UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213

September 23, 2021

Bill Buelow, Water Resources Manager
Santa Ynez River Valley Groundwater Basin
Eastern Management Area
Groundwater Sustainability Agency
P.O. Box 719
Santa Ynez, California 93460

Re: Draft Santa Ynez River Valley Groundwater Sustainability Plan – Eastern Management Area (September 8, 2021)

Dear Mr. Buelow:

The Santa Ynez River Valley Groundwater Basin Groundwater Sustainability Plan (Draft GSP) for the Eastern Management Area is intended to meet the requirement of the California Sustainability Groundwater Management Act (SGMA). The SMGA includes specific requirements to identify and consider impacts to Groundwater Dependent Ecosystems (GDE) that have significant and unreasonable adverse impacts on all recognized beneficial uses of groundwater and related surface waters (Water Section 10720).

Unfortunately our review indicates the Draft GSP does not adequately address the recognized instream beneficial uses of the Santa Ynez River and its major tributaries within the boundaries of the Eastern Management Area, or other GDE, potentially affected by the management of groundwater within the Eastern Management Area. In particular, the Draft GSP does not adequately address the depletion of interconnected shallow groundwater basins and the pattern of groundwater extraction that have occurred historically, currently, or likely to occur in the future, and its potential adverse effects on the federally listed endangered southern California steelhead (*Oncorhynchus mykiss*).

Of particular concern is the potential adverse effects on designated critical habitat for southern California steelhead within the Santa Ynez River, and the Alisal, Quiota, and Hilton creek tributaries, within the boundaries of the Eastern Management Area. The surface flows at the confluence of Alisal, Quiota, and Hilton creek tributaries are important for maintaining surface hydrologic connectivity for steelhead (and other native aquatic-dependent species) attempting to migrate between these tributaries and the middle reaches of the Santa Ynez River.

NOAA's National Marine Fisheries Service (NMFS) has previously provided extensive comments on these issues, which have not been adequately addressed in the Draft GPS for the Eastern Management Area (see, the attached NMFS letters of April 28, 2021, "Draft Santa Ynez River Valley Groundwater Basin – Eastern Management Area Groundwater Sustainability Plan – Basin Setting: Groundwater Budget" and July 7, 2021, "Santa Ynez River Valley Groundwater Basin – Eastern Management Area Groundwater Sustainability Plan Section 5 – Sustainable Management Criteria").

NMFS appreciates the opportunity to comment on the proposed GSP for Eastern Management Area. If you have a question regarding this letter or enclosure, please contact Mr. Mark H. Capelli in our Santa Barbara Office (805) 963-6478 or mark.capelli@noaa.gov.

Sincerely,

Anthony P. Spina
Chief, Southern California Branch
California Coastal Office

Enclosure

cc: Natalie Stork, Chief, DWR, Groundwater Management Program
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April 28, 2021

Bill Buelow, Water Resources Manager
Santa Ynez River Valley Groundwater Basin
Eastern Management Area
Groundwater Sustainability Agency
P.O. Box 719
Santa Ynez, California 93460

Re: Draft Santa Ynez River Valley Groundwater Basin – Eastern Management Area Groundwater Sustainability Plan – Basin Setting: Groundwater Budget (April 6, 2021)

Dear Mr. Buelow:

Enclosed with this letter are NOAA's National Marine Fisheries Service's (NMFS) comments on the Draft Santa Ynez River Valley Groundwater Basin – Eastern Management Area Groundwater Sustainability Plan – Basin Groundwater Budget (Draft Budget).

The Draft Budget is intended to meet the requirement of the California Sustainability Groundwater Management Act (SGMA). The SMGA includes specific requirements to identify and consider impacts to Groundwater Dependent Ecosystems (GDE) that have significant and unreasonable adverse impacts on all recognized beneficial uses of groundwater and related surface waters. (See Cal. Water Code §§ 10720.1, 10721, 10727.2.)

As explained more fully in the enclosure, the Draft Budget does not adequately address the recognized instream beneficial uses of the Santa Ynez River, or other GDE, potentially affected by the management of groundwater within the Eastern Management Area. In particular, the Draft Budget does not adequately recognize or analyze important GDE, including the federally endangered steelhead (*Oncorhynchus mykiss*) dependent on groundwater supported surface flows.

The reasons for these conclusions are set forth in the enclosure. NMFS recommends that the revised Draft Budget be re-circulated to give interested parties an opportunity to review and comment on the Draft Budget before it is finalized.

NMFS appreciates the opportunity to comment regarding on the Draft Budget. If you have a question regarding this letter or enclosure, please contact Mr. Mark H. Capelli in our Santa Barbara Office (805) 963-6478 or mark.capelli@noaa.gov.

Sincerely,

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NOAA's National Marine Fisheries Service's Comments on Draft Eastern Management Area Groundwater Budget for the Santa Ynez River, Santa Barbara County

(April 6, 2021)

April 28, 2021

Overview

NOAA's National Marine Fisheries Service (NMFS) herein comments on the April 2021 draft Eastern Management Area Groundwater Budget technical memorandum prepared by GSI Water Solutions, Inc. (hereafter referred to as "Draft Budget") as background for the Groundwater Sustainability Plan (GSP). Prior to presenting the comments, NMFS first presents background information on the endangered steelhead (*Oncorhynchus mykiss*), which reside in the Santa Ynez River Watershed, including the Eastern Management Area. That background information includes the status of the species, actions that are essential for recovery of the species, and life history and habitat requirement needs. That information provides context for understanding the potential implications of operating the Eastern Management Area in the Santa Ynez River Valley for this imperiled species. Our comments on the Draft Budget are presented subsequently.

Status of Steelhead, Recovery Needs, and Life History and Habitat Requirements

Status of steelhead and habitat for the species in the Santa Ynez River Watershed.—NMFS listed southern California steelhead, including the populations in the Santa Ynez River watershed (which includes the Eastern Management Area), as endangered in 1997 (62 FR 43937), and reaffirmed the endangered listing in 2006 (71 FR 5248).

NMFS designated critical habitat for southern California steelhead in 2005 (70 FR 52488). This designation included the main stem of the Santa Ynez River (and estuary), which traverses the Eastern Management Area, and upstream tributaries to the Santa Ynez (see enclosed map of "Lower Santa Ynez River Watershed Critical Habitat").

Critical habitat for endangered steelhead provides: 1) freshwater spawning habitat 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 and juvenile mobility and survival. See map of Lower Santa Ynez River Watershed Steelhead Critical Habitat

As part of the recovery planning process for southern California steelhead, NMFS's Southwest Fisheries Science also developed maps of the intrinsic potential habitat within the coastal watersheds, including the Santa Ynez River watershed (Boughton and Goslin 2006). The maps are based on information on observed associations between fish distribution and the values of environmental variables such as stream gradient, summer mean discharge and air temperature, valley width to mean discharge, and the presence of alluvial deposits that are essential to steelhead spawning and rearing. One limitation of the methodology used for the mapping exercise is that it does not fully account for groundwater inputs that therefore may in some cases underestimate the extent of intrinsic potential

habitat. (see enclosed map of "Lower Santa Ynez River Intrinsic Potential Steelhead Spawning and Rearing Habitat" within the Eastern Management Area above Bradbury Dam).
Habitat for this species has been adversely affected by loss and modification of physical or biological features (substrate, water quality and quantity, water temperature channel morphology and complexity, riparian vegetation, passage conditions) through activities such as groundwater extractions and related surface-water diversions (NMFS 2012). Thus many of the physical and biological features of designated critical habitats have been significantly degraded (and in some cases lost) in ways detrimental to the biological needs of steelhead. These habitat modifications have hindered the ability of designated critical habitat to provide for the survival and ultimately recovery of this species.

