



FRIENDS OF
THE SANTA CLARA RIVER

May 5, 2021

Via Electronic Mail

Mr. Anthony Emmert
Executive Director
Fillmore and Piru Basins Groundwater Sustainability Agency
P.O. Box 1110
Fillmore, California 93016
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Re: Environmental Stakeholder Input on Draft Sustainability Management Criteria Matrix

Dear Mr. Emmert:

Thank you for this opportunity to comment on the Draft Sustainability Management Criteria (SMC) matrix (Matrix) for the Fillmore and Piru Basins Groundwater Sustainability Plans (GSP).

As you are aware, Friends of the Santa Clara River represents the Santa Clara River Environmental Groundwater Committee and local environmental interests in the development of the GSPs, to ensure that Groundwater Dependent Ecosystems (GDE) are identified and that significant and unreasonable adverse impacts on all recognized beneficial uses of groundwater and related surface waters are adequately considered. To that end we offer the following recommendations on the SMC Matrix:

Surface Water Depletion

Aquatic Species

Groundwater Dependent Ecosystems include sensitive aquatic species, namely Santa Ana sucker (*Catostomus santaanae*), arroyo chub (*Gila orcutti*), partially armored threespine stickleback (*Gasterosteus aculeatus microcephalus*), Southern California steelhead (*Oncorhynchus mykiss*), Pacific lamprey (*Entosphenus tridentatus*), Arroyo toad (*Anaxyrus californicus*), Two-striped gartersnake (*hamnophis hammondi*), and Southwestern pond turtle (*Actinemys pallida*). Steelhead are regarded as a flagship species that indicate watershed health. If we set suitable SMC's, minimum thresholds, and measurable objectives for steelhead, these will most likely support the other aquatic species listed.

When analyzing impacts on steelhead or other aquatic organism resulting from surface water depletion, identifying flow levels that effectively support essential life functions of this species is critical. Specifically, it is essential to determine the pattern and magnitude of flows that adequately support winter and spring adult and smolt steelhead migration, and juvenile rearing throughout the year, especially during summer. Without an understanding of these and other biotic thresholds, it is not possible to determine whether significant and unreasonable adverse impacts resulting from surface-water flow modification are avoided.

United Water Conservation District (United) implements the Santa Felicia Water Release Plan 2012 (Plan), which outlines a water release schedule for the operations of the Santa Felicia Dam. This plan was prepared to comply with the reasonable and prudent alternative (RPA) 2 contained in article 401(a)



of United's license issued by the Federal Energy Regulatory Commission (FERC) for the Project (FERC Project No. 2153) and the associated biological opinion, dated May 5, 2008, issued by the National Marine Fisheries Service (NMFS), for the endangered southern California steelhead. The plan ensures the magnitude, timing, frequency, duration, and rate-of-change of releases from Santa Felicia Dam into Piru Creek will: 1) Provide unimpeded migration of adult and juvenile steelhead in Piru Creek downstream of Santa Felicia Dam and in the Santa Clara River from the confluence of Piru Creek downstream to the Freeman Diversion Structure. 2) Form and preserve freshwater rearing sites for steelhead throughout Piru Creek downstream of Santa Felicia Dam. 3) Create and maintain freshwater spawning sites (including incubation and emergence life stages of steelhead) for steelhead throughout Piru Creek downstream of Santa Felicia Dam. Per United's Plan the habitat and migration release schedules are as follows:

Habitat Water Release Schedule

Beginning each October 1, the United shall release a minimum flow of 7 cubic feet per second (cfs) into Piru Creek below Santa Felicia Dam. United records daily rainfall at Ventura County Watershed Protection District's rainfall station #160 and maintains a running daily cumulative water-year-to-date total of said rainfall. At the first day of each winter month (January through June), the cumulative rainfall is compared against the trigger values given in Table 1 (Column B). When the first-of-the-month rainfall exceeds the corresponding date's trigger value, the minimum release from Santa Felicia is raised to a value no less than the wet-normal flow (Table 1, Column C) and maintained over the ensuing month. If the cumulative rainfall at the first of any winter month (January through June) does not exceed the trigger value, the minimum discharge is reduced to, or maintained at, the minimum of 7 cfs until a subsequent trigger is met. Adjustments for flow increases are initiated no later than 10:00 a.m., and flow reductions aren't implemented prior to 8:00 a.m. on the first day of each winter month (January through June).

