State Water Resources Control Board

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VIA ELECTRONIC MAIL

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TERM 20 PLAN – CACHUMA PROJECT IN SANTA BARBARA COUNTY

This letter responds to the U.S. Bureau of Reclamation's (Reclamation) submittal of a plan to comply with Term 20 of State Water Resources Control Board (State Water Board or Board) Order WR 2019-0148 (Order), which amended Reclamation's water right Permits 11308 and 11310 (Applications 11331 and 11332) for the Cachuma Project on the Santa Ynez River, and to Reclamation's submittal of an addendum to comply with Board Order WR 2024-0007 (Order on Reconsideration).

Term 20 of the Order requires Reclamation to develop a plan for studies listed in Term 24 and other studies to determine the measures necessary to protect the public trust resources of the Santa Ynez River. This study plan is required to be submitted to the Deputy Director of the Board's Division of Water Rights (Division) for approval. On January 23, 2020, Reclamation submitted a partial Term 20 Plan to the National Marine Fisheries Service (NMFS) and the California Department of Fish and Wildlife (CDFW) that addressed Term 24 study requirements with the exception of Term 24(a) (the subject of the petition for reconsideration). Reclamation made changes to the Term 20 Plan following comments from NMFS and CDFW, and submitted a revised plan to the Division on March 17, 2020.

Following adoption of the order denying the petition for reconsideration and confirming the need to comply with Term 24(a), Reclamation submitted an addendum with a Term 24(a) study plan to the Division on September 18, 2024. Reclamation did not submit the plan addendum to NMFS and CDFW for comment as required by Term 17 of the Order. As a remedy, the Board provided Reclamation's addendum to NMFS and CDFW and received comments from CDFW on December 13, 2024 (additional comments were not received from NMFS). This letter conditionally approves Reclamation's Term 20 Plan, subject to revisions informed by input from NMFS and CDFW in 2020 and 2024 (CDFW only).

Changes to Term 24(a) Study

Order Term 24(a) requires Reclamation to study and evaluate the options for providing passage of steelhead adults and smolts around Bradbury Dam. The study plan submitted in the Term 24(a) addendum was brief, lacking a description of the study to be implemented and any proposed methodology for how fish passage options would be evaluated. For these reasons, Reclamation must make the following revisions:

- Consistent with Fish and Game Code section 5937 (requiring the owner of any dam to keep fish below the dam in good condition) and Term 20 of the Order, Reclamation is required to include metrics in the study plan pertaining to restoring steelhead to good condition at the individual, population, and community levels. To meet these requirements, Reclamation is directed to include in the Term 24(a) study the metrics listed for the individual, population, and community level in the 1998 research paper titled Fish Health and Diversity: Justifying Flows for a California Stream[1] in the section "Fish in good condition: a three-tiered approach" and referenced in CDFW's December 13, 2024 comment letter (enclosed).
- Reclamation is directed to use CDFW's recommended minimum depth criterion of 0.7 feet (ft) through critical riffle(s) (based on documented steelhead lengths in excess of 30 inches in length, which correlates to a body depth of around 0.6 ft).[2]

Changes to Term 24(b) Studies

To conduct the instream flow study required in Order Term 24(b), Reclamation proposes to consider methods such as:

- Instream Flow Incremental Methodology (IFIM) developed by the United States Fish and Wildlife Service (USFWS),
- Procedures identified in CDFW's 2017 Standard Operating Procedure for Critical Riffle Analysis for Fish Passage in California[3] (CDFW SOP), and

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[1] Moyle, P.B., Marchetti, M.P., Baldrige, J. and Taylor, T.L. (1998), Fish Health and Diversity: Justifying Flows for a California Stream. Fisheries, 23: 6-15. Available online at: https://doi.org/10.1577/1548-8446(1998)023<0006:FHADJF>2.0.CO;2

[2] CDFW recommended consideration of other native fish species in the Term 24(a) and Term 24(b) studies. While the Division recognizes that other ecologically important species exist in the Santa Ynez River, the Order does not require studies regarding species other than steelhead.

[3] California Department of Fish and Wildlife. 2017. Standard Operating Procedure for Critical Riffle Analysis for Fish Passage in California. CDFW-IFP-001. September 2017. Available online at: https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=150377&inline

- Procedures identified in the 2013 research paper titled Determining Appropriate Instream Flow for Anadromous Fish Passage on an Intermittent Mainstem River, Coastal Southern California[4] (Booth et al. Methodology).

Reclamation also proposes using Light Detection and Ranging (LiDAR) mapping. Reclamation is specifically directed to use the CDFW SOP to conduct the instream flow study, along with LiDAR mapping to create a two-dimensional model to identify critical riffles, to determine conditions necessary to keep steelhead in good condition at the individual, population, and community levels.

Term 24(b)(1) and (2)

Reclamation's study plan proposes to "employ an appropriate method of study" but does not specify what that study will entail. As discussed above, the Division supports Reclamation's proposal to assess needed migration flows using the CDFW SOP and to assess timing and magnitude of migration flows using the Booth et al. Methodology, and directs Reclamation to do so.

Booth et al. notes that minimum discharge requirements are necessary but not sufficient to ensure fish passage since "the magnitude, duration, and sequence of daily flows must provide the hydrologic attraction cues to initiate both the upstream migration of adult steelhead and the downstream movement of smolts." Accordingly, as part of the studies described in Term 24(b)(1) and (2) Reclamation is directed to:

- Summarize Santa Ynez River unimpaired flow conditions for a range of representative hydrologic conditions, using data from United States Geological Survey (USGS) or another comparable source. As part of this assessment, determine the range in the magnitude, duration and timing and other hydrologic characteristics of unimpaired fall pulse flows, wet season base flows, wet season peak flows, recession flows, and dry season baseflows.
- Quantify fry and juvenile rearing habitat using the depth-dependent analysis methods from Harrison et al. 2017[5].

