it needs more things that can actually be readily verified. Examples that we recommend include: TC-009

- No additional wells for new land use or additional cropping will be permitted in the basin. Only new wells intended to replace old wells and existing crops will be permitted, and these replacement wells will be metered. The intent here is to avoid net increase in groundwater use.
- Wells intended to replace stream diversions will not be permitted, even if there will be no additional net water usage (i.e., pumped groundwater will be used to replace surface water irrigation of existing crops). The intent here is to allow the SWRCB to ascertain and regulate surface water rights and stream and spring flows. The use of groundwater wells in place of stream or spring diversions simply moves the point of diversion and lessens the ability of the SWRCB to carry out its mission.

The GSP does not deal appropriately with climate change

The GSP appears to treat climate change as a check-the-box exercise rather than seriously grappling with what it will mean for groundwater management. The GSP does include model runs for future climate change, these results are not presented in a coherent way that highlights the major challenges that climate change will pose to water management. A warming climate will cause a shift in precipitation form (less snow, more rain) that will in turn shift the seasonal timing of tributary surface flows into the valley. Regardless of what happens to total precipitation or total runoff, this change in precipitation form and runoff timing is a huge issue that water management is going to need to recon with. Perhaps we missed it TC-010

(and if so, we apologize), but we did not see evidence that the GSP recognizes the severity of the coming changes to climate, nor presents a coherent plan to adapt to it.

The Scott Valley Integrated Hydrologic Model (SVIHM) is a valuable tool but has some shortcomings that need to be addressed in future model updates

We agree with the SVIHM's overall approach and appreciate the many years of work that the modeling team has invested in developing and refining the model. While the model has been peer-reviewed, we have some concerns that we think should be addressed in future updates (i.e., the five-year review). Details regarding the following suggestions are provided in the modeling section of comments: 1) need for a sensitivity analysis to quantify how sensitive SVIHM modeled outflows are to tributary inputs (especially during September and October); 2) need to incorporate fall/winter stockwater diversions into SVIHM; 3) need to reduce the MODFLOW model timestep to something shorter than a month; and, 4) need to use a better method for filling the large gaps in tributary inflows (e.g., considering other model types beyond linear regression, and using Salmon River gage as an alternative to the Scott River gage for filling tributary data gaps at least for some months and/or sites). While data are generally lacking for the fall/winter stockwater diversions, in our comments below we use data from the State of California's eWRIMS database to calculate that during the October 2020 drought when mainstem Scott River flows averaged 7.2 cfs and salmon could not reach their spawning grounds, the Scott Valley Irrigation District (SVID) reported diverting 4.2 cfs (2.7 million gallons/day) for stockwater, which is equivalent is 100 times more water than the 2,700 gallons/day that the livestock were actually consuming (assuming an estimate of 15 gallons/day).

TC-011

B) SUGGESTIONS FOR IMPROVING THE SCOTT VALLEY INTEGRATED HYDROLOGIC MODEL

As part of our review of the Scott GSP, we reviewed the documentation for the Scott Valley Integrated Hydrologic Model (SVIHM) including the Scott GPS appendices 2-C and 2-D. We agree with the SVIHM's overall approach and appreciate the many years of work that the modeling team has invested in developing and refining the model. It is important to understand the limitations of the data and methods. While the model has been peer-reviewed (Foglia et al. 2013, Tolley et al. 2019), we have some concerns that we think should be addressed . We recommend some specific suggestions that that would likely increase the accuracy of SVIHM's predicted late summer and fall flows, but we recognize that implementing these suggestions would take time and may trigger a cascade of additional work including re-calibration and re-running of all model scenarios. Given that this level of effort is likely not feasible at present given the SGMA timelines, we recommend that these improvements be evaluated and incorporated whenever the next time the model will be re-calibrated (five-year evaluation?).

Details on our suggestions are provided in the remainder of these comments, but we begin here with a brief summarized list:

- Need for a sensitivity analysis to quantify how sensitive SVIHM modeled outflows are to tributary inputs (especially during September and October)
- Need to incorporate fall/winter stockwater diversions into SVIHM;
- Need to reduce the MODFLOW model stress period to something shorter than a month; and
- Need to use a better method for filling the large gaps in tributary inflows (e.g., considering other model types beyond linear regression, and using Salmon River gage as an alternative to the Scott River gage for filling tributary data gaps at least for some months and/or sites).

Some of the following comments are repeated from the comment form.

Need for a sensitivity analysis to quantify how sensitive SVIHM modeled outflows are to tributary inputs (especially during September and October)

Given that tributary inputs are largely estimated rather than measured, we would like to see a sensitivity analysis to quantify how sensitive modeled outflows are to tributary inputs, especially during September and October when the correlation between measured outflows and measured inflows is extremely weak (i.e., explains less than 25% of the variability). Modeled streamflow depletion during September and October is a key management endpoint upon which the GSP evaluated management actions (PMAs), yet we currently have no idea how well the model actually predicts flow differences between scenarios in these months. The modeled outflows for the base case scenario match the observed outflows decently well in these months (i.e., see Figure 2 in Appendix 2-D). However, without a sensitivity analysis we cannot know how much of this apparent success is an artifact of setting the inflows based on observed outflows (i.e., is the model a circular self-fulfilling prophecy?).

Need to incorporate fall and winter stockwater diversions into SVIHM

If we understand correctly, the SVIHM assumes that no surface water diversions occur outside of the irrigation season (i.e., after September 30? or is it weather driven?). In reality, there are substantial diversions for stockwater, with many diversions remaining in place after the end of irrigation season. In years when there is not much fall rain (i.e., 2009, 2020), these stockwater diversions can divert the flow of entire creeks and leave downstream reaches dry during salmon spawning season. Not including these diversions is a considerable deficiency of the SVIHM. The effect of these winter stockwater diversions on fall/winter flows is an important management question that we need tools like the SVIHM to answer. Incorporating these stockwater diversions into the model would be difficult because these diversions are unreported and unmetered. One approach would be to bookend the estimates in a sensitivity analysis with low and high scenarios. The low scenario could assume that the diversions match demand including transmission losses (i.e., recent State Water Boards emergency regulations set maximum diversion rates based on the number of animals and assumed 90% conveyance losses, see https://www.waterboards.ca.gov/drought/scott_shasta_rivers/docs/surface_water_stockwater_diverters_090121.pdf). The high scenario could assume that the diversions match the irrigation season right (i.e., from the adjudication), since the stockwater diversions utilize the same ditches as the irrigation diversions. We are not very familiar with the day-to-day operation of these stockwater diversions and thus are unclear if they are pulsed (i.e., on for a few days, off for a few days, etc.) or continuous, but hopefully local farmers and ranchers could provide information on that as well as advise on the volume of the diversions.

One exception to the data gaps on winter stockwater diversions is that the Scott Valley Irrigation District (SVID) diversions are reported monthly for the years 2010–2020 in the State of California's eWRIMS database. For example, SVID diversions for the October 2019 for "1000-1800 cattle-sheep-horses" were reported as 260.4 AF (https://rms.waterboards.ca.gov/LicensePrint_2019.aspx?FORM_ID=476977). This equates to 4.2 cfs during a month when flows at the USGS gaged average 7.1 cfs. Assuming that each head of livestock needs 15 gallons per day (cattle value from https://www.waterboards.ca.gov/drought/scott_shasta_rivers/docs/surface_water_stockwater_diverters_090121.pdf), then 1800 cattle would need 27,000 gallons/day. In comparison the 260.4 AF diversion equates to 8.4 AF/day, or 2.7 million gallons/day, which is 100x greater than the amount of water actually needed to sustain the livestock. Is this a "reasonable" use of water at a time when mainstem river flows were so low that salmon could not access their spawning grounds?

Conversion of winter stockwater diversions to stock tanks fed by small wells could be the lowest-hanging fruit for achieving meaningful increases in fall river flows while having little or no economic cost to

agriculture (assuming the conversions are paid for with public money). We recognize that the GSP cannot dictate management of surface flows; however, the analyses and models used in the GSP should consider the real-world water budget and not ignore important drivers of key groundwater management endpoints (i.e., fall flows).

Need to reduce the MODFLOW model stress period to something shorter than a month

The MODFLOW model, the groundwater simulation component of the SVIHM, the "stress period" over which fluxes such as pumping and recharge change is monthly, although the model runs at a daily "time step" within each period. This seems like an un-necessary coarsening of the data, given that the most computationally intensive part is the daily time step of the daily model, right? Why do that? The surface water budget is calculated on a daily basis. Flow data could be estimated on a daily basis. The model is used for purposes such as predicting the date when flows in the fall first increase to above 20 cfs, so a monthly model seems less than desirable for those purposes. Foglia et al. 2013 wrote: "However, if warranted, the budget model described here can also be applied to an integrated hydrologic modeling scenario with weekly or bi-weekly varying stress periods or to stress periods of varying period length." This issue is particularly pertinent in the fall, when the model does not do well at representing the timing and magnitude of flow increases (i.e., as discussed in Appendix 2-D). We recommend exploring the use of a shorter stress period such as a week or two weeks to see if that improves performance in the fall period.