Table 1 - Habitat Water Release Schedule

A. When the cumulative annual rainfall at Ventura County Gage #160 measured at 8:00 a.m. on:	B. Exceeds the following trigger values*:	C. Wet-normal year flow, Santa Felicia shall begin and continue releases for the ensuing period at a discharge no less than:
January 1	4.80 inches	15 cfs
February 1	8.10 inches	20 cfs
March 1	12.00 inches	20 cfs
April 1	14.90 inches	20 cfs
May 1	16.30 inches	10 cfs
June 1	17.50 inches	9 cfs which shall be continued through the following September 30 (October 1 begins a new Water Year.)

*All years - cumulative median value, NMFS February 3, 2010 email



Migration Water Release Schedule

Between January 1 and May 31 each year, United releases or bypasses a minimum of 200 cfs during periods of time that fall between the below specified triggers.

1) Flow Initiation Trigger - If the instantaneous rainfall-induced discharge measured at USGS Station No. 11109000 (Santa Clara River near Piru, California) at 8:00 a.m. exceeds 200 cfs, AND the subsequent day's (midnight to midnight) mean daily discharge is predicted to exceed 200 cfs by the NOAA National Weather Service's "California – Nevada River Forecast Center" at River Guidance Point Piru SCPC1, then United shall begin increasing Santa Felicia discharges before 10:00 a.m., in accordance with the ramping criteria to a value of no less than 200 cfs. If the forecast website has not yet been updated at 8:00 a.m., United will check it on the hour, every hour, until it is updated, to determine if the trigger has been met. In this situation, if the trigger is met, United shall begin increasing Santa Felicia discharges within 2 hours of forecast issuance.

2) Flow Cessation Trigger - When the mean daily rainfall-induced discharge measured at USGS Station No. 11109000 falls below 200 cfs, United may begin decreasing Santa Felicia discharges, in accordance with the ramping criteria, to a flow no less than that dictated by the habitat water release schedule value.

During periods of decreasing flows, United is required to ensure that the flows are ramped down at a rate that does not decrease water surface elevations in lower Piru Creek by more than two-inches per hour. This requirement does not apply to increasing flows. During those periods, United will ramp up releases in incremental steps designed to avoid rapid increases in flows. The following ramping rates are intended to accomplish these goals.

1) Habitat Flows

Increasing Flows: Between January 1 and June 1 when increases in habitat flows are triggered, United will increase discharge such that flow no more than doubles in any two hour period.

Decreasing Flows: Between January 1 and June 1 when decreases in habitat flows are triggered, United will ramp discharge down at the rate that does not exceed 2.0 cfs every 30 minutes until the new target habitat flow is reached.

2) Migration and Water Conservation Flows

Increasing flows: United will increase discharge such that flow no more than doubles in any two hour period.

Decreasing flows: United will reduce discharge no more than 50% in any 24-hour period. The downward ramping shall stop, and discharges shall be stabilized, at flows no less than the appropriate habitat flow.



An undesirable result of surface water depletion, would for the operations of the GSA to undermine these water release flows that are mandated by FERC and NMFS.

Recommendation: Implement effectiveness monitoring and adaptive management to ensure that GSA operations do not impede or impact regulated flows. After discussion with Steve Slack and Mark Gard at California Department of Fish and Wildlife, staff recommended a flow metric system based on the most current and available science. The NMFS Biological Opinion is the most current and available science. The GSA should use these instream flow standards in its analysis of the effects of the GSA operations and/or projects on the listed southern California steelhead within the basins.