Regarding Term 24(b)(2), Reclamation is directed to:

- Determine the magnitude of inputs of sediment and gravel from tributaries into the Santa Ynez and the rate at which sediment is transported downstream by flow.

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[4] Booth, D.B., Y. Cui, Z. Diggory, D. Pedersen, J. Kear and M. Bowen. 2013. Determining Appropriate Instream Flows for Anadromous Fish Passage on an Intermittent Mainstream River, Coastal Southern California, USA. Ecohydrology 2013; e1396. Available online at: https://doi.org/10.1002/eco.1396

[5] Harrison, L.R., A Pike and D.A. Boughton. 2017. Coupled Geomorphic and Habitat Response to a Flood Pulse Revealed by Remote Sensing. Ecohydrology 2017; e1845. Available online at: https://doi.org/10.1002/eco.1845

- Determine if tributary mouths downstream from Bradbury Dam have aggradation that is blocking fish passage.

Term 24(b)(4)

Reclamation's plan proposes to evaluate existing water quality monitoring data. As part of its compliance with Term 24(b)(4), Reclamation is directed to evaluate water quality impacts from nutrient and sediment loading, including reporting from any National Pollution Discharge Elimination System permits or waste discharge requirements regulating point source discharges to the Santa Ynez River and data from any Total Maximum Daily Load studies on the Santa Ynez River.

Term 24(b)(5)

Reclamation's plan proposes to evaluate what changes formulated based on Term 24(b) could be implemented but does not specify what sort of changes would be evaluated, how those changes are expected to benefit steelhead, or how those changes would be evaluated.

As part of the Term 24(b)(5) assessment, Reclamation is directed to:

- Evaluate actions to make the Hilton Creek Watering System more reliable.
- Evaluate possible changes in water release schedules to mirror the unimpaired flow conditions identified in Term 24(b)(1).
- Assess the potential to improve fish habitat by managing sediment transport.
- If aggradation is identified in the Term 24(b)(2) study, evaluate whether water releases could reduce this aggradation.

Term 24(b)(6)

Reclamation proposes to review hydrologic conditions at the times of historic releases and to compare water rights releases to habitat conditions, but does not define the habitat conditions that will be evaluated. To specify this, as part of the Term 24(b)(6) assessment, Reclamation is directed to evaluate the effects of WR Order 89-18 water right releases on whether flows mirror the unimpaired flow conditions identified in Term 24(b)1. Reclamation is directed to determine the effects of releases on freshwater rearing areas, spawning areas and migration corridors, and fish movement. Reclamation is also required to evaluate effects of ramping down flows on stage and wetted width for the mainstem Santa Ynez River and Hilton Creek to determine if ramp down protocols are sufficient to mirror recession flows and dry season baseflows, and to provide suitable spawning, rearing, and migration habitat for steelhead.

Changes to Term 24(c) Studies

Term 24(c) requires studies evaluating the impacts of predation and nonnative species on steelhead.

Reclamation plans to evaluate "reasonable measures to prevent the introduction or reintroduction of invasive species," but does not specify which "possible control measures" will be evaluated. At minimum, Reclamation is required to evaluate the potential efficacy of control methods employed at other locations, such as those employed at Grizzley Valley Dam.[6]

Term 24(c) additionally requires Reclamation to "determine the effects of beaver dams on passage opportunities and distribution of steelhead and measures that could be implemented to reduce any impacts on steelhead in the river from beavers." Reclamation's plan proposes to evaluate beaver population control measures. Per the comments from CDFW, beavers do not have a net negative impact on ecosystems. Accordingly, Reclamation is not required to study beaver population control measures or the effects of beaver removal and can satisfy its requirement with regard to beaver dams with the study described in Reclamation's submission as Term 24(c)(3).

Changes to Study Metrics

In the submitted study plan, Reclamation stated that describing exact details of study metrics before study implementation is premature and, therefore, the proposed metrics include only general classes of information. The study metrics are required to include the following specific metrics:

Increased Smolt and Adult Steelhead Abundance

This metric is required to include consideration of the time it takes rearing juvenile steelhead to reach a smolting stage, the size at which rearing juvenile steelhead reach a smolt stage, the number of smolts that successfully emigrate out of the freshwater environment to the marine environment, smolt distribution, and the proportion of emigrating smolts that return as adult salmon.

Quality and Quantity of Additional Steelhead Habitat Created

This metric is required to include measurements of estuarine habitat, migratory corridors to and from the ocean, spawning habitat, rearing habitat, and diversity of each habitat type measured using a standard method for characterizing these features.[7]

Improvements in Water Quality

As listed in Term 24(b)(4), this metric is required to at minimum include elevated temperatures, low dissolved oxygen, and sediment transport.

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[6] See https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=5116 and https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=126694

[7] Such as those developed by CDFW, e.g. Flosi et al. California Stream Restoration Salmonid Restoration Manual, 4th edition.

Additional Requirements

In addition to the above metrics, Reclamation is required to include a quality assurance/quality control plan that describes how data is consistently collected, validated, maintained, stored, and analyzed using best available practices.

Study Plan Approval

The Term 20 Plan, including the addendum Term 24(a) Study Plan, is approved, subject to the revisions specified in this letter. If you have any questions or would like to discuss this matter further, please contact Tim Scully at Tim.Scully@waterboards.ca.gov

Sincerely,

Eric Oppenheimer
Executive Director
State Water Resources Control Board

Enclosures:
1. CDFW Comment Letter on Addendum
2. Term 20 Plan Addendum
3. Term 20 Plan Initial Submission (With CDFW and NMFS Comment Letters)

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