Need to use a better method for filling the large gaps in tributary inflows

Overview

The primary boundary conditions for the Scott Valley Integrated Hydrologic Model (SVIHM) are monthly inflows from 12 tributaries. The SVIHM uses a linear regression model to fill the substantial gaps in the flow records for these tributaries (Figure 1a). To assess the quality of the gap-filling method and potential effects on SVIHM results, we have reviewed the available documentation including Foglia et al.'s (2013) supplementary material and Tolley et al.'s (2019) compiled data for water years (WY) 1942–2016 and data processing code written in the R language and available at https://github.com/UCDavisHydro/SVIHM. During this evaluation, we modified the R code to explore the data and test alternative approaches. We are happy to share our R code if that would facilitate refinements.

The SVIHM method consists of compiling the available daily flow data for the USGS Scott River at Fort Jones gage (11519500) and ten tributaries, summarizing data to a monthly time step, converting data to normalized log-transformed units (i.e., taking base 10 logarithm, subtracting the mean, and dividing by the standard deviation), developing a linear regression model to predict the tributary flow from the USGS gage data (Figure 2a). Two additional small tributaries (Johnson and Crystal creeks) are assigned flows based on a percentage of estimated Patterson Creek flows.

Scott River summer flows appear to have decreased significantly since the 1977 drought, so the data were split and separate regressions were developed for the WY 1957–1972 and WY 1973–2016 study periods (Figure 1a). For those tributaries that do not have any measured data during the WY 1973–2016 period, the WY 1957–1972 regression is used. Given that there is extremely strong evidence that the relationship between tributary flows and Scott River flows changed between the WY 1957–1972 and WY 1973–2016 periods (i.e., Figure 1a), it does not make sense to apply the WY 1957–1972 regressions without adjusting for that difference. Rather than doing two separate regression models (i.e., one for each period), it would make more sense to just have a single regression model covering all years, but include "Period" as a categorical variable (to account for the difference in intercept between the periods), and an interaction of

"Period" and Fort Jones (to account for the difference in slope between the periods). In contrast, the current approach does not take maximum use of the available data, ignoring factors that are known to be important (i.e., the difference between the periods).

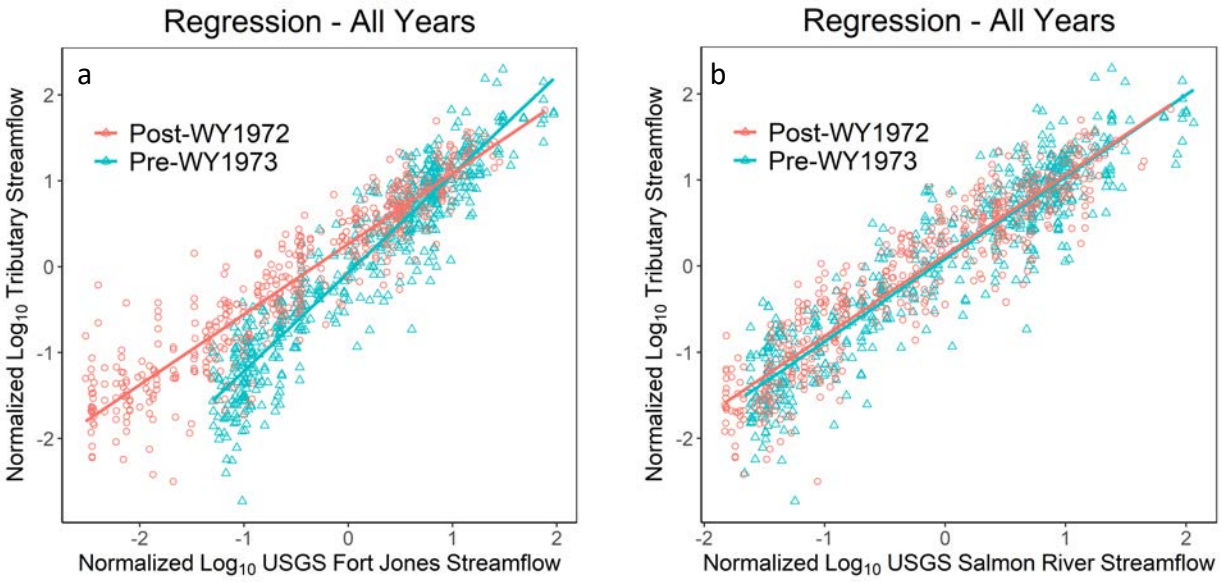

Figure 1. Scatterplot with linear regressions between gaged monthly flows in Scott River tributaries and gaged monthly flows in (a) Scott River USGS gage currently used in SVIHM, and (b) Salmon River at Somes Bar USGS gage which we recommend using for some sites and months. Colors differentiates the older WY 1957–1972 period from the more recent WY 1973–2016 period.

Using an *outlet* gage to define tributary *inflows* is problematic, especially with so many data gaps

The first thing to recognize about the gap-filling is that gaps are substantial (Figure 2a), so the methods for filling them matters. For the current SGMA GSP, the SVIHM was run for WY1991–2018. Prior to WY 2002, all (100%) of tributaries were estimated using regression against the USGS gage. Since WY 2002, additional gages have been installed but most were operated in only a subset of recent years and now only Sugar Creek and French Creek are still operational (Figure 2). The version of SVIHM used for SGAM did not use any tributary data for 2017-2018. The percent of total estimated inflows in a month that are based on measurements (i.e., gages) only sporadically exceeds 50% (Figure 2b, 2c). The USGS 11519500 gage that is the source for all the regression-based estimates is located at the outlet of Scott Valley. It is problematic to use a gage that is the surface water output of a groundwater basin to estimate the surface water inputs to the same basin, because that groundwater basin exerts profound natural and human influences on hydrology, including water diversions, groundwater pumping, evapotranspiration, groundwater recharge, and leakage of groundwater to streams. In reality, these influences vary not only seasonally (e.g., spring vs. fall) but also inter-annually (i.e., wet years vs. dry years), but using linear regression assumes a constant relationship between the input and output. For example, long-term management changes can affect the relationship between inflows and outflows (i.e., see Figure 1a showing effects of increased groundwater extraction). This gage is also used for calibration and verification of the SVIHM. Given that inflows are an important driver of groundwater dynamics, using the outflow to estimate inflows may artificially inflate the apparent accuracy of the SVIHM (because estimated inflows are automatically scaled based on measured outflows).

Salmon River gage as an alternative to the Scott River gage (at least for some months and/or sites)

We explored using the USGS gage in the Salmon River at Somes Bar as an alternative to the USGS Scott River at Fort Jones. The Salmon River has several characteristics that make it worth of evaluation for filling gaps in Scott River tributary flows, including: long-term data records, close proximity (i.e., immediately to west) to the Scott River sub-basin, lack of dam regulation, lack of major diversions, and does not contain a large alluvial groundwater basin with intensive groundwater extraction. The Salmon River's relative lack of diversions and groundwater extraction may make it a better choice than the Scott River during the low-flow season. While overall fit for the WY 1973–2016 period is similar for Scott River gage model ($R^2 = 0.87$) and Salmon River gage model ($R^2 = 0.86$), fit varies by month with the Scott River performing better (i.e., higher R^2, Figure 3b) in January–August and the Salmon River model performing better in September–November (i.e., $R^2 = 0.20$, 0.70, and 0.71 compared to $R^2 = 0.14$, 0.25, and 0.56)(Figure 3). Differences are especially strong in October, with $R^2 = 0.70$ for the Salmon River model compared to $R^2 = 0.25$ for Scott River model (Figure 3). Based on this evaluation, we recommend using the Salmon River model to fill tributary flow gaps in the months of September–November, which is the period when the groundwater basin begins filling and flows begin rising in response to increased precipitation and decreased evapotranspiration following the hot dry summer and year's lowest flows. This period is biologically important because it coincides with the start of chinook salmon spawning season. We are unclear on the how the poor fit of the Scott River regression model during this period (Figure 3a) affects the simulation of groundwater dynamics and outflows in the SVIHM. Have any sensitivity analyses been conducted to see how sensitive outflows are to inflows during this period?

In contrast to the major differences in the relationships between tributaries flows and Scott River flows for the WY 1957–1972 and WY 1973–2016 periods (Figure 1a), there appears to be no difference between the periods when the Salmon River gage is used instead (Figure 1b). The lack of difference between these periods in the Salmon River models suggests that for tributaries that have no post-1972 flow data (i.e., Shackelford, Patterson, Moffett, and Etna creeks)(Figure 2a), it is likely better to use of Salmon River models for gap-filling additional months (i.e., maybe June–December for these tributaries, instead of the September–November we are recommending for the other tributaries?). The recommendation for June–December is based on the observation that the between-period divergence occurs at normalized $\log_{10}$ Scott River flows less than zero (Figure 1a) and in the WY 1973–2016 period such flows tend to occur more frequently in June–December than other months (Figure 4a).