Recovery needs of endangered steelhead.—Among other federally mandated responsibilities, NMFS is responsible for administering the U.S. Endangered Species Act for the protection and conservation of endangered steelhead inhabiting the Santa Ynez River Watershed. Consistent with this responsibility, NMFS developed the Southern California Steelhead Recovery Plan (NMFS 2012)[1] and through a comprehensive analysis of threats to this species, groundwater pumping and surface flow diversions were identified as "very high" threats to the long-term survival of endangered steelhead in the Santa Ynez River (NMFS 2012, pp. 9-1 through 9-17.)

To address the identified water-related threats to endangered steelhead in the Santa Ynez River watershed, NMFS' Southern California Steelhead Recovery Plan identifies a number of recovery actions targeting surface diversions and groundwater extraction (NMFS 2012, p. 8-6, Table 9-7, p. 9-61). These include:

SYR-SCS-6.1 Conduct groundwater extraction analysis and assessment. Conduct hydrological analysis to identify groundwater extraction rates, effects on the natural stream pattern (timing, duration and magnitude) of surface flows in the mainstem and tributaries, and the estuary, and effects on all *O. mykiss* life history stages, including adult and juvenile *O. mykiss* migration, spawning, incubation, and rearing habitats.

SYR-SCR-6.2 Develop and implement groundwater monitoring and management program. Develop and implement groundwater monitoring program to guide management of groundwater extractions to ensure surface flows provide essential support for all *O. mykiss* life history stages, including adult and juvenile *O. mykiss* spawning, incubation and rearing habitats to support the life history and habitat requirements of adult and juvenile steelhead. (Table 9-2, p. 9-37).

Steelhead life history and habitat requirements.—Adult steelhead spend a majority of their adult life in the marine environment. However, much of this species life history (migration to and from spawning areas, spawning, incubation of eggs and the rearing of juveniles) occurs in the freshwater environment, including in the main stem and tributaries such as those in the Santa Ynez River Watershed. Many of the natural limiting factors (such as seasonal variation in rainfall, runoff, and ambient air and water temperatures) are exacerbated by the artificial modification of these freshwater habitats. This includes both surface and sub-surface extractions that lower the water table and can, in turn, affect the timing, duration, and magnitude of surface flows essential for steelhead migration, spawning and rearing. In southern California, warm, rain-free summers require that juvenile

[1] National Marine Fisheries Service. 2012. Southern California Coast Steelhead Recovery Plan. West Coast Region, California Coastal Area Office, Long Beach, California.

steelhead spend rearing time in sections of the stream network that do not desiccated or overheat beyond thermal-tolerance levels. The over-summering period can be challenging to juvenile steelhead survival and growth. Lowered groundwater tables during the dry season can indirectly affect rearing individuals by reducing vegetative cover, and directly by reducing or eliminating the summertime surface flows in parts of the watershed.

General Comments

When analyzing impacts on steelhead or other aquatic organisms resulting from groundwater and related streamflow diversions, identifying flow levels that effectively support essential life functions of this organism is critical (Barlow and Leake 2012). Specifically, it is essential to determine what flows adequately supports adult steelhead migration during the winter and spring, and juvenile rearing year round. Without an understanding of these hydrologic/biotic relationships, a Groundwater Sustainability Plan cannot ensure that significant and unreasonable adverse impacts from groundwater depletion (and in the case of the Santa Ynez River, the integrally related surface water diversion/groundwater recharge program) are avoided (California Department of Water Resources 2016, Heath 1983).

Groundwater inputs to surface flows can buffer daily temperature fluctuations in a stream (Hebert 2016, Barlow and Leake 2012, Brunke et al. 1996, Heath 1983). Artificially reducing the groundwater inputs would likely expand or shrink the amount of fish habitat and feeding opportunities for rearing juvenile steelhead (Croyle 2009, Glasser et al. 2007, Sophocleous 2002, Fetter 1997), and reduce opportunities for juveniles to successfully emigrate to the estuary and the ocean (Hayes, et al. 2008, Bond 2006). As noted above, low summer baseflow, likely caused by both surface water diversions and pumping hydraulically connected groundwater, is noted as a significant stress to steelhead survival in the Santa Ynez River and tributaries (NMFS 2012, p. 9-15, Table 9-2).

Specific Comments

The following specific comments on the Draft Budget are arranged by page and paragraph number.

3 Basin Setting

Page 6

3rd paragraph: Because the Draft Budget is being prepared under the authority of SGMA, the introduction should explicitly acknowledge the need to address Groundwater Dependent Ecosystems (GDE) in the introduction (*e.g.*, *see* Belin 2018, The Nature Conservancy 2018).

3.3 Water Budget

3.3.1 Overview of Water Budget Development

Page 9

4th paragraph: The Draft Budget indicates: “The Santa Ynez River and associated underflow within the Santa Ynez River Alluvium is included in the surface water system that is summarized in the budget. As surface water, the Santa Ynez River Alluvium is not considered a principal aquifer because the water within this geological unit is present within the defined bed and banks of the channel and thus is not

considered groundwater in accordance with Water Code, Section 10721(g). The surface water system is managed under the jurisdiction of the California State Water Resources Control Board (SWRCB) and is not within the purview of SGMA. Therefore, water both above ground and below ground within the Santa Ynez River, defined as the Santa Ynez River Water Conservation District's (SYRWCD's) Zone A portion of the EMA, is quantified as surface water."

This statement raises a number of issues that should be addressed in the revised document. First, it should be noted that the Eastern Management Area includes more than just the mainstem of the Santa Ynez River; it also includes a number of tributaries, including, but not limited to: Zaca Creek, Alamo Pintado Creek, Happy Canyon, Alisal Creek, Hilton Creek, Quiota Creek, San Lucas Creek, Santa Aqueda Creek, Teqepis Creek, Cachuma Creek, and Santa Cruz Creek. Second, the revised Draft Budget should clarify whether (1) a formal determination regarding the nature and status of the subflow has been made, and by what authority; (2) how a "principal aquifer" is defined for the purposes of SGMA; (3) if such a formal designation has been applied, and by what authority; and, (4) the specific provisions of the SGMA supporting this interpretation of the scope of a GSP, specifically for the Central Management Area of the lower Santa Ynez River. (*e.g.*, *see* Sax 2002 for a general discussion of groundwater classified as subterranean flow)

Surface Water Inflows (Santa Ynez River)

Page 12

2nd paragraph: The water budget should explicitly acknowledge the tributaries within the Eastern Management Area that contribute to the groundwater resources within the Eastern Management Area.

Page 13

Figure 3-42. Historical, Current, and Projected Water Budget Periods

The revised Draft Budget should include justification for selecting water years 1982 through 2018 as the historical water budget period. Of particular concern, while the period of record chosen includes two wet and dry periods, the selected period does not necessarily capture the change in land uses and the associated groundwater pumping from the Eastern Management Basin. An assessment should be made of the land-use practices over a longer period to better assess the groundwater pumping patterns within the Eastern Management Area.

