UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
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Sacramento, California 95814-4700

September 29, 2021

John Davids, Assistant General Manager
Stanislaus and Tuolumne Rivers Groundwater Basin Association GSA
1231 11th Street
Modesto, California 95354

Electronic transmittal only

Re: NOAA's National Marine Fisheries Service Comments on the Developing Groundwater Sustainability Plan for the Modesto Subbasin

Dear Mr. Davids:

NOAA's National Marine Fisheries Service (NMFS) is the federal agency responsible for managing, conserving, and protecting living marine resources in inland, coastal, and offshore waters of the United States. We derive our mandates from numerous statutes, including the Federal Endangered Species Act (ESA) and the Magnuson-Stevens Fishery Conservation and Management Act (MSA). The purpose of the ESA is to conserve threatened and endangered species and their ecosystems.

The Modesto subbasin Groundwater Sustainability Agency (hereafter, "GSA") is currently crafting their draft "Chapter 3: Sustainable Management Criteria" for the Modesto Subbasin Groundwater Sustainability Plan (GSP). The California Department of Water Resources (DWR) has designated the Modesto subbasin a "high" priority for groundwater management, necessitating the development of a GSP by January 2022, as required under California's Sustainable Groundwater Management Act of 2014 (SGMA). Several waterways that overlie portions of the Modesto subbasin support federally threatened California Central Valley (CCV) steelhead (*Oncorhynchus mykiss*) and threatened Central Valley (CV) spring-run Chinook salmon (*O. tshawytscha*). In addition, the Modesto subbasin is designated as Essential Fish Habitat (EFH) for Pacific Coast Chinook salmon, including CV fall-run Chinook salmon (*O. tshawytscha*), which are managed under the MSA. This letter transmits NMFS' comments and suggestions, formed largely from our review of other Central Valley draft GSPs, for GSA consideration when crafting sustainable management criteria for the streamflow depletion undesirable result.

Surface water and groundwater are hydrologically linked in the Modesto subbasin, and this linkage is critically important in creating seasonal habitat for Chinook salmon and steelhead. Where the groundwater aquifer supplements streamflow, the influx of cold, clean water is critically important for maintaining temperature and flow volume. Pumping water from these aquifer-stream complexes has the potential to affect salmon and steelhead habitat by lowering groundwater levels and interrupting the hyporheic flow between the aquifer and stream. NMFS is

concerned that groundwater extraction in the Modesto subbasin is currently impacting ESA-listed salmonid instream habitat, including EFH, and recommends the draft GSP adequately address and minimize these impacts.

Comments

Avoiding Undesirable Results: The requirement for minimum thresholds as spelled out in the SGMA regulations is as follows:

> "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." (CCR 23 §354.28(b)(2))

According to DWR (2021), "it is up to GSAs to define in their GSPs the specific significant and unreasonable effects that would constitute undesirable results and to define the groundwater conditions that would produce those results in their basins." The GSA should qualitatively describe what conditions within the subbasin would constitute an undesirable result with regard to streamflow depletion, ensuring that the description accounts for impacts to instream habitat that support ESA-listed salmon and steelhead. If data that would inform potential streamflow depletion impacts is lacking, NMFS recommends the final GSP follow guidance from California Department of Fish and Wildlife (2019) and develop conservative streamflow depletion thresholds as a cautionary principle until the surface flow/groundwater dynamic in the Modesto subbasin is better studied and understood.

Using Groundwater Elevations as a Proxy for Streamflow Depletion: If sustainable management criteria are proposed using groundwater elevations as thresholds, the GSA should provide an explanation, with supporting evidence, for why using groundwater level as a minimum threshold is a reasonable proxy for interconnected surface water depletion, as well as why those levels are sufficient to avoid streamflow depletion that significantly impacts surface water beneficial uses.

Basing Sustainable Management Criteria on Historical Drought Conditions: Using pre-SGMA groundwater elevations to inform or set streamflow depletion minimum thresholds and measurable objectives is likely inappropriate for avoiding significant impacts to ESA-listed salmonids and their habitat. Basic hydraulic principles dictate that groundwater flow is proportional to the difference between groundwater elevations at different locations along a flow path. Using this basic principle, groundwater flow to a stream or, conversely, seepage from a stream to the underlying aquifer is proportional to the difference between water elevation in the stream and groundwater elevations at locations away from the stream. Basing sustainable management criteria upon groundwater elevations that occurred during California's recent historical drought will likely create historically high streamflow depletion rates, resulting in instream conditions that negatively affect ESA-listed salmonids and their critical habitat, including EFH.

We recommend the GSA design and implement studies that better inform appropriate minimum thresholds and measurable objectives for streamflow depletion during the first year of GSP implementation. The sustainable management criteria that result must avoid significant and

unreasonable impacts to identified beneficial uses of surface water, which for the Stanislaus and Tuolumne rivers include cold freshwater habitat; migration of aquatic organisms; and spawning, reproduction, and/or early development[1]. In the interim before adequate data is acquired, we again suggest the GSA follow guidance by the California Department of Fish and Wildlife (2019) that recommends conservative sustainability management criteria be established to ensure groundwater dependent ecosystem protection.

NMFS recommendation for future Projects and Management Actions: We suspect that groundwater recharge projects are likely to be an important action implemented as part of the effort to achieve groundwater sustainability in the Modesto subbasin. NMFS encourages the GSA to consider implementing recharge projects that facilitate floodplain inundation while offering multiple benefits, including downstream flood attenuation, groundwater recharge, and ecosystem restoration. Managed floodplain inundation can recharge floodplain aquifers, which in turn slowly release stored water back to the stream during summer months. These projects also reconnect the stream channel with floodplain habitat, which can benefit juvenile salmon and steelhead by creating off-channel habitat characterized by slow water velocities, ample cover in the form of submerged vegetation, and high food availability. As an added bonus, these types of multi-benefit projects likely have more diverse grant funding streams that can lower their cost as compared to traditional off-channel recharge projects. NMFS stands ready to work with any GSA interested in designing and implementing floodplain recharge projects.

Please direct questions regarding this letter to Amanda Cranford, of my staff, at Amanda.Cranford@noaa.gov or (916) 930-3706.

Sincerely,

A. Catherine Marcinkevage

Cathy Marcinkevage
Assistant Regional Administrator
California Central Valley Office

References

California Department of Fish and Wildlife. 2019. Fish & Wildlife Groundwater Planning Considerations. California Department of Fish and Wildlife, Groundwater Program. June 2019. 28 pp. Available at: https://cawaterlibrary.net/document/fish-wildlife-groundwater-planning-considerations/

[1] Water Quality Control Plan for the Sacramento River and San Joaquin River Basins. Copy at https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/sacsjr_201805.pdf

California Department of Water Resources. 2021. Letter from Craig Altare (DWR) to Taylor Blakslee (Cuyama Basin GSA), re. Cuyama Valley - 2020 Groundwater Sustainability Plan. Available at: https://sgma.water.ca.gov/portal/gsp/assessments/32

Cc: To the File ARN 151422-WCR2021-SA00121

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