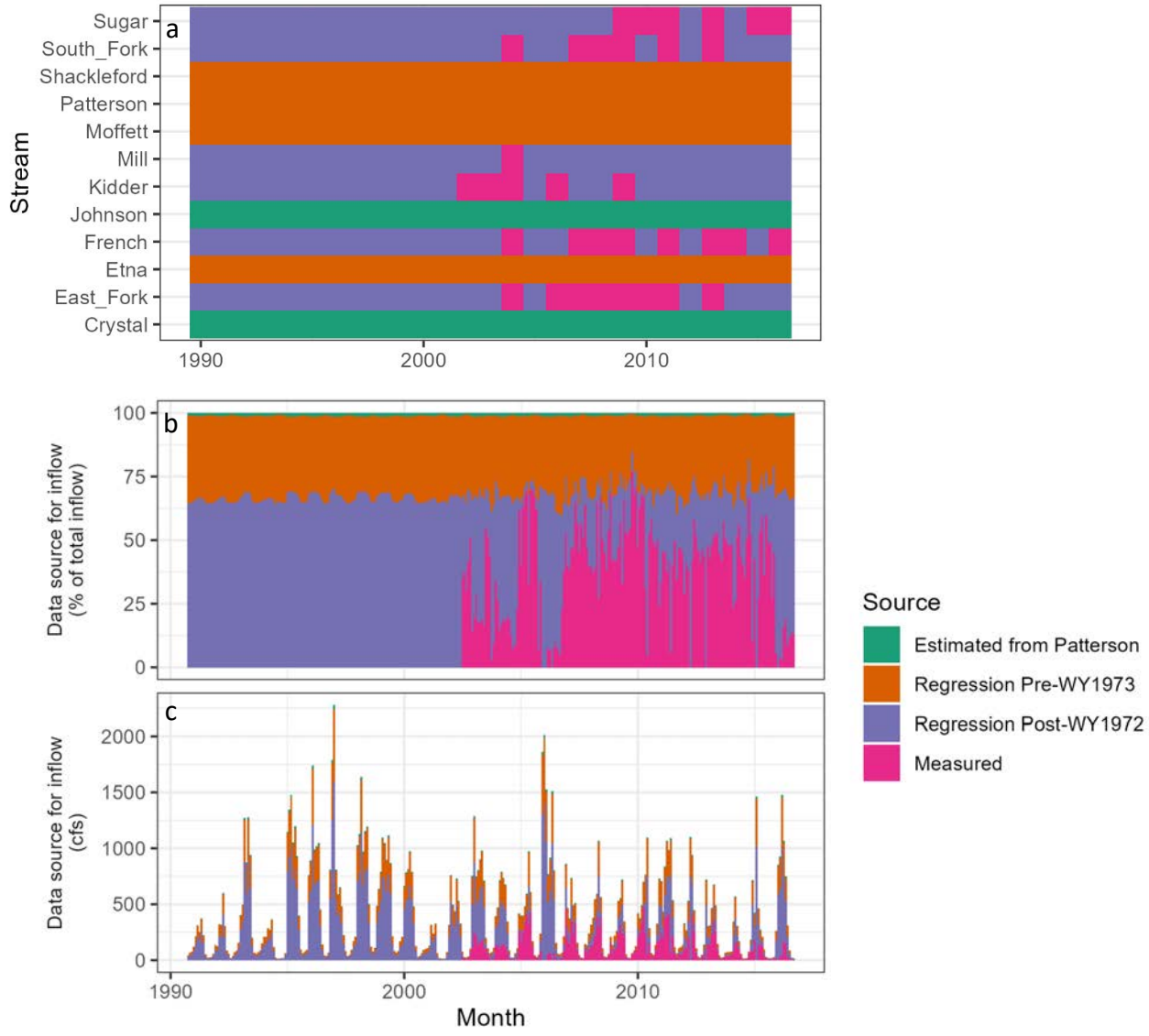

Figure 2. Monthly time series for hydrologic years 1991–2016 for the existing SVIHM's (a) data sources for flow data at twelve tributaries, (b) percent of total inflows from each data source method, (c) total inflows for inflows from each data source method. We generated this time series by adapting the Tolley et al. (2019) data processing codes.

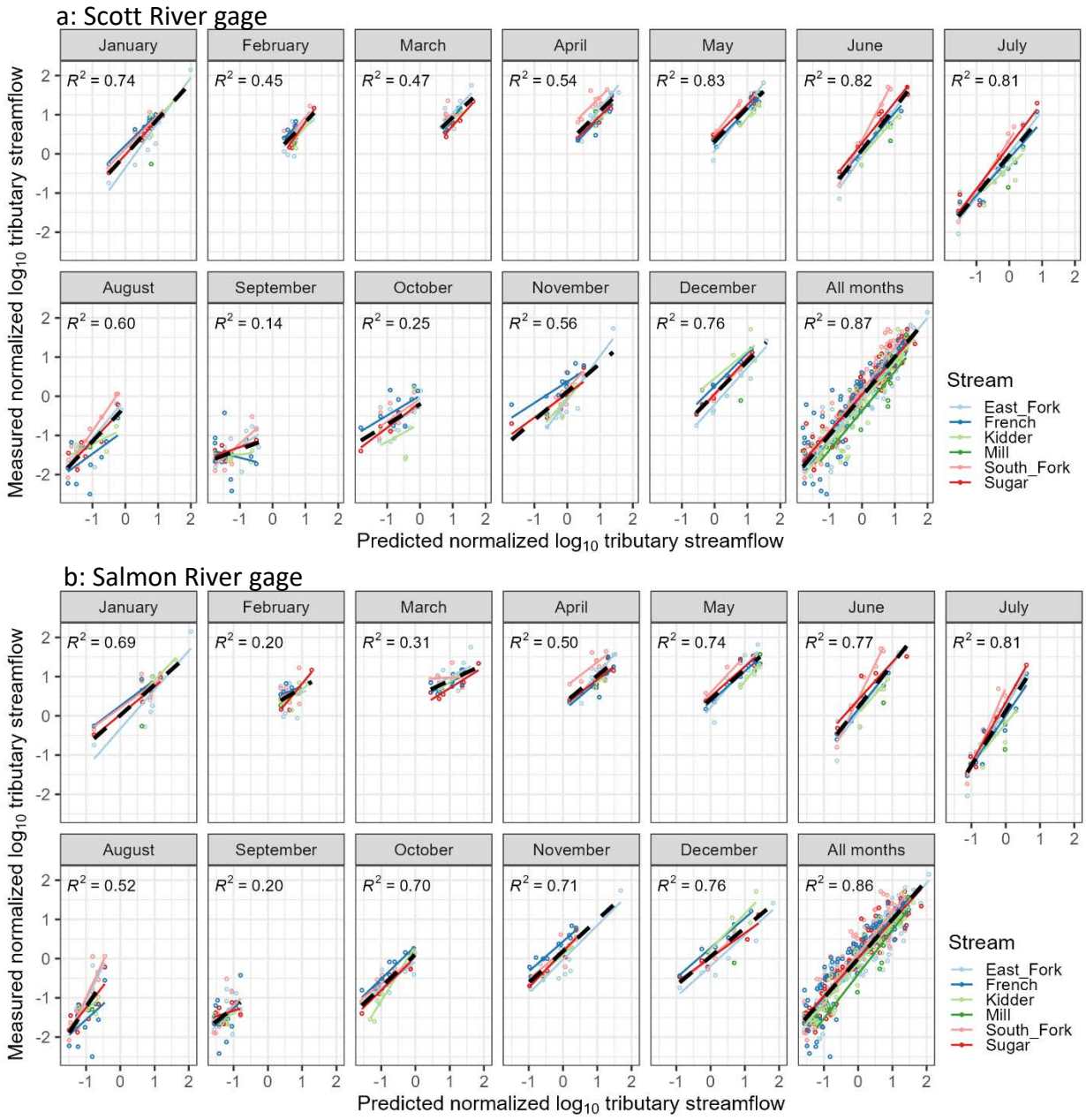

Figure 3. Scatterplot comparing measured monthly Scott River tributary flows with regression predictions based on gaged monthly flows for the WY 1973–2016 period in (a) Scott River USGS gage, and (b) Salmon River at Somes Bar USGS gage. Black linear trendlines are for all sites combined, with R^2 labeled in the upper left corner of each panel. Colored linear trendlines are for individual sites. R^2 indicates the fraction of variation explained by the model (value of 1 would indicate a perfect correlation with predictors explaining 100% of variation in the response variable while a value of 0 indicates none of the variation is explained).