3.3.2 Water Budget Data Sources

3.3.2.1 Surface Water Inflow Components

Page 17

See comments above regarding tributaries to the Santa Ynez River within the Eastern Management Area.

3.3.2.1.2 Native Stream Flow

Page 18
1st paragraph: The Draft Budget apparently limits**, "**Native streamflow in the Santa Ynez River main stem and in tributary creeks to the Santa Ynez River downstream of Bradbury Dam . . ." It is not clear why this limitation is use, since there are other tributaries to the Santa Ynez River above Bradbury Dam which are also within the Easter Management Area (e.g., Cachuma Creek, Santa Cruz Creek). The revised Draft Budget should therefore explain the basis for this limitation.

Page 19

1st paragraph: The Draft Budget states, "The Santa Ynez River and underflow is accurately gauged and highly regulated. Therefore, the level of uncertainty of these data is low." While there are stream flow gauges on the Santa Ynez River that provide information on stream flow fluctuations, these gauging program does not consistently record base flows for a variety of reasons (including timely gauge calibration, shifting channel morphology, etc.). However, these lower base flows can be critical to some GDE such as rearing juvenile *O. mykiss* and other native aquatic species.

The Draft Budge also notes, "The flow from the tributary creeks, however, is ungauged and estimated based on BCM and SYRHM data outputs. The uncertainty of these data are considered high because large scale regional models are being used to estimate these water budget terms." As noted above these lower base flows can be critical to some GDE such as rearing juvenile *O. mykiss* and other native aquatic species.

Finally, the Draft Budget states "In our opinion, the uncertainty associated with estimated tributary flow does not limit the GSA's ability to manage the Santa Ynez Uplands groundwater system because the tributary flow terms are relatively small when compared to the other water budget terms."

This assessment does not appear to be valid for two fundamental reasons. First, the uncertainty regarding the contribution of tributary flows, individually and cumulatively, to the groundwater/surface water conditions in the mainstem of the Santa Ynez River within the Eastern Management Area is unknown. Second, the contribution of the tributary flows, relative to other sources of groundwater/surface water to the water budget, is not an appropriate measure for assessing importance of the tributaries GDE, or the tributaries' contribution to GDE in the mainstem of the Santa Ynez River within the Eastern Basin. Furthermore, comparing the relative size of the tributary flow to supporting out-of-stream consumptive beneficial uses of water associated with the Eastern Management Basin is not an appropriate metric in assessing their importance to GDE. Even small contributory flows can be important in sustaining habitats utilized by native aquatic species that have adaptive mechanisms that allow them to carry out their life-cycles, including rearing during periods of naturally small base flows.

Table 3-3. Tributary Creeks to the Santa Ynez River Downstream of Bradbury Dam

This table does not, but should, include the tributaries to the Sant Ynez River above Bradbury Dam that are also within the boundaries of the Eastern Management Area, but should. These include: Cachuma Creek and Santa Cruz Creek.

3.3.2.1.4 Subsurface Inflow: Mountain Front Recharge to Surface Water

Pages 19-20

1st paragraph: The Draft Budget states**, "**Mountain front recharge from the Santa Ynez Mountains that flows directly into streams and the Santa Ynez River Alluvium (considered to be surface water) was calculated using the adjusted and calibrated BCM model as described in Section 3.3.2.1.2." The revised Draft Budget should clarify if the reference to "considered to be surface water" was intended to refer to both the tributary flows into streams and the Santa Ynez River Alluvium. Also, see comments above regarding issues and questions raised about the authority of SGMA over these groundwater resources.

2nd paragraph: The Draft Budget concludes, "We do not believe that uncertainty associated with estimates of mountain front recharge limit the GSA's ability to manage the Santa Ynez Uplands groundwater system because the overall water budget is consistent with the calibrated groundwater flow model." As noted above NMFS this conclusion appears unsupported given the uncertainty of the groundwater inputs, and the potential importance of even small inputs in supporting GDE, including native *O. mykiss* and other native aquatic species.

3.3.2.2.3. Subsurface Inflow: Mountain Front Recharge

Page 21

The Draft Budget states, "We do not believe that uncertainty associated with estimates of mountain front recharge limit the GSA's ability to manage the Santa Ynez Uplands groundwater?" See comments above regarding this uncertainty.

3.3.2.2 Groundwater Inflow Components

Page 20

1st paragraph: The Draft Budget states, "Note that the groundwater system includes only the aquifers in the Santa Ynez Uplands portion of the EMA and specifically excludes all water within the Santa Ynez River Alluvium, which is managed as surface water under the jurisdiction of the SWRCB." See comments above regarding this issue.

3.3.2.3 Surface Water Outflow Components

3.3.2.3.1 Santa Ynez River Outflow
Page 23

See comments above regarding the accuracy of measuring base flows.

3.3.2.3.2 Subsurface Outflow

Page 24

1st paragraph: The Draft Budget states, “This [subsurface] outflow occurs at the downstream end of the EMA along the border with the CMA.” However, there are subsurface outflows from the tributaries (Cachuma Creek and Santa Cruz Creek) at the upstream end of the East Management Area; the outflow location can influenced by the lake level in Cachuma Reservoir.

3.3.2.4 Groundwater Outflow Components

3.3.2.4.6 Subsurface Groundwater Outflow

3.3.3 Historical Water Budget (Water Years 1982 through 2018)

Page 35

2nd paragraph: The Draft Budget states, “The period for water years 1982 through 2018 was selected as the historical water budget period because it is long enough to capture typical climate variations (with two wet and two dry hydrologic cycles) and includes recent changes in imported water supply availability, changes to water demand associated with cropping patterns, and associated land use.” As noted above, while the period of record chosen includes two wet and dry periods, this period does not necessarily capture the change in land uses and the associated groundwater pumping from the Eastern Management Basin. As assessment should be made of the land-use practices over a longer period to better assess the groundwater pumping patterns within the Eastern Management Area; the results of that assessment should be presented in the revised Draft Budget

3.3.3.1 Surface Water Inflows

3.3.3.1.1 Local Surface Water Inflow

Page 37

Table 3-7. Annual Surface Water Inflow, Historical Period (1982 through 2018)

Table 3-7 shows that the average annual combined tributary surface water inflow is approximately 44% of the inflow from the Santa Ynez River; however, the calculation only includes tributaries within the Eastern Management Area that are downstream of Bradbury Dam and does not include any surface water inflow from tributaries above Bradbury Dam within the Eastern Management Area (e.g., Cachuma Creek and Santa Cruz Creek). The revised Draft Budget should include an analysis that corrects this condition.

Table 3-8. Annual Surface Water Outflow, Historical Period (1982 through 2018)

Table 3-8 indicates the annual subsurface outflow of groundwater is essentially the same for the average, minimum, and maximum. This seem anomalous, given the different annual levels of surface water inflow noted in Table 3-7.

Also, Table 3-9 indicates the difference between the average and the maximum and minimum rate of Phreatophyte Evapotranspiration is around 5%; again this seem anomalous given wide range of annual weather conditions. The same comment applies to Table 3-10. It is not clear how this calculation was made. The revised Draft Budget should include an explanation that clarifies or corrects this issue.