The over-summering life history stage probably causes the greatest constraints to juvenile steelhead survival and growth. Lowered summer water tables can indirectly affect rearing individuals by reducing vegetative cover, and directly by reducing the summertime surface flows, and eliminating it entirely in parts of the watershed with alluvial hydrologically connected to groundwater pumping.

According to *Mongolo et. al* (2017) water temperature is one of the most important factors that influence distribution and abundance of fish species. Being ectotherms, fish body temperature is linked to the temperature of the water it resides in, therefore impacting growth, metabolism, feeding rate, reproduction, and rearing. Food sources which are predominantly benthic macroinvertebrates, are also limited to water temperature. While increased summer water temperatures tend to be a major limiting factor for most salmonids in other areas, multiple studies conducted in southern California show that rainbow trout (*O. mykiss*) demonstrate more flexibility in their temperature range and an ability to acclimate to higher temperatures within the southern extent of their range. Critical thermal maxima (CTM) ranging from 23°C to 31.5°C have been reported for *O. mykiss* in southern California creeks. A detailed study of the unarmored threespine stickleback (*G. aculeatus williamsoni*) in the Santa Clara River found CTM for this species was 30.4°C when individuals were acclimated to 8°C, and 34.6°C when acclimated to 22.7°C.

Recommendation: Develop a longitudinal temperature profile for the basins by deploying temperature loggers. Develop an accurate characterization of existing instream conditions in priority reaches of rising groundwater and critical habitat, as part of a steelhead limiting factors analysis. Temperature mitigation and management may be needed to sustain rearing of native species in areas of rising groundwater in the summer season. Setting a minimum threshold temperature of 23 degrees Celsius can trigger appropriate management action.

Overpumping eliminates the stream's connection with groundwater, resulting in loss of the natural buffering effect that groundwater has on stream temperatures. Natural bottom and extensive riparian vegetation lining banks and overhanging wetted channel help to moderate water temperatures from extreme fluctuations, which is preferable for both vegetative communities, nesting habitat, and aquatic species. Temperature regimes can create thermal barriers for fish movement during warmer summer season and isolate current populations of native aquatic species to tributaries or areas of rising groundwater. However, it is important to note that even though native fish species can survive higher



temperatures close to 30 degrees Celsius, they do require cooler temperatures for successful reproduction and juvenile rearing.

Recommendation: For reach /GDE specific management to be successful it must be implemented as part of a larger strategy that works to mitigate the effects of underlying stressors that degrade the physical and chemical composition of instream water – and it is for these reasons the GSA’s operations must not undermine the flow requirements stipulated by FERC and NMFS. Furthermore, the Draft GDE Tech Memo also indicate 30 miles of critical steelhead habitat¹. Areas of rising groundwater may require different minimum thresholds to support rearing and spawning, while passage corridors may be less stringent.

FSCR appreciates the opportunity to comment regarding on the Draft SMC Matrix. These are intended to be and are preliminary comments; FSCR reserves its rights to submit other, different and/or additional comments on the GSA’s Draft SMC matrix and GSPs following its release and, where appropriate, throughout subsequent phases of the Agencies’ review process for the plan. If you have a follow up questions regarding this letter, please contact myself on (310) 890-2834 or candicemeneghin@gmail.com. We look forward to further discussion of GDE considerations, minimum thresholds, and measurable objectives.

Sincerely,

Candice Meneghin
Friends of the Santa Clara River Board Member

Cc: Santa Clara River Environmental Groundwater Committee
Mary Larson, California Department of Fish and Wildlife
Ed Pert, California Department of Fish and Wildlife
Mark Capelli, National Marine Fisheries Service
Anthony Spina, National Marine Fisheries Service
Chris Dellith, United States Fish and Wildlife Service

¹ Critical habitat is comprised of habitat that contain essential physical and biological features that provide 1) freshwater spawning areas with water quality and quantity conditions and substrate supporting spawning, incubation, and larval development, 2) freshwater rearing sites with water quality and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility, water quality and forage supporting juvenile development, and natural cover such as shade, submerged and overhanging vegetation, and 3) freshwater migration corridors free of passage obstructions to promote adult mobility and survival.



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References

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