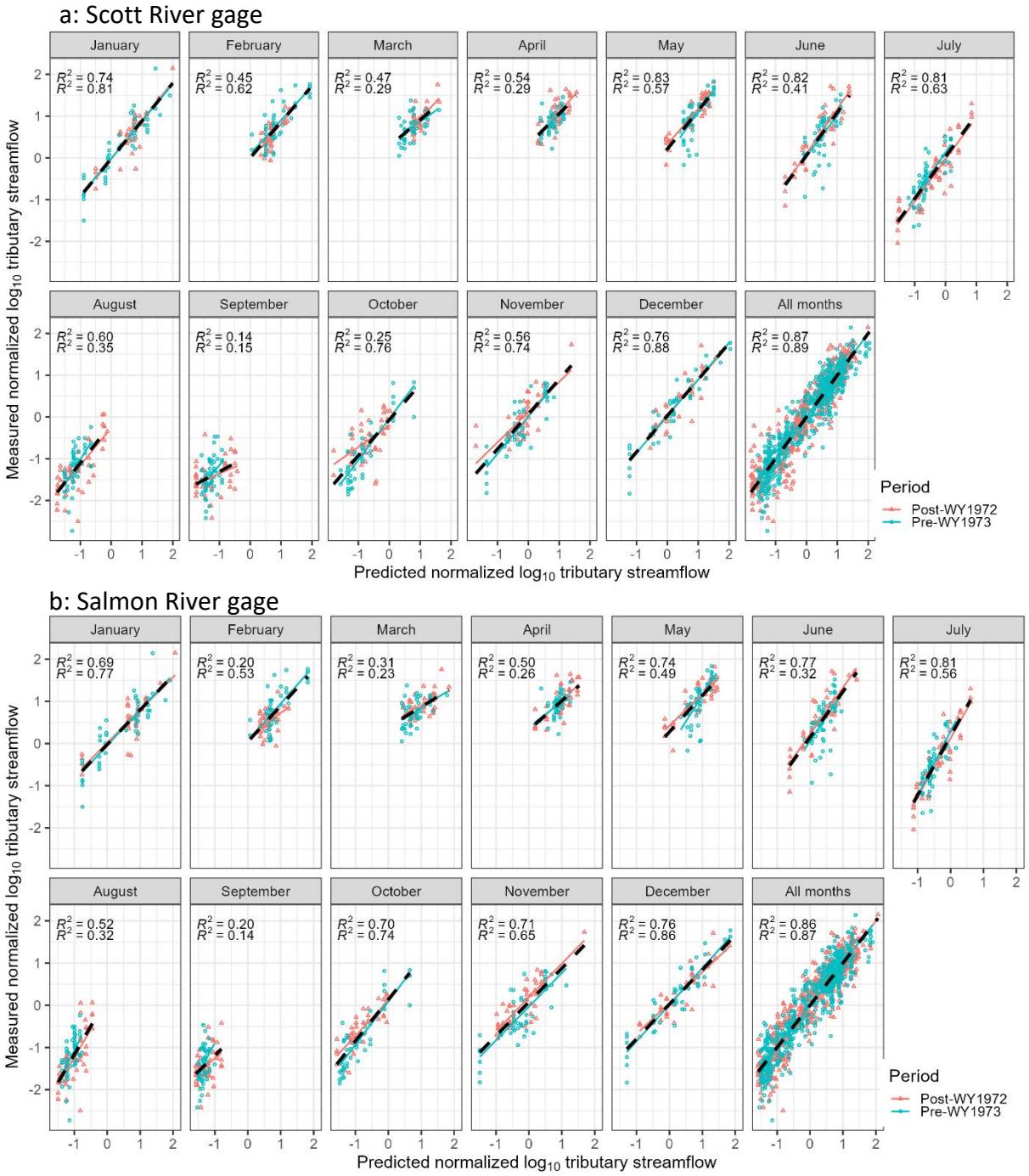

Figure 4. Scatterplot comparing measured monthly Scott River tributary flows with regression predictions based on gaged monthly flows in (a) Scott River USGS gage, and (b) Salmon River at Somes Bar USGS gage, with separate regressions for the WY 1957–1972 and WY 1973–2016 periods. Black linear trendlines are for combined periods whereas colored linear trendlines are for individual periods. R^2 values in each panel match legend order (top is post-WY1972, bottom is pre-WY1973).

Consideration of model types beyond linear regression

One additional suggestion for potential additional refinements to the methods for filling data gaps that we do not currently not have time to test, but want to mention here so it could potentially be followed up on later, it to use hierarchical models and account for watershed area. The SVIHM's normalization (a.k.a. "standardizing", our preferred term) of the flow data (subtracting the mean and dividing by standard deviation, with the mean and standard deviation calculated individually for each site based on that site's period of record) is intended to allow all tributaries to be included together in the same regression model. However, we have some concerns that for sites with short records (e.g., 11 months at Mill Creek, 6 months at Etna and Patterson creeks), there are far too few data points for the mean and standard deviation to be representative of long-term patterns, which could lead to artifacts in the regression outputs. A possibly more robust alternative would be to instead be to convert the flow data to specific discharge (i.e., flow per watershed area in units of cfs/mi^2 or its metric areal equivalent mm/d), then standardizing by subtracting the mean and dividing by standard deviation (with the mean and standard deviation calculated from the entire pool of specific discharges from all sites, rather than calculating the mean and standard deviation only from each site's period of record). From these standardized specific discharges, a single hierarchical model (a.k.a. mixed effects model) could be constructed with appropriate random effects to explicitly account for inter-site differences. R packages available for implementing such models include 'mgcv', 'lme4', and 'nlme'. A hierarchical model could help account for inter-site differences. For example, not surprisingly given its the relatively low elevation watershed, Moffett Creek appears to have a greater percent of its annual flow occur during January–March than other tributaries and then a lesser percent of its annual flow occurs during May–June snowmelt runoff (not shown here). There are clear, albeit relatively small, seasonal patterns in the residuals (calculated as measured minus modeled) in both the Scott River and Salmon River regression models, with both models under-predicting tributary flows in May–June and October–November underpredicting tributary flows in January–March and August–September (Figure 5). A hierarchical model would likely help remove the seasonal patterns in model residuals.

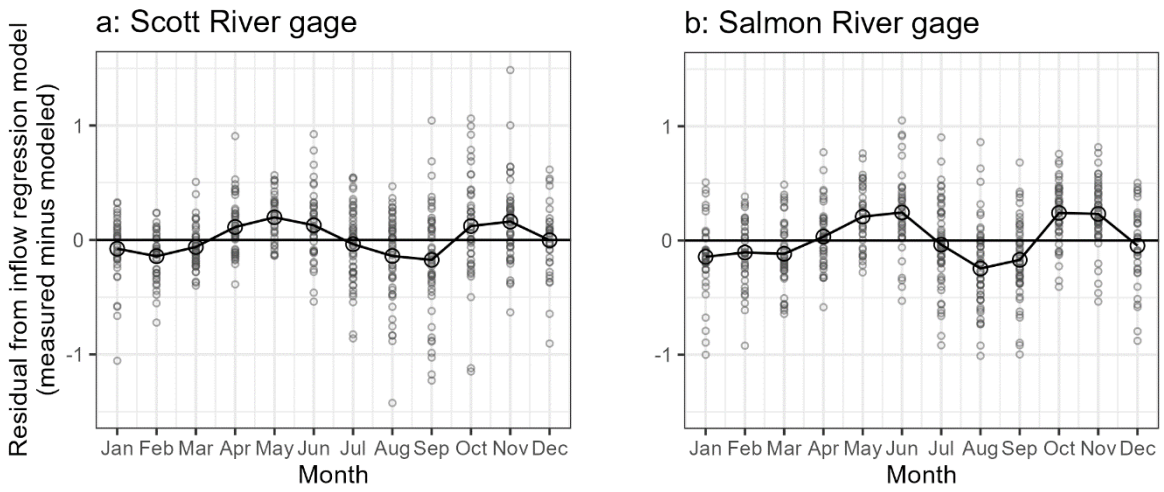

Figure 5. Monthly distribution of residuals from regression models that predict monthly Scott River tributary flows for the WY 1973–2016 period using (a) Scott River USGS gage, or (b) Salmon River at Somes Bar USGS gage. Small gray points are individual site-month-year combinations while large black circles are the mean of all points within a month. Values above zero indicate model is under-predicting flow while values below zero indicate the model is over-predicting flow.

C) COMMENTS ON SPECIFIC GSP SECTIONS USING THE COMMENT FORM PROVIDED

Chapter	Page	Section	Line/Table/ Figure #	Comment	
ES	8	ES-2	214-215	"…lateral flux of Mountain Front Recharge (MFR) is assumed constant at <18 TAF." Seems odd that this would be assumed constant between years. See comment below regarding Chapter 2, page 117, section 2.2.3.2.	TC-012
2	13-15	2.1.2	259-369	It would be very helpful to provide citations for most (or all) of the documents listed on these pages, rather than the current few. The top of the sections says "This chronology was provided by Sari Sommarstrom (2019), with additional details from select sources", but Sommarstrom (2019) is not listed in the references at the end of this chapter.	TC-013
2	15	2.1.3	378	Should Karuk Tribe be added to the list of monitoring entities because they monitor water quality at the mouth of the Scott River, or is this list only for monitoring within and upstream of the Scott Valley? Even though the Karuk Tribe monitoring is downstream, it is informative to conditions within the basin.	TC-014
2	18	2.1.3	Table 2	For Quartz Valley Indian Reservation Environmental Department, Plan/Program columns should be updated to: "Flow monitoring, groundwater elevation, and ~~Annual~~ surface and groundwater quality monitoring". Also, "Regulatory?" column should be changed to "Yes" and "What is regulated?" column should be changed to "Surface and groundwater quality", because QVIR has been approved by U.S. EPA for Treatment as a State status for regulating those with tribal trust lands.	TC-015
2	19	2.1.3	Table 2	In the "Tool" section of the table, a row should be added for "Quartz Valley Indian Reservation Environmental Department", with "Plan/Program" of "Statistical model to predict water temperature at Scott River USGS gage"	TC-016
2	30	2.1.3	839	Add new sentence to end of paragraph: "QVIR was approved by U.S. EPA for Treatment as a State status for regulating water quality within the tribal trust lands."	TC-017