Table 3-10. Annual Groundwater Outflow, Historical Period (1982 through 2018)

Page 38

Table 3-10 records a significant impact on groundwater outflow during minimum annual water years when groundwater pumping has decreased approximately 10% from the average annual water year, but groundwater outflow decreased approximately 96%. This pattern has potentially significant implication for supporting GDE, including *O. mykiss* and other native aquatic species.

3.3.3.6.1 Sustainable Yield Estimate of the Basin

Page 46
1st and 2nd paragraph: The discussion of sustainable yield estimates of the groundwater basin(s) in the Eastern Management Area focuses on out-of-stream consumptive uses of groundwater and does not, but should, include an explicit discussion of the role of groundwater in sustaining GDE, including, but not limited to the federally endangered southern California steelhead.

3.3.3.7 Reliability of Historical Surface Water Supplies

Page 47

1st through 3rdth paragraphs: The depiction of these components of a water budget focuses on out-of-stream consumptive beneficial uses. However, it should also expressly include a discussion of historical water supplies that have supported GDE within the Eastern Management Area, including but not limited to the federally listed endangered southern California steelhead, as well as other native aquatic species.

3.3.4 Current Water Budget (Water Years 2011 through 2018)

Pages 48-54

See comment above regarding the period of record chosen for the Draft Budget.

3.3.5 Projected Water Budget

Page 55-56
The Draft Budget expressly describes only out-of-stream uses of groundwater and surface water (Solvang ID No. 1, Mutual Water, Rural Domestic, Agricultural Pumping), but only expressly recognized non-consumptive out-of-stream uses of groundwater (i.e., Phreatophyte). It does not expressly recognize the other beneficial uses of the surface and groundwater of the Eastern

Management Area. The CCRWQCB has listed cold freshwater habitat, fish spawning, reproduction and/or early development, migration of aquatic organisms, and habitat for rare, threatened, and endangered species, as beneficial uses for the Santa Ynez River under their Central Coast Basin Plan (CCRWQCB 2019); these should be explicitly described in the revised Draft Budget. Additionally, there are GDE that should be enumerated and described, as part of the suite of beneficial uses, and their locations, that must be addressed as part of the GSP for the Eastern Management Area.

3.3.5.1.1 Projected Hydrology

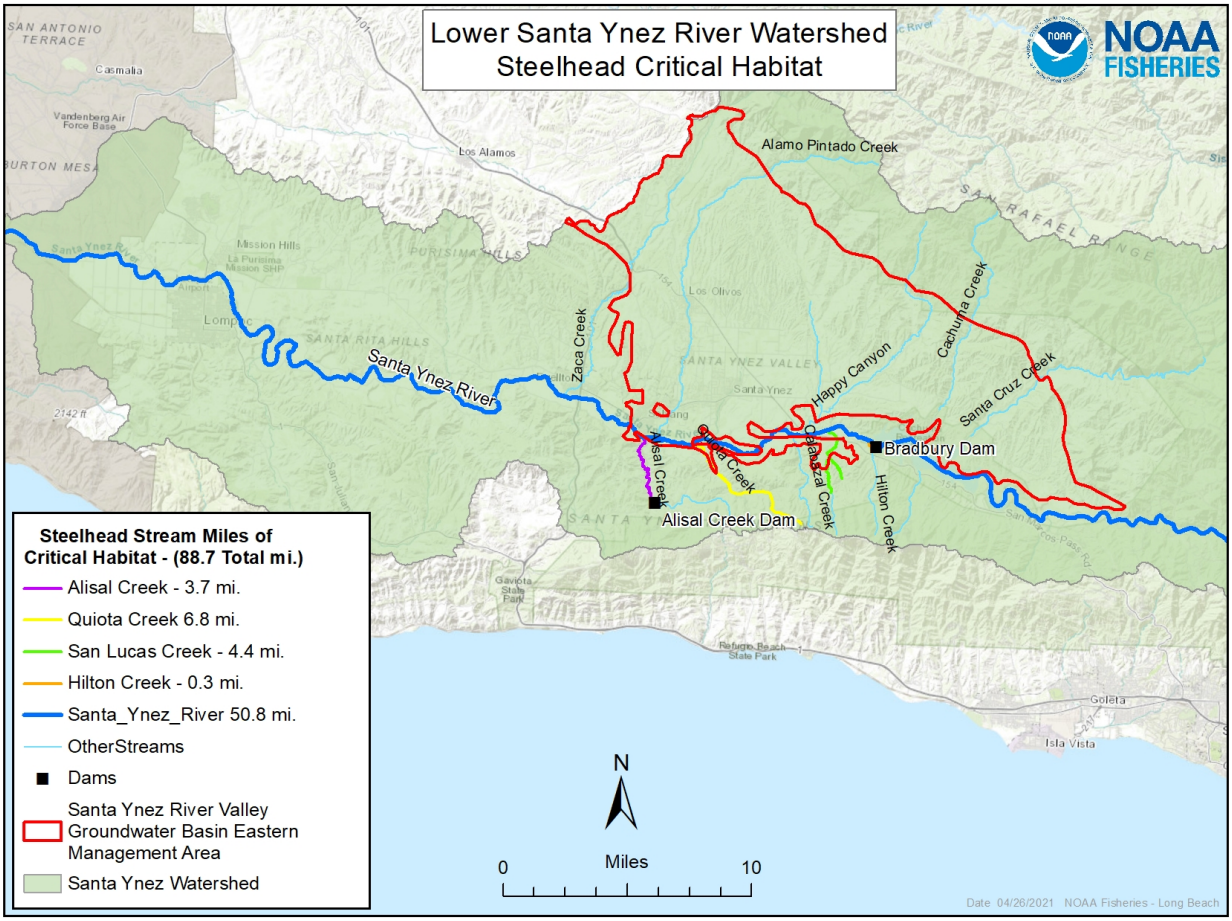
Page 57

3rd paragraph: The Draft Budget notes, "The projected changes to streamflow do however apply through the tributaries that flow through the Santa Ynez Uplands and ultimately into the Santa Ynez River."

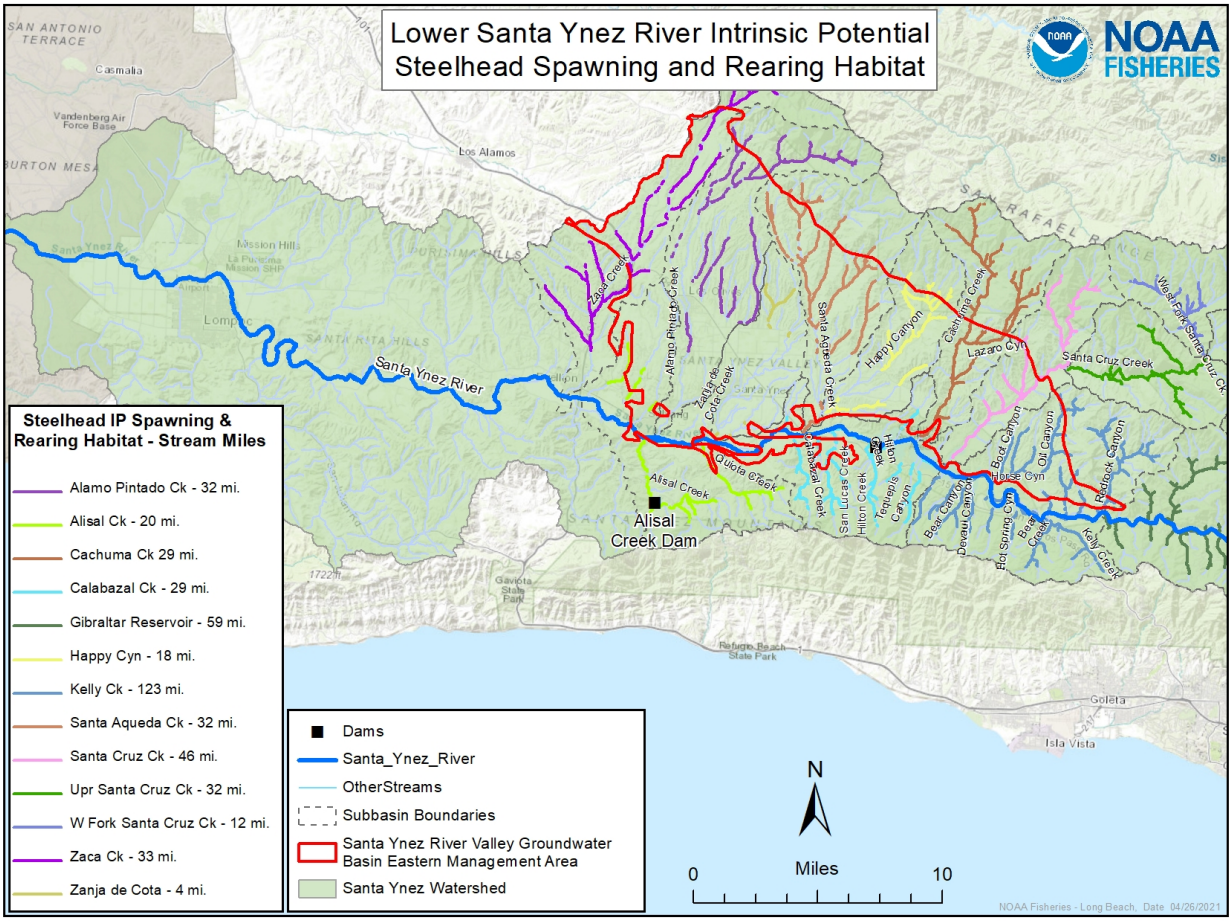
The revised Draft Budget should clarify what this statement means. For instance, is the intent to exclude the tributaries within the Eastern Management Area from consideration in the Draft Budget? We would note that perennial surface water/or flow is not required by SGMA to identify a GDE. Rather, connection via a saturated zone between groundwater and surface water "at any point" when surface waters are not otherwise depleted constitutes an interconnected connection condition. We would note further that seasonally or ephemeral surface flows can be important to a variety of fish and amphibian species (see for example, Erman and Hawthorne 1976, and Boughton et al. 2009).

Further, while groundwater management actions may not directly affect flow in the upper reaches of these tributaries, drawing down the groundwater near the confluence of the tributary and the Santa Ynez River can affect the hydraulic connectivity between the tributaries and the river. This hydraulic connectivity (even if only seasonal) can be important for the movement (or migration) of a variety of fish and or amphibian species. These tributaries, therefore, should not be considered as disconnected from the water table, but should be classified as having interconnected surface water under SGMA.

Finally, we would note that the SWRCB's analysis and water rights order focused on the mainstem of the Santa Ynez River, and specifically did not address flow requirements in the tributaries to the lower Santa Ynez River. However, the SWRCB did note, "Operations of the dam have also resulted in an increased potential for mortality from stranding and desiccation caused when surface flows in tributaries where fish are residing are disconnected from the main channel" (State Water Resources Control Board, FEIR, Vol. III, Appendix D, pp. 29, 52.).



70 FR 52488. 2005. Final Rule: Endangered and Threatened Species; Designation of Critical Habitat for Seven Evolutionarily Significant Units/Distinct Population Segments of Pacific Salmon and Steelhead in California.



Lower Santa Ynez River Intrinsic Potential Steelhead Spawning and Rearing Habitat within the Eastern Management Area above Bradbury Dam (Boughton and Goslin 2006).

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802-4213

July 7, 2021

Bill Buelow, Water Resources Manager
Santa Ynez River Valley Groundwater Basin
Eastern Management Area
Groundwater Sustainability Agency
P.O. Box 719
Santa Ynez, California 93460

Re: Santa Ynez River Valley Groundwater Basin – Eastern Management Area Groundwater Sustainability Plan Section 5 – Sustainable Management Criteria (June 18, 2021)

Dear Mr. Buelow:

Enclosed with this letter are NOAA's National Marine Fisheries Service's (NMFS) comments on the Draft Santa Ynez River Valley Groundwater Basin – Eastern Management Area Groundwater Sustainability Plan – Sustainable Management Criteria.

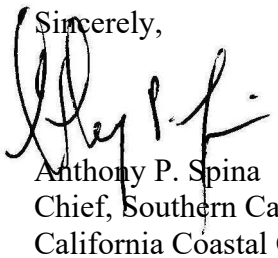
The Draft Sustainable Management Criteria are intended to meet the requirement of the California Sustainability Groundwater Management Act (SGMA). The SMGA includes specific sustainable criteria to address impacts to Groundwater Dependent Ecosystems (GDE) that have significant and unreasonable adverse impacts on all recognized beneficial uses of groundwater and related surface waters. (*See* Cal. Water Code §§ 10720.1, 10721, 10727.2)

As explained more fully in the enclosure, the Draft Sustainable Management Criteria do not adequately address the recognized instream beneficial uses of the Santa Ynez River, or other GDE, potentially affected by the management of groundwater within the Eastern Management Area. In particular, the Draft Sustainable Management Criteria do not adequately recognize or analyze important GDE, including the federally endangered steelhead (*Oncorhynchus mykiss*) that rely on groundwater supported surface flows.

The reasons for these conclusions are set forth in the enclosure. NMFS recommends that the revised Draft Sustainable Management Criteria be re-circulated to give interested parties an opportunity to review and comment on the Draft Sustainable Management Criteria before they are finalized.

NMFS appreciates the opportunity to comment on the Draft Sustainable Management Criteria. If you have a question regarding this letter or enclosure, please contact Mr. Mark H. Capelli in our Santa Barbara Office (805) 963-6478 or mark.capelli@noaa.gov.

Sincerely,



Anthony P. Spina
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NOAA's National Marine Fisheries Service's Comments on Draft Eastern Management Area Sustainable Management Criteria for the Santa Ynez River, Santa Barbara County

July 7, 2021

Introduction

NOAA's National Marine Fisheries Service (NMFS) previously commented on the February 2021 draft Eastern Management Area (EMA) Groundwater – Basin Setting: Groundwater Budget (April 28, 2021). NMFS incorporates those comments herein, including those dealing with the status, recovery needs, and life history and habitat requirements of the federally listed endangered southern California steelhead (*Oncorhynchus mykiss*).