Chapter	Page	Section	Line/Table/ Figure #	Comment	
2	30	2.1.3	840	Add new paragraph: "QVIR and Riverbend Sciences have developed a statistical model to predict daily water temperatures at Scott River USGS gage using flow and air temperature data. The model was calibrated with 24 years of data is currently undergoing peer review (Asarian and Robinson 2021). It is freely available from an online repository." In addition, we recommend the first sentence on line 840 be revised to: "The QVIR Environmental Department has made this water quality and water level monitoring data and statistical model available for use in GSP development." Citation to add to references section: "Asarian, J. E., & Robinson, C. (2021). Modeling Seasonal Effects of River Flow on Water Temperatures in an Agriculturally Dominated California River [Preprint]. Earth and Space Science Open Archive; Earth and Space Science Open Archive. https://doi.org/10.1002/essoar.10506606.1" We are hopeful that the final peer-reviewed version of the article will be complete in late 2021 or early 2022.	TC-018
2	39	2.1.5.2	1241-1245	"The Advisory Committee discussed modeled scenarios using the Siskiyou County Sheriff Department's estimate of 2 million illicit cannabis plants and a consumptive use of 4-10 gallons of water per plant per day, to consider the potential impacts to groundwater resources from this activity under current and future conditions. This information can be found at Appendix [ ]." What appendix is this referring to? Also, it would be good to clarify if the estimate of 2 million plants is regarding the whole county or just the Scott basin.	TC-019
2	41	2.1.5.2	1299	The Lee 2016 document cited here is not included in the references at the end of the chapter.	TC-020
2	44	2.2.1.2	1379-1391	This paragraph discusses trends at 9 snow stations. The up-to-date data are appreciated, but it would also would be good to cite previous analyses of regional snowpack data, something like "Since the 1940s, the percent of precipitation falling as snow has decreased in the region (Lynn et al. 2020) and April 1 snowpack has decreased, especially at lower elevations (Van Kirk and Naman 2008)." Citation: "Lynn, E., Cuthbertson, A., He, M., Vasquez, J. P., Anderson, M. L., Coombe, P., Abatzoglou, J. T., & Hatchett, B. J. (2020). Technical note: Precipitation-phase partitioning at landscape scales to regional scales. Hydrology and Earth System Sciences, 24(11), 5317–5328. https://doi.org/10.5194/hess-24-5317-2020"	TC-021
2	69	2.2.1.6	1878	"Some of these flow gauges (notably French Creek and Sugar Creek) have later end dates than the years listed…"	TC-022

Chapter	Page	Section	Line/Table/ Figure #	Comment	
2	70	2.2.1.6	1934-1936	In contrast, lower baseflow in September and October since the 1970s has been attributed to climate change as the dominant factor (ibid. Figure 6; Drake et al., 2000), although Asarian and Walker (2016) found that flow declines in August, September, and October were much larger than could be explained by precipitation alone." Suggested language is based on Figure 8 from Asarian and Walker (2016) which shows declines in precipitation-adjusted flow. Citation: Asarian, J. E., & Walker, J. D. (2016). Long-Term Trends in Streamflow and Precipitation in Northwest California and Southwest Oregon, 1953-2012. Journal of the American Water Resources Association, 52(1), 241–261. https://doi.org/10.1111/1752-1688.12381	TC-023
2	70	2.2.1.6	1936-1939	"Over the past 22 years, the relative frequency of below average and dry years has been much higher than during any period in the 20th century during which Scott River flows at Fort Jones have been measured (Figure 16). This has resulted in more frequent occurrence of baseflow conditions of less than 20 cfs, although low flows measured in recent years have not been lower than low flows measured prior to 2015 (Figure 16)." These sentences are unclear and should be re-worded. The phrase "below average and dry years" implies precipitation, but Figure 16 shows flows not precipitation, so should probably be re-worded as "years with low-flows". Are water year types (and methods used to derive water years types) explicitly defined somewhere in the GSP (i.e., see comment on Chapter 2, Section 2.2.3, page 108, line 2991)? The purpose of the statement "although low flows measured in recent years have not been lower than low flows measured prior to 2015" is unclear and should either be deleted or explain why that is notable. Minimum flows have clearly declined over the period of record (e.g., see Figure 16, or the statistical analyses in Asarian and Walker 2016). Looking at Figure 7 on page 26 which shows precipitation, the period 2000-2021 does not look obviously drier than 1977-1999.	TC-024
2	73	2.2.1.7	1960-1963	"Figure 18 illustrates the monthly variations in the amount and direction of water exchange between groundwater and surface water. Losing sections are indicated by red colors and the positive value of the logarithm of the rate of stream leakage to groundwater. Gaining stream sections are indicated by blue colors…" The Figure 18 on page 72 (a map of dry and wet river/stream reaches from SRWC 2018) does not match the description on page 73. Page 73 appears to instead describe Figure 5 from Tolley et al. (2019) which we do not see in the GSP document.	TC-025
2	73	2.2.1.7	1975	Tributary names should be labeled on subject Figure.	TC-026
2	75	2.2.1.7	2040	When talking about summer baseflow period depletion, what is the rationale for only presenting estimates for the Sept.-Oct. period? What is going on earlier in the summer and in the late fall?	TC-027

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2	75	2.2.1.7	2026-2051	Table 7 provides summaries of stream depletion. Values are presented as ranges (e.g., 43-65 cfs). Please clarify what these ranges are (e.g., is the minimum and maximum of the seasonal averages observed across all years?) and briefly discuss in the text if there are any apparent patterns driving the variation between years (e.g., is stream depletion generally greater in low-snowpack/flow years?).	TC-028
2	76	2.2.1.8	2063-2065	"For purposes of this section, 'GDE' is used to refer to a spatial area covered by vegetation that is observably distinct from dry-land terrestrial vegetation." What about areas that historically had groundwater-dependent riparian vegetation but do not current support this vegetation because of groundwater depletion. For example, the valley reach of Moffett Creek used to have large riparian trees but they are nearly all dead now, with a few standing skeletons remaining. Moffett Creek is not mapped as GDE in Figure 19, should it be?	TC-029
2	80	2.2.1.8	2172-2174	What depth to groundwater mapping analysis performed? What seasonal (winter vs. summer) groundwater level information used to inform the DTW determination?	TC-030
2	80	2.2.1.8	2179-2180	The GDE mapping appears to be based solely on visual or aerial map inspection. Were all iGDEs assumed to be GW dependent or were some removed due to excessive DTW? What iGDEs dropped and why, if any?	TC-031
2	82	2.2.1.8	Table 1	Shouldn't cascade frogs and willow flycatchers be added to Table 1 (or related text), even they were not listed by the Nature Conservancy?	TC-032
2	108	2.2.3	2991	It is unclear how water year types were defined. Tolley et al. (2019) used the "Sacramento Valley water year hydrologic classification" (though no citation is provided so it is unclear what that is) while Foglia et al. (2013) used an analysis of Fort Jones and Callahan precipitation data. Please clarify here how water year types were defined.	TC-033
2	112	2.2.3	3030-3050	In Table 15, the SW Irrigation values do not add up to the Farmers and SVID Div. values presented in Table 14. Where do the SW Irrigation values in Table 15 come from? Similarly, the GW Irrigation values in Table 15 don't equal the "Wells" values presented in Table 16 – where do the GW Irrigation values come from and why do they differ from the Wells values?	TC-034
2	112	2.2.3	3030-3050	The Median SW budget values indicates a 10 TAF deficit in stream flow. This suggests a long-term chronic condition of stream outflows exceeding inflows during most years. It would also be helpful to present the Average values on Tables 14-16 for comparison.	TC-035

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2	113	2.2.3	3079-3081	"The streamflow regression model is a statistical tool used to estimate tributary inflows at the valley margins when upper watershed flow data are unavailable ('streamflow regression model') (Foglia et al. 2013)." While true, this statement is somewhat misleading. During the 1992-2018 model period, most tributary inflows are estimated not measured. It would probably be more accurate to revise this to: "…used to estimate tributary inflows at the valley margins, supplemented by gaged upper watershed flows when data are available ('streamflow regression model') (Foglia et al. 2013)."	TC-036
2	113	2.2.3.1	3090	"Agricultural irrigation is calculated based on daily crop demand." should be revised to "Agricultural irrigation is calculated based on daily crop demand, with an efficiency assigned to each field based on source of irrigation water and type of irrigation." Efficiency is an important component of the model that merits brief explanation here even if the details are explained in Appendix 2-C.	TC-037
2	114	2.2.3.1	3096-3097	All precipitation falling on cultivated fields and native vegetation is assumed to infiltrate completely and "runoff is neglected". Yet, the SW budget indicates runoff (overland flow). So, are the water budget models double accounting for runoff? (i.e., ppt. runoff contributing to SW flow and ppt. runoff being infiltrated into soil budget and possibly being transferred to GW recharge).	TC-038
2	114	2.2.3.1	3121	What does "weakly coupled" mean?	TC-039
2	114	2.2.3.1	3130-3134	"However, for the MODFLOW model, daily values of stream inflow from the upper watershed, pumping, and recharge, including canal and mountain front recharge, are aggregated (averaged) to each calendar month and held constant within a calendar month. In MODFLOW, the calendar month is referred to as a 'stress period'". This seems like an un-necessary coarsening of the data, given that the computationally intensive part is the daily time step of the daily model, right? Why do that? The surface water budget is calculated on a daily basis. Flow data could be estimated on a daily basis. The model is used for purposes such as predicting the date when flows in the fall first increase to above 20 cfs, so a monthly model seems less than desirable for those purposes. Foglia et al. 2013 wrote: "However, if warranted, the budget model described here can also be applied to an integrated hydrologic modeling scenario with weekly or bi-weekly varying stress periods or to stress periods of varying period length." This issue is particularly pertinent in the fall, when the model does not do well at representing the timing and magnitude of flow increases (i.e., as discussed in Appendix 2-D).	TC-040

2	116	2.2.3.2	3197	"Surface water irrigation diversions are computed as a function of irrigation demand. Fall/winter diversions for stockwater are not included in the current version of SVIHM, but will be added in the future." If we understand correctly, the SVIHM assumes that no surface water diversions occur outside of the irrigation season (i.e., after September 30? or is it weather driven?). In reality, there are substantial diversions for stockwater, with many diversions remaining in place after the end of irrigation season. In years when there is not much fall rain (i.e., 2009, 2020), these stockwater diversions can divert the flow of entire creeks and leave downstream reaches dry during salmon spawning season. Not including these diversions is a considerable deficiency of the SVIHM. The effect of these winter stockwater diversions on fall/winter flows is an important management question that we need tools like the SVIHM to answer. These diversions inadvertently (from a water rights perspective, though we cannot rule out that recharge might be part of diverters' motivation) provide some amount of beneficial aquifer recharge in late winter or spring once surface flows are reconnected throughout the valley. On the other hand, during fall these diversions likely extend the period of low river flow by some unknown number of days because they take water from the channel and recharge the aquifer in locations far from the river where the water may take weeks or months to return. Stockwater diversions in the fall cause recharge during the worst possible time of year (managed aquifer recharge should occur in the late winter and spring, not the summer and fall!). Incorporating these stockwater diversions into the model would be difficult because these diversions are unreported and unmetered. One approach for dealing with the data gaps would be to bookend the estimates in a sensitivity analysis with low and high scenarios. The low scenario could assume that the diversions match demand including transmission losses (i.e., recent State Water Boards emergency regulations set maximum diversion rates based on the number of animals and assumed 90% conveyance losses, see https://www.waterboards.ca.gov/drought/scott_shasta_rivers/docs/surface_water_stockwater_diverters_090121.pdf). The high scenario could assume that the diversions match the irrigation season right (i.e., from the adjudication), since the stockwater diversions utilize the same ditches as the irrigation diversions. We are not very familiar with the day-to-day operation of these stockwater diversions and thus are unclear if they are pulsed (i.e., on for a few days, off for a few days, etc.) or continuous, but hopefully local farmers and ranchers could provide information on that as well as advise on the volume of the diversions. One exception to the data gaps on winter stockwater diversions is that the Scott Valley Irrigation District (SVID) diversions are reported monthly for the years 2010–2020 in the State of California's eWRIMS database. For example, SVID diversions for the October 2019 for "1000-1800 cattle-sheep-horses" were reported as 260.4 AF	TC-041

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				(https://rms.waterboards.ca.gov/LicensePrint_2019.aspx?FORM_ID=476977). This equates to 4.2 cfs during a month when flows at the USGS gaged average 7.1 cfs. Assuming that each head of livestock needs 15 gallons per day (cattle value from https://www.waterboards.ca.gov/drought/scott_shasta_rivers/docs/surface_water_stockwater_diverters_090121.pdf), then 1800 cattle would need 27,000 gallons/day. In comparison the 260.4 AF diversion equates to 8.4 AF/day, or 2.7 million gallons/day, which is 100x greater than the amount of water actually needed to sustain the livestock. Is this a "reasonable" use of water at a time when mainstem river flows were so low that salmon could not access their spawning grounds? Conversion of winter stockwater diversions to stock tanks fed by small wells could be the lowest-hanging fruit for achieving meaningful increases in fall river flows while having little or no economic cost to agriculture (assuming the conversions are paid for with public money). We recognize that the GSP cannot dictate management of surface flows; however, the analyses and models used in the GSP should consider the real-world water budget and not ignore important drivers of key groundwater management endpoints (i.e., fall flows).	TC-041, Cont'd
2	116	2.2.3.2	3197-3200	"Surface water diversions are computed as a function of irrigation demand. The conceptual diversion points from tributary flows are just outside the Basin boundary, except for two internal diversions (6 TAF, see below), which is consistent with most diversions occurring near the Basin margin." Due to data constraints, the approach of estimating diversions based on irrigation demand (i.e., deduct diversion from gages surface inflows) makes sense. However, since some tributary flow gages are located downstream of substantial diversions (e.g., French Creek), it seems like the flows at these gages should be treated differently than gages that are upstream of diversions, but we do not see this mentioned anywhere in the documentation. For fields irrigated with water diverted upstream of flow gages, shouldn't the water demand not be deducted from the gaged flows? Deducting the demand seems like double-counting the diversion (first it is already implicitly deducted prior to the gage measurement because the water is not physically there, then it is explicitly deducted during data processing).	TC-042

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2	117	2.2.3.2	3209-3214	"Mountain Front Recharge, the phenomenon of diffuse water flow through mountain soil or fractured bedrock into the alluvial sediments of an aquifer along a valley margin, is simulated along the western edge of the model domain. It is estimated to be a volume that changes month-to-month (i.e., greater recharge during the wet season) but which is identical year over year (see Appendix 2-C for more details)." We have reviewed the Appendix 2-C documents as well as the S.S. Papadopulos (2012) report that is cited for the original estimate. Mountain Front Recharge is estimated at <18 TAF (thousand acre-ft), so is quite small relative to other inputs (i.e., it is <5% of the other inflows [stream inflow and precipitation] on average). While we sympathize with the difficulty of estimating this parameter, we do not understand why it should be constant between years, given that it is derived from a water balance of terms that vary considerably between years (i.e., precipitation minus evapotranspiration minus surface flows). Seems like it would make more sense to scale it to be larger in wet years than dry years?	TC-043
2	120	2.2.3.2	3330-3331	"Recharge from the land surface occurs primarily in winter months but is limited – except under flood irrigation – during the summer months." This ignores fall/winter stockwater diversions, which are substantial but not included in the SVIHM. See comments above regarding chapter 2, page 116, section 2.2.3.2, line 3197.	TC-044
2	125-126	2.2.4	3437-3515	The "Future Water Budget" section is lacking discussion of some key factors. For example, what changes are expected to snowpack and tributary inflow hydrographs (i.e., runoff timing) of the four climate change scenarios evaluated? What are the greenhouse gas emissions trajectories associated with the climate scenarios (i.e., does it assume "business as usual" or that aggressive efforts are made to reduce greenhouse gas emissions, or something intermediate?). Listing the degrees Celsius (or Fahrenheit) of air temperature increase associated with each scenario would be helpful for context.	TC-045
2	125	2.2.4	3473	DWR 2018 citation is not included in the references cited at the end of the chapter.	TC-046
2	126	2.2.4	3499-3502	Figure citation should be fixed: "Importantly for sustainable groundwater management, none of the future climate scenarios indicate that the lowest groundwater storage points decrease over repeated drought occurrence (Figure 31~~28~~)." Also, please explain the significance/implications of this. Does it mean that long-term overdraft and subsidence are unlikely? Or that late summer streamflows will not be lower with climate change?	TC-047

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2	130	2.2.4	Figure 32	"Figure 32. Projected flow at the Fort Jones Gauge, in difference (cfs) from Basecase, for four future projected climate change scenarios. Near and Far scenarios show minimal differences from historical basecase flow conditions." Perhaps we are mis-understanding what these scenarios are, but are extremely skeptical of any claims that the temperature-driven changes in precipitation form due to climate change (i.e., more rain and less snow) are not going to substantially decrease river flows in summer and fall, regardless of what happens to total annual amount of precipitation. The GSP should acknowledge these realities and then describe how the model predicts that this will seasonally change river flow and groundwater. The format of the graph makes it very difficult to see meaningful seasonal patterns. The y-axis scale that ranges from -2,000 to +12,000 cfs makes it impossible to see what is happening during low flows. Can you add a second panel that to graph so that the low-flow period is legible (maybe -100 to +100 cfs?)? Or maybe limit the months to just show April through October?	TC-048
2	137	References	3775-3777	Langridge, Ruth, Abigail Brown, Kirsten Rudestam, and Esther Conrad. 2016. "An Evaluation of California's Adjudicated Groundwater Basins." https://www.waterboards.ca.gov/water_issues/programs/gmp/docs/resources/swrcb_012816.pdf ~~https://doi.org/10.1038/nmicrobiol.2016.214~~	TC-049
3	9	3.3	351-353	"Where it is necessary, the GSA will coordinate with existing programs to develop an agreement for data collection responsibilities, monitoring protocols and data reporting and sharing." How will transparency and public access to data be incorporated into these data reporting and sharing agreements? All data that is paid for with public money should be accessible to the public.	TC-050
3	21	3.3.5.1	748+	Surface water flow estimates in SVIHM appear to only be calibrated to the Ft. Jones gauge. Comparing simulated stream flow against only one calibration point for such a large river system calls into question how well the model is at simulating stream flow in other reaches that may be experiencing different management and hydrogeologic conditions. The proposed monitoring plan does not call for any additional river flow monitoring along the mainstem river. We recommend adding additional stream flow monitoring gauges along the mainstem river to better calibrate/validate the stream flow estimates along the entire reach, not just at the downstream Ft. Jones outflow point. Given the need for additional tributary gages as model inputs, we are not sure how we would rank the priority of additional mainstem gages. Perhaps these additional mainstem gages should just be operated for a few years, long enough to capture different water year types. Or perhaps there are discrete flow measurements collected during other sampling or special projects (i.e., in the early/mid 2000s in preparation of the TMDLs) that could be used for calibration and verification?	TC-051