General Comments

Groundwater inputs to surface flows can perform a number of functions important to the maintenance of Groundwater Dependent Ecosystems (GDE); for example, they can buffer daily temperature fluctuations in a stream (Heath 1983, Brunke *et al*. 1996, Barlow and Leake 2012, Hebert 2016). Artificially reducing the groundwater inputs can also shrink the amount of habitat and feeding opportunities for rearing juvenile steelhead (Fetter 1997, Sophocleous 2002, Glasser *et al*. 2007, Croyle 2009), and reduce opportunities for juveniles to successfully emigrate to the estuary and the ocean (Bond 2006, Hayes *et al*. 2008, Hayes *et al.* 2011). Low summer baseflow, likely caused by both surface water diversions and pumping hydraulically connected groundwater, is recognized as a significant stress to steelhead survival in the Santa Ynez River and tributaries (NMFS 2012, p. 9-15, Table 9-2).

Specific Comments

The following specific comments on the Draft Sustainable Management Criteria (Draft Criteria) are arranged by section and page number.

5.1 Definitions

Undesirable result refers to the definition provided in § 10721(x) of SGMA

Pages 8-9

The Draft Criteria defines an undesirable result as:

> Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon. Overdraft during a period of drought is not sufficient to establish a chronic lowering of groundwater levels if extractions and groundwater recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods. (p. 9)

However, as noted below, this definition do not recognize the adverse effects of *periodic* reduction of groundwater on GDE, including the use by spawning and rearing steelhead. The effects of periodic groundwater reductions on out-of-stream beneficial uses (*e.g*., domestic or agricultural water supplies) may be addressed with alternative water sources. Nevertheless, instream beneficial uses such as GDE may be more vulnerable to such groundwater reductions, for which there is no alternative water source to sustain the GDE.

5.2 Sustainability Goals

Page 10

The sustainable goals are expressed explicitly and exclusively in terms of groundwater levels, and do not recognize the important relationship between groundwater levels and the surface flows (particularly base flows) that contribute to the maintenance of GDE. This is an important omission that should be corrected in the revised document because GDE for the EMA basin includes the use of surface flow by the federally listed endangered southern California steelhead for migration, spawning and rearing.

5.2.1 Qualitative Objectives for Meeting Sustainability Goals

Page 11

The sustainable objectives includes avoiding chronic reduction of groundwater, but not the adverse effects of periodic reduction of groundwater on GDE, including the use by spawning and rearing steelhead. The effects of periodic groundwater reductions on out-of-stream beneficial uses (*e.g*., domestic or agricultural water supplies) may be addressed with alternative water sources. However, instream uses such as GDE are more vulnerable to such groundwater reductions, because there is generally no alternative water source to sustain the GDE.

5.3 Process for Establishing Sustainable Management Criteria [Section 354.26(a)

Pages 11-12

The Draft Criteria describes the public process of receiving comments on the various draft components of the GSP; however, the Draft Criteria does not appear to, but should, reflect the comments that NMFS has previously provided on the February 2021 draft EMA Groundwater – Basin Setting: Groundwater Budget (April 28, 2021). There are no specific criteria in the Draft Criteria that deal with the GDE associated with the federally listed species (or the designated critical habitat) which utilize portion of the EMA. In fact, the word "steelhead", "trout", or even "fish" do not appear in the Draft Criteria. The revised document should correct this deficiency and include a description of the extensiveness of designated critical habitat for endangered steelhead that exists in the project area, as well as identify the intrinsic potential habitat (*See* Figures 1 and 2 below).

5.3.2. Criteria for Defining Undesirable Results [Sections 354.26(1) and (d)]

Pages 12 -13

The criteria for defining undesirable results do not, but should, provide meaningful guidance. Some deal with causes not effects, and the effects are expressed in terms that are simply re-statements of goals, not criteria or objectives for meeting identified goals. As a result, there is no way of knowing with a reasonable level of assurance whether identified goals have been truly attained, and whether changes in operations would be necessary to achieve the goals.

5.3.3 Information and Methodology Used to Establish Minimum Thresholds and Measurable Objectives [Sections 354.28(b)(1), (c)(1)(A)(B), and (e)]

Pages 13 -16

In reviewing the methods used to establish thresholds and objectives, it appears that all of the metrics were physical or chemical, lacking any biological metrics. As NMFS has indicated in its previous comment letter, it is essential to determine what flows adequately supports the freshwater life history phases of steelhead. Without an understanding of these hydrologic/biotic relationships, a Groundwater Sustainability Plan (GSP) cannot ensure that significant and unreasonable adverse impacts from groundwater depletion (and in the case of the Santa Ynez River, the integrally related surface water diversion/groundwater recharge program) are avoided (Heath 1983, California Department of Water Resources 2016).

5.3.3.5 Avoid Depletion on Interconnected Surface Water

Page 15

The Draft Criteria indicates that it relies on "Published documents and independent analysis that identify the extent and distribution of potential GDEs." However the Draft Criteria, as well as the Basin Setting: Groundwater Budget appear to rely on methodology that uses vegetation as the principal means of identifying GDE (*e.g.*, The Nature Conservancy 2019). While this method may be useful for identifying select GDE, it is not adequate to identify GDE that are not defined by vegetation alone. For steelhead, the GSP should also consider the information provided in NMFS' designated critical habitat for this species as well as in NMFS identification of intrinsic potential habitat (Boughton and Goslin 2006; *see* also Boughton *et al.* 2009) (*See* Figures 1 and 2 below for graphical presentation of this information).

5.3.4 Relationship between Individual Minimum Thresholds and Other Sustainability Indicators (Section 354.28(b)(23))

Page 16

The Draft Criteria should also include Individual Minimum Thresholds that address GDE other than those defined by the presence of riparian vegetation. See additional comments below.

5.5 Chronic Lowering of Groundwater Levels Sustainable Management Criterion

5.5.1. Undesirable Results [Section 345.26(a)(2), (c) and (d)]

Pages 17-18

The Draft Criteria analyzes lowering groundwater levels primarily in terms of affecting groundwater supplies for out-of-stream beneficial uses, and undesirable results that would affect these uses. It does not, but should, explicitly address other instream beneficial uses, such as those associated with GDE

The Draft Criteria should be revised to include a discussion of specific GDE, including those associated with the federally listed endangered southern California steelhead.

55.2 Minimum Thresholds [Section 354.28(a)(b)(1)(A)(B), (d), and (e)]

Pages 19-23

As with the discussion of lowering groundwater levels, the Draft Criteria discusses minimum thresholds primarily in terms of groundwater supplies for out-of-stream beneficial uses.

For example, the Draft Criteria indicates:

> "Based on the well impact analysis, the GSA Committee agreed to set the minimum threshold for representative wells screened in the Careaga Sand at 12 feet below spring 2018 groundwater levels. If groundwater levels continued to decline at current rates (2019–2021) in representative wells, minimum thresholds for the chronic lowering of groundwater levels sustainability indicator would be exceeded in 50 percent of representative wells (*See* Section 5.5.2.7), approximately four to five years following implementation of the GSP. These thresholds are not expected to cause a significant and unreasonable reduction of groundwater in storage." (p. 22)

To develop a clear understanding of the consequence of the Committee's minimum threshold, which is currently lacking, the Draft Criteria should be revised to include a discussion of the predicted consequences of the proposed threshold on GDE, including those associated with the federally listed endangered southern California steelhead.