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3	26	3.3.5.2	935-972	In this "Assessing and Improving SVIHM" section, we recommend several additional tasks. These model refinements are described in more detail in a separate comment document (not in this comment form), but are briefly summarized here: 1) use a better method for filling the large gaps in tributary inflows (e.g., considering other model types beyond linear regression, and using Salmon River gage as an alternative to the Scott River gage for filling tributary data gaps at least for some months and/or sites), 2) incorporate fall/winter stockwater diversions, 3) shorten the MODFLOW model timestep to something shorter than a month, 4) do a sensitivity analysis to quantify how sensitive modeled outflows are to tributary inputs (especially during September and October).	TC-052
3	30	3.4.1	Figure 5	The definition of Minimum Threshold in Figure 5 is confusing: "Minimum Threshold: historic low – (10 % of max historical depth to water or 10 ft, whichever is less)" Maybe revise to "Minimum Threshold: historic low minus either 10% of max historical depth to water or 10 ft, whichever is less"	TC-053
3	30-38	3.4.1	1088-1265	As currently proposed, the Actions Trigger occurs if water levels at a well fall below the historic level for two consecutive years and the Minimum Threshold occurs if a well falls more than 10% (or 10 ft, whichever is less) of the historic level. We have not actually tried an experiment with hypothetical or real well data, but it seems possible that well levels could have long-term declines but not ever violate the Actions Trigger and Minimum Threshold if the decline is "bumpy", meaning there are not consecutive drought years. For example, well levels could alternate between moderate/high levels in wet or normal years, followed by a severe drought year in which well levels drop to historically low levels (but not exceeding the 10 ft or 10%), followed by moderate/high levels in wet or normal years, followed by a severe drought year in which well levels drop to historically low levels (but not exceeding the 10 ft or 10%), etc. This seems very problematic because conditions could progressively deteriorate but never violate the AT or MT.	TC-054
3	34	3.4.1.1	1173-1183	This paragraph of the GSP, similar to other sections of the GSP, does not mention one of the key elements of climate change for which there is high certainty- there will be a shift in precipitation form (less snow and more rain) that will shift the seasonal timing of tributary surface flows into the valley. Regardless of what happens to total precipitation or total runoff, this change in precipitation form and runoff timing is a huge issue that water management is going to need to deal with.	TC-055
3	35	3.4.1.2	1236-1237	As these are depth to groundwater values in Table 5, shouldn't the MO values have less-than signs, not greater than signs?	TC-056

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3	35-36	3.4.1.2	1227-1245	Is “primary trigger (PT)” here the same as “Action Trigger” in Figure 5 (on page 30)? If the meaning is the same, then it would be better (i.e., easier to understand) to use the same phrase/abbreviation rather than have two separate terms that mean the same thing. On the other hand, if they are different, then shouldn’t Figure 5 also show the PT in addition the Action Trigger?	TC-057
3	44	3.4.1.3	1495-1531	The water quality triggers are all based on the 75th percentile of wells, so it is conceivable that water quality conditions could deteriorate horribly at 20% of wells and that would not violate any triggers. Seems like it might make sense to also have some metric that would reflect conditions in the wells with the worst water quality?	TC-058
3	46	3.4.3.1	1591-1593	Same comment from March Draft: Irrigating with water containing moderate to high nitrate levels may also increase nitrate concentrations in underlying groundwater.	TC-059
3	46	3.4.3.2	1618-1621	Same comment from review of draft in May: This language is very confusing and unclear how it translates to concentrations. One way it reads suggests that a 14% annual increase per year over a 10 year period in no more than 25% of wells is acceptable. However, compounding a 14% increase over a 10 year period results in a 370% increase in concentration. Perhaps the intent of the statement is, "Monitoring well concentrations shall not exceed the Maximum threshold by 15% in more than 25% of wells during any given year". One could also argue that it isn't warranted - a Maximum threshold should be treated as a just that - a Maximum threshold. Why are exceptions warranted? Theoretically, reaching/exceeding the trigger concentrations should trigger corrective actions. Perhaps the 15% annual exceedance in 25% of wells exception should be applied to trigger values, not Maximum thresholds.	TC-060
3	54	3.4.5.1	1868-1870	Asarian and Robinson (2021) would be a good citation for this sentence: “Excessive stream temperatures are also related to earlier completion of the snowmelt/spring flow recession…” Full reference is: Asarian, J. E., & Robinson, C. (2021). Modeling Seasonal Effects of River Flow on Water Temperatures in an Agriculturally Dominated California River [Preprint]. Earth and Space Science Open Archive; Earth and Space Science Open Archive. https://doi.org/10.1002/essoar.10506606.1	TC-061

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3	54	3.4.5.1	1885-1889	"Some consumptive uses of groundwater may have a more immediate impact on streamflow than others; for example, a well that begins pumping groundwater 66 ft (20 m) from the river bank may cause stream depletion hours or days later, while a well that begins pumping two miles (3 km) west of the river bank may not influence streamflow for months or even a year." This is an important point. Unfortunately, the SVIHM is not capable of simulating the short-term impacts. Prudic et al. (2004) provide the following statement on the associated limitations on MODFLOW's streamflow routing package: *"The mass-balance or continuity approach for routing flow and solutes through a stream network may not be applicable for all interactions between streams and aquifers. The SFR1 Package is best suited for modeling long-term changes (months to hundreds of years) in ground-water flow and solute concentrations using averaged flows in streams. The Package is not recommended for modeling the transient exchange of water between streams and aquifers when the objective is to examine short-term (minutes to days) effects caused by rapidly changing streamflows."*	TC-062
3	58	3.4.5.1	2032-2034	"The reasonableness of groundwater use that may contribute to stream depletion could depend on a number of circumstances, including the benefits of pumping groundwater and the resource benefits of pumping groundwater" This statement distracts from the issue as it addresses the beneficial uses of groundwater consumers, not the beneficial uses of surface waters.	TC-063
3	58	3.4.5.1	2044-2047	"In the context of assessing MTs for the ISW SMC, it is reasonable to only hold groundwater users~~producers~~ outside the adjudicated zone to a modest percentage of stream depletion reversal because any greater responsibility would unreasonably constrain groundwater users in the basin." We agree that groundwater users outside the adjudicated zone are not responsible for solving all the water issues in the Scott River. However, the approach taken here is backwards. Rather than first defining an arbitrary endpoint based on what groundwater users can relatively easily tolerate, the first step should be to determine the instream flows needed by fish, then calculate the difference between those needed flows and current flows, and then assign the same percent reductions needed by all water users (surface, adjudicated groundwater, and unadjudicated groundwater) to meet that difference. To use a hypothetical example, if overall water use needs to be reduced by 40% to meet instream flow targets, then surface water users, adjudicated groundwater users, and unadjudicated groundwater users should each be responsible for reducing their water use (or coming up with projects that produce an equivalent amount of seasonal supply) by that same 40%.	TC-064

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3	58	3.4.5.1	2044-2047	What is "modest" and how is it quantified in terms of groundwater use?	TC-065
3	59	3.4.5.1	2089-2090	"…that is, what is an "unreasonable" amount of stream depletion, which could 2089 be reframed as: what is a "reasonable" amount of avoided groundwater use?". This statement is not how SGMA defines an unreasonable impact for ISW. The GSA can't replace "unreasonable impacts on beneficial uses of surface water" with reasonable use of groundwater.	TC-066
3	60+	3.4.5.1	2108-2209	ISW MT should not be defined based on a proportion or partial contribution to an undesirable result. SGMA requires that an MT define the minimum threshold for a full undesirable result. The whole concept of defining the ISW MT on what the PMA can achieve is putting the cart before the horse. The MT is a numeric value used to define an undesirable result (this may be why the GSP spends so much time confusing and twisting the definition of undesirable result). The MT, if exceeded, may cause an undesirable result. PMAs are a means to avoid exceeding an MT, not a mechanism to define an MT.	TC-067
3	63	3.4.5.1	Table 7	The caption here says that streamflow depletion is summarized across the "Sep 1 to Nov 1" period. Is that correct, or should it be "Sep 1 to Nov 30", as is stated on the Slide 8 of Appendix 4-a? Given that the model's primary time scale is monthly, the correct time period is probably Sept. 1 – Nov. 30, right?	TC-068
4	3	4.1	107-110	"In developing PMAs, priorities for consideration include effectiveness toward maintaining the sustainability of the Basin, minimizing impacts to the Basin's economy, seeking cost-effective solutions…" Based on the description here, it seems like increasing the efficiency of fall/winter stockwater diversion and delivery systems (so these diversions could be dramatically reduced with little economic impact) would be low-hanging fruit that should have been included as a PMA. This would not improve groundwater conditions, but could (we do not know, in part because the SVIHM is not currently set up to be able to provide answers to this important question) mitigate some of the fall streamflow depletion caused by groundwater pumping. While ditches currently used for stockwater could be very useful for managed aquifer recharge (MAR), this activity should only occur during times when there is abundant surface water, such as late winter and spring of normal and wet years, and should utilize a MAR-specific water right so it can be appropriately managed to benefit, rather than harm, instream flows. See our comments on Chapter 2, page 116, section 2.2.3.2 for additional information on this topic.	TC-069

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4	5	4.1	205	Which "Existing reports, proposals" were used to develop the PMAs for recharge? Please provide specific citations.	TC-070
4	5	4.1	206	Shouldn't the Scott River Watershed Council be listed as an entity that is engaged in planning and implementing habitat improvement projects? Table 1 on page 7 lists several PMAs being implemented by the Council.	TC-071
4	7	4.1	Table 1	Increasing the efficiency of fall/winter stockwater diversion and delivery systems (so these diversions could be dramatically reduced with little economic impact) should be included as a PMA. See our comments on Chapter 2, page 116, section 2.2.3.2 for additional information on this topic.	TC-072
4	8	4.1	Table 1	Beaver Dam Analogues (BDAs) are listed solely in the "Habitat Improvement" category. Aren't they also designed to increase groundwater storage and recharge? Why weren't model runs conducted on the effects of BDAs? Is the model not capable of simulating BDAs? If not, what modifications to the model would be needed to simulate BDAs?	TC-073
4	8	4.1	Table 1	Prescribed fire should be added to the list of activities described in the Scott River Watershed Council's "Upslope Water Yield Projects" PMA.	TC-074
4	9	4.1	Table 1	In the "Voluntary Managed Land Repurposing" PMA, we recommend adding groundwater recharge. See our comments on Chapter 4, Section 4.3, pages 24-28, lines 640-809 for additional discussion of this topic.	TC-075
4	13	4.3	316	The "Avoiding Significant Increase of Total Net Groundwater Use from the Basin" PMA does not provide a definition of what "significant" means, so we suggest removing that word. Without a definition, isn't this PMA meaningless? It should probably either be percent (e.g., 1%) or volume? See related comment regarding Chapter 4, page 17, section 4.3, lines 454-456.	TC-076

Chapter	Page	Section	Line/Table/ Figure #	Comment	
4	13	4.3	340-344	We are unable to understand exactly what the "Avoiding Significant Increase of Total Net Groundwater Use from the Basin" PMA means, especially, this excerpt: "Due to the direct relationship between net groundwater use and ET, implementation of the MA is measured by comparing the most recent five- and ten-year running averages of agricultural and urban ET over both the Basin and watershed, to the maximum value of Basin ET measured in the 2010-2020 period, within the limits of measurement uncertainty." Can it be re-stated more clearly, such as, "The goal of this MA is for X not to exceed Y by Z percent?" Can you provide information on the limits of measurement uncertainty? What is the rationale for using the maximum as the basis for the comparison? Is the purpose of the running averages to smooth out climatic variation (i.e., is ET higher in wet years than dry years)? If there is substantial variation between water year types, then should the goal be different in different water year types? What about the contribution of surface water irrigation to ET? We anticipate that climate change will cause increased reliance on groundwater because surface water flows are going to recede earlier in the irrigation season (due less snowmelt), which could result in ET staying the same but groundwater extraction will increase and flows be lower, all without violating this MA.	TC-077
4	13	4.3	348-352	"To provide an efficient, effective, and transparent planning tool that allows for new urban, domestic, and agricultural groundwater extraction without increase of total net groundwater use. This can be achieved through exchanges, conservation easements, and other voluntary market mechanisms while also meeting current zoning restrictions for open space, agricultural conservation, etc. (see Chapter 2)." Exchanges and markets need real, verifiable information if they to operate properly. Without widespread metering, it would be far too easy to game the system.	TC-078
4	14	4.3	354-356	"To be flexible in adjusting the limit on total net groundwater extraction if and where additional groundwater resources become available due to additional recharge dedicated to later extraction." Groundwater is already over-extracted. Additional recharge should be used to reverse streamflow depletion, not enable more extraction.	TC-079

Chapter	Page	Section	Line/Table/ Figure #	Comment	
4	15	4.3	414-415	"The Basin has negligible groundwater inflow and outflow across its aquifer boundaries. As a result, pumping and recharge outside the Basin do not affect groundwater levels." Negligible is probably too strong a word, probably should be "relatively little" instead? Mountain Front Recharge ("the phenomenon of diffuse water flow through mountain soil or fractured bedrock into the alluvial sediments of an aquifer along a valley margin") is estimated constant at <18 thousand acre-feet (TAF), compared to total inflow which ranges from 149 TAF in the driest year to 788 TAF in the wettest year (i.e., see Chapter 2, page 17, Section 2.2.3.2)? Mountain Front Recharge is estimated to be 12% (18/149) of total inflow in the driest year, which isn't really "negligible," is it?	TC-080
4	17	4.3	454-456	"The permitting program would ensure that construction of new extraction wells does not significantly expand current total net groundwater use in the Basin (to the degree that such expansion may cause the occurrence of undesirable results)." How are "undesirable results" defined? Please add a definition or citation here. See related comment regarding Chapter 4, page 13, section 4.3, line 316.	TC-081
4	17	4.2	460	"Here are two illustrative examples of an appropriate use of well replacement…" … "Example 2: Replacement of a 1,000-gpm agricultural well that will be properly decommissioned with a new 2,000-gpm capacity agricultural well is permissible with the explicit condition that the 10-year average total net groundwater extraction within the combined area serviced by the old and the new well does not exceed the average groundwater extraction over the most recent 10-years." Since groundwater use is mostly unmetered (much less publicly accessible), how would this be tracked or enforced?	TC-082
4	21	4.2	543	The discussion of Beaver Dam Analogues (BDAs) discusses habitat, but aren't BDA's also designed to increase groundwater storage and recharge? See comments on Chapter 4, Section 4.1, page 21, Table 1 for additional information.	TC-083
4	22	4.2	574	Prescribed fire should be added to the list of activities described in the Scott River Watershed Council's "Upslope Water Yield Projects" PMA.	TC-084

Chapter	Page	Section	Line/Table/ Figure #	Comment	
4	23	4.2	609-639	For the Irrigation Efficiency Improvements, "Potential benefits were quantified through modelled scenarios of a 10% increase, 20% increase, and 10% decrease in irrigation efficiency. Relative stream depletion reversals resulting from these scenarios were 4%, 12% and -2%, respectively (Appendix 4-A)." Can you add a sentence or two here describing how improved efficiency affects the monthly/annual water budgets and reduces streamflow depletion in the September-November period? There's a widespread misconception among the public and agencies that increasing irrigation efficiency magically creates water, so it would be helpful if the text here provided specific estimates of how it changes the water budget. Increased efficiency would have zero impact on ET, but would decrease pumping and diversions and would decrease recharge, right? Does efficiency reduce some of the streamflow depletion because the reductions in pumping and diversions outweigh the decreases in recharge?	TC-085
4	23	4.2	631-639	The proposed monitoring of irrigation efficiency omits a key tool– metering of water use. Without metering, how can we know if the efficiency projects are actually working?	TC-086
4	23	4.2	631-639	The proposed monitoring of irrigation efficiency lists "Assessment of the increase in irrigation efficiency, with particular emphasis on assessing the reduction or changes in consumptive water use (evaporation, evapotranspiration) based on equipment specification, scientific literature, or field experiments." Doesn't efficiency usually not affect consumptive water use but instead just change recharge (that's how it is represented in the SVIHM, right?). What is the physical basis for thinking efficiency would affect consumptive use for crops like pasture and alfalfa that have low-lying continuous canopy cover (i.e., in contrast to orchards or row crops like tomatoes where efficient delivery systems like drip irrigation could reduce evaporation from bare soil)?	TC-087
4	27	4.3	764	The Permitting and Regulatory Process section explains the legal basis for how water could be diverted for managed aquifer recharge (MAR) though a SWRCB temporary permit, but we are unclear how the water rights would work for in lieu recharge (ILR). Is switching from groundwater to surface water really legal under California water law? If so, please explain in this section. Would the ILR utilize existing surface water rights (but don't farmers generally already exhaust their surface water rights each year before switching to groundwater)? Or would ILR require a separate temporary permit than MAR? Or would ILR require new permanent surface water rights? It seems very unlikely that SWRCB would grant new surface water rights for irrigation after the start of the April 1 irrigation season, but there might be new rights available in March.	TC-088