5.5.2.4 Effects of Minimum Thresholds on Neighboring Basin [Section 354.28(b)(3)]

Page 24

The neighboring basins include the Santa Ynez River Valley Groundwater Basin – Central Management Area (CMA) of the Santa Ynez Basin and San Antonio Creek Valley Groundwater Basin (SACV).

The Draft Criteria recognizes that the CMA is hydrologically down gradient of the EMA and is hydrologically connected. However, the Draft Criteria indicates:

> "Based on available information, groundwater gradients at the boundary between the EMA and SACV are such that groundwater does not flow between the EMA and SACV and therefore, the SACV would not be impacted by the minimum threshold for the chronic lowering of groundwater levels sustainability indicator in the EMA." (p. 24)

As NMFS has noted in previous comments, while groundwater management actions in the mainstem of the Santa Ynez River may not directly affect flow in the tributaries to the Santa Ynez River, drawing down the groundwater near the confluence of the tributary and the Santa Ynez River can affect the hydraulic connectivity between the tributaries and the river. This hydraulic connectivity (even if only seasonal) can have implications for the movement (or migration) of a variety of fish and or amphibian species (*See* State Water Resources Control Board 2011). These tributaries, therefore, should not be considered as disconnected from the water table, but should be classified in the revised document as having interconnected surface water in accordance with the SGMA.

5.5.2.5 Effects of Minimum Thresholds on Beneficial Uses and Land Use [Section 354.28(b)(4)

Page 25

The Draft Criteria states that, "No federal, state, or local standards exist for chronic lowering of groundwater levels." (p. 25). While it is true that there are not numeric standards, this statement does not appear to recognize the broad standards that that are established by SGMA.

5.5.3 Measurable Objectives (Section 354.30(a), (b), (c), (d), and (g)]

Pages 26-27

See comments above regarding Information and Methodology Used to Establish Minimum Thresholds and Measurable Objectives (5.3.3).

5.6.2 Minimum Thresholds [Section 354.28(a)(b)(1), (c)(2), (d), and (e)]

Pages 30-32

See comments above regarding Information and Methodology Used to Establish Minimum Thresholds and Measurable Objectives (5.3.3).

5.6.2.3 Effects on Beneficial Uses and Land Uses [Section 354.28(b)(4)]

Page 33

The beneficial uses of the surface waters of the Santa Ynez River that are associated with the GDE include: Warm Fresh Water Habitat (WARM), Cold Fresh Water Habitat (COLD), Estuarine Habitat (EST), Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), Migration of Aquatic Organisms (MIGR), and Spawning, Reproduction, and /or Early

Development of fish (SPWN) (*See*, for example, California Regional Water Quality Control Board, Central Coast Region (2019), Table 2.1. Identified Uses of Inland Surface Waters).

As noted above, the Draft Criteria, appears to focus primarily on out-of-stream beneficial uses, but should be revised to expressly and explicitly deal with all of the beneficial uses that are associated with GDG, including the federally listed endangered southern California steelhead.

5.6.3 Measurable Objective [354.30(a)(c), (d), and (g)]

Page 34

See comments above regarding Information and Methodology Used to Establish Minimum Thresholds and Measurable Objectives (5.3.3).

5.8.1 Undesirable Results [Section 354.26(a), (b)(1), (b)(2), and (d)]

Page 36

See comments above regarding Effects on Beneficial Uses and Land Uses (5.6.2.3)

5.8.2 Minimum Thresholds [Section 354.28(b)(1), (c)(4), and (e)]

Pages 38-41

See comments above regarding Information and Methodology Used to Establish Minimum Thresholds and Measurable Objectives (5.3.3).

5.8.2.5 Effects of Minimum Thresholds on Beneficial Uses and Land Use [Section 354.26(b)(3)]

Pages 42-44

See comments above regarding Information and Methodology Used to Establish Minimum Thresholds and Measurable Objectives (5.3.3).

5.9.2 Minimum Thresholds [Section 354.26(c) and 354.28(a), (b)(1), (c)(5)(A)(B), (d), and (e)]

Pages 47-51

See comments above regarding Information and Methodology Used to Establish Minimum Thresholds and Measurable Objectives (5.3.3).

5.10 Depletion of Interconnected Surface Water Sustainability Management Criterion

Pages 52 - 62

As noted above, the Draft Criteria appear to rely on methodology that use vegetation as the principal means of identifying GDE (*e.g.*, The Nature Conservancy 2019). For example, the Draft Criteria indicates:

> "A sustained drop in groundwater levels below root zones caused by groundwater pumping could result in permanent loss of GDEs. Monitoring of groundwater levels near the confluence of Alamo Pintado and Zanja de Cota Creek with the Santa Ynez River will be conducted by the GSA as part of EMA monitoring programs (*See* Section 4) to assess whether there is potential for significant and unreasonable adverse impacts to a long-term decline in the health of the GDEs in the subject areas and eventual permanent habitat loss." (p. 55)

A decrease in groundwater levels less than the depth of the root zone can result in effects to surface flows, particularly base flows (*See* Brunke and Goslin 1977, Fetter 1997). As a consequence, the Draft Criteria do not address all the potential GDE, including the federally listed endangered southern California steelhead. Also, in addition to the riparian areas in the vicinity of the confluence of Alamo Pintado and Zanja de Cota Creek with the Santa Ynez River, other reaches of the Santa Ynez River within the EMA (between Hilton Creek and Alisal Creek) are potentially affected by groundwater withdrawals. Additionally, the confluences of Alisal Creek, Quiota Creek, San Lucas Creek, and Zaca Creek (below Bradbury Dam), and Tepusquet Creek, Cachuma Creek and Santa Cruz Creek (above Bradbury) and the Santa Ynez River could be impacted by groundwater withdrawals from the EMA. See also comments above on Effects of Minimum Thresholds on Neighboring Basins, 5.5.2.4.

The Draft Criteria should be revised to recognize these other GDE, including those associated with the federally listed endangered southern California steelhead.

The Draft Criteria also asserts:

> "The minimum threshold for depletion of interconnected surface water is set to protect habitat and sensitive species at specific locations in the EMA where there is a connection between groundwater and surface water. The minimum threshold for depletion of interconnected surface water in the EMA is not anticipated to impact sustainability in the CMA because conditions that are necessary to avoid impacts to Category A GDEs [i.e., those supporting identified beneficial use in the subject areas] in the EMA will continue to support flows into the CMA." (p. 59)

This approach does not adequately recognize all the potential GDE, or does it provide any metric for guiding groundwater withdrawals, or set any numeric standard for the maintenance of base flows necessary to support GDE.

The Draft Criteria should be revised to include specific metrics for GDE, including those associated with the federally listed endangered southern California steelhead.

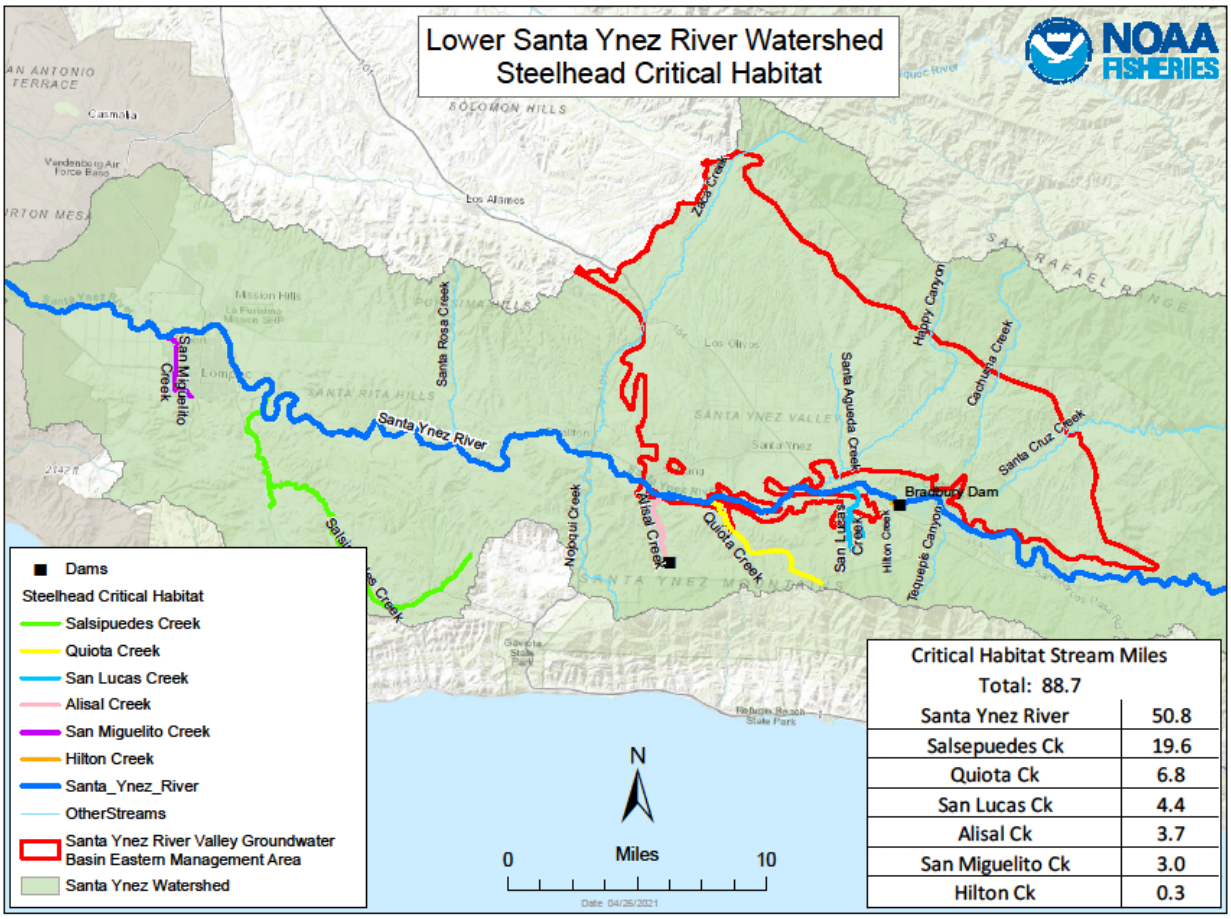

Figure 1. Lower Santa Ynez River Steelhead Critical Habitat Map. Source: 70 FR 52488). Final Rule: Endangered and Threatened Species; Designation of Critical Habitat for Seven Evolutionarily Significant Units/Distinct Population Segments of Pacific Salmon and Steelhead in California.

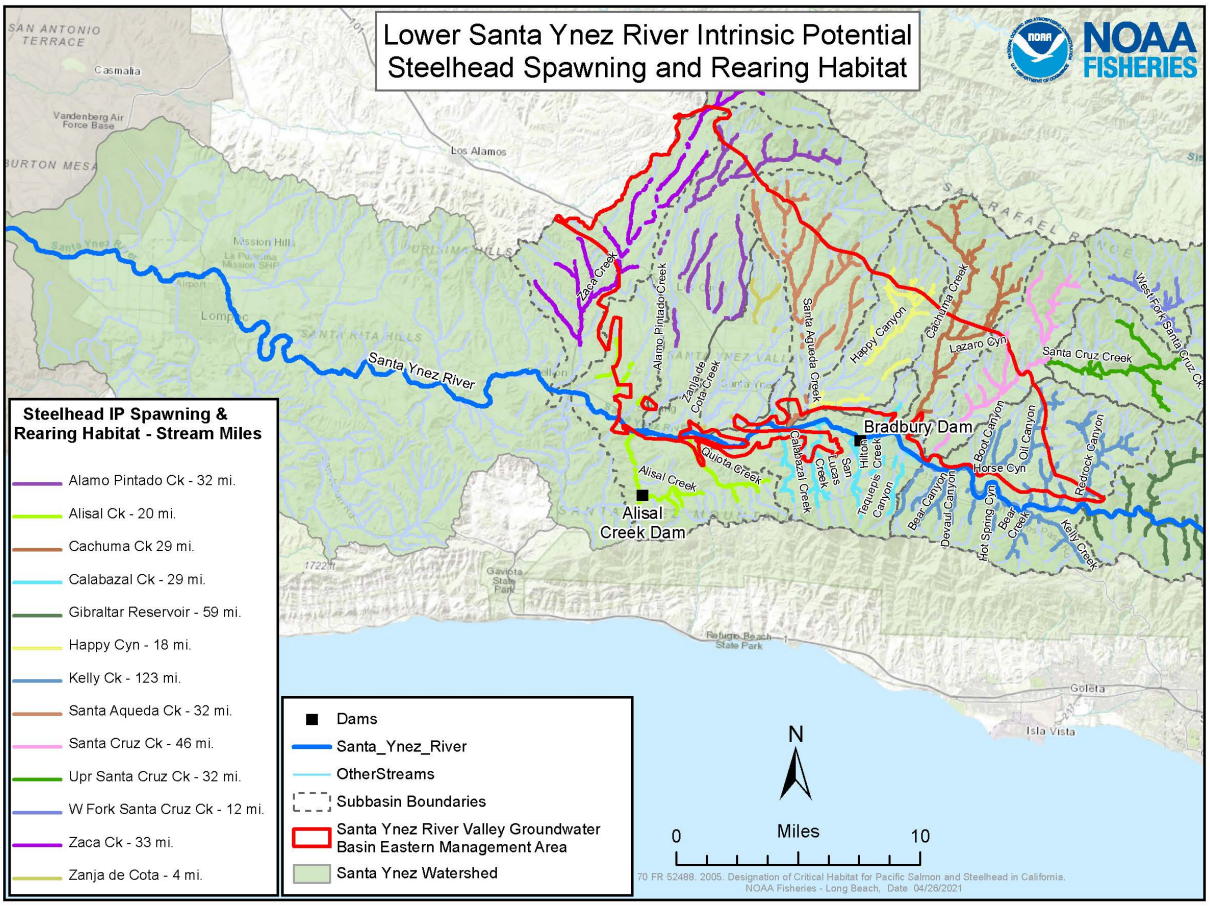

Figure 2. Lower Santa Ynez River Steelhead Intrinsic Potential Steelhead Spawning and Rearing Habitat Map. Source: Boughton and Goslin 2006.

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