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DEPARTMENT OF FISH AND WILDLIFE

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March 26, 2026

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Subject: Tide's End Multibenefit Restoration Project, Draft Supplemental Environmental Impact Report, SCH No. 2024070944, Yolo County

Dear Mr. Grossman:

The California Department of Fish and Wildlife (CDFW) received a Notice of Availability of a Draft Supplemental Environmental Impact Report (EIR) from the California Department of Water Resources (DWR) for the Tide's End Multibenefit Restoration Project (Project) pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.¹ CDFW previously submitted comments in response to the Notice of Preparation of the draft supplemental EIR.

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

CDFW ROLE

CDFW is California's **Trustee Agency** for fish and wildlife resources and holds those resources in trust by statute for all the people of the State. (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a).) CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. (*Id.*, § 1802.) Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

CDFW is also submitting comments as a **Responsible Agency** under CEQA. (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381.) CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code. As proposed, for example, the Project may be subject to CDFW's Lake and Streambed Alteration (LSA) regulatory authority. (Fish & G. Code, § 1600 et seq.) Likewise, to the extent implementation of the Project as proposed may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 et seq.), the project

¹ CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

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proponent may seek related take authorization as provided by the Fish and Game Code.

PROJECT DESCRIPTION SUMMARY

Proponent: Department of Water Resources

Objective: The objective of the 2,212-acre Project is to restore tidal marsh and associated floodplain habitat while preserving and enhancing existing land uses (e.g., agriculture and managed wetlands). Located at the fluvial-tidal interface at the downstream end of the Yolo Bypass, adjacent to the Cache Slough Complex, the proposed Project would connect a ten-mile stretch of uninterrupted floodplain and wetland habitat. Primary Project activities include restoration of tidal connectivity to the Toe Drain for low-lying areas where the ground elevation is suitable to support tidal marsh habitat by opening an existing berm adjacent to the Toe Drain and excavating tidal channels, creation of managed seasonal wetlands in higher elevation areas, enhanced volitional fish passage by reductions and/or improvements to existing human-built obstructions, enhanced climate change resiliency by allowing for inland migration of tidal marsh habitat with sea-level rise.

Location: City of Dixon, Yolo County, County Road 155, and County Road 107, Latitude 38.386889, 121.638306.

Timeframe: Implementation expected over two construction seasons, starting in 2027.

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations below to assist DWR in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. Editorial comments or other suggestions may also be included to improve the document. Based on the Project's avoidance of significant impacts on biological resources with implementation of mitigation measures, CDFW concludes that a Supplemental Environmental Impact Report is appropriate for the Project.

COMMENT 1: Healthy Rivers and Landscapes (HRL) Program (formerly the Voluntary Agreements (VA) Program)

Issue: In multiple locations throughout the draft supplemental EIR, it is stated that the Project, "supports the framework outlined in the HRL Program" yet no details are provided as to how the Project will accomplish the planning, design, and monitoring tasks defined in the Healthy Rivers and Landscapes Final Draft Science Plan (Healthy Rivers and Landscapes Science Plan, Final Draft, August, 2024). CDFW previously provided this comment to DWR in response to the Notice of Preparation for the Project.

Project proponents have largely completed the planning stage and intend to submit permit applications with a preferred design within weeks after the close of the public comment period on the draft supplemental EIR without following the necessary HRL processes. The elements that must compose an HRL project are described in the HRL Science Plan that outlines a process for all potential HRL projects. This process requires development of a project specific science team (i.e., Delta-specific Governance Entity) early in the planning phase who then develops a project science plan that is consistent with the HRL framework. The project science plan will then include applicable HRL hypothesis at multiple spatial/temporal scales. It will also include development of design objectives incorporated into the final design that are consistent with habitat suitability design standards for a given habitat type (e.g., tidal wetlands and floodplain) and design

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criteria review and acceptance by the project science team and a Systemwide Governance Entity. The project specific science plan should also contain a monitoring and reporting plan that identifies how the relevant hypotheses will be addressed with the implementation of the monitoring plan. The monitoring plan should include the following components: accounting for non-flow (habitat) measures to assess progress toward achieving Memorandum of Understanding (MOU) commitments (2022, MOU), habitat suitability assessments to evaluate the ability of improved habitat to support species and habitat utilization and biological effectiveness assessments to evaluate target species usage and benefit from improved habitat.

HRL crediting in terms of meeting obligations under the HRL MOU could be impacted if the aforementioned HRL processes is not adhered to. In particular, this applies to the development of a multi-agency/stakeholder project specific science team (i.e., Delta-specific Governance Entity) and the re-initiation of the design criteria review process during the planning phase.

Recommendation 1: The draft supplemental EIR should describe and analyze any ongoing effectiveness monitoring and other ongoing activities that will be associated with the Project. CDFW recommends the draft supplemental EIR include a timeline of how and when the HRL framework will be implemented.

COMMENT 2: Project Description

Issue: The draft supplemental EIR does not provide clear and/or sufficient details on the project description.

Recommendation 2: The draft supplemental EIR should be revised to ensure conformity with the Healthy Rivers and Landscapes Final Draft Science Plan. To do so, the draft supplemental EIR should be revised to provide additional details with at least 30 percent design criteria. Examples of details include the following: number of breaches/berm lowering/channel excavations, approximate dimensions (linear feet and/or area), which infrastructure would be removed/retained, the local tidal datum and the elevational ranges of each habitat type (e.g. subtidal, intertidal or MLW, MHW, etc.).

Additionally, a map showing the proposed restoration features, infrastructure retained/installed/removed, areas impacted by construction activities would clarify what features are proposed. For new infrastructure proposed, please provide typical drawings and/or example photos of the fish screens, weirs, culverts, weir boxes, etc. The revised draft supplemental EIR should also identify elevations of excavated features in relation to tidal datums such as channels and identify whether individual channels or section will be subtidal, especially if they are designed to allow volitional fish egress.

COMMENT 3: Preconstruction surveys

Issue: Sufficient preconstruction surveying of the Project site has not been completed to determine impacts to special-status species.

Impacts to special-status plant species should be considered significant under CEQA unless they are clearly mitigated below a level of significance. CDFW considers plant communities, alliances, and associations with a statewide ranking of S1, S2, S3, and S4 as sensitive and declining at the local and regional level (Sawyer 2009). Plants that have a California Native Plant Society (CNPS) California Rare Plant Rank (CRPR) of 1A, 1B, 2A, and 2B are rare throughout their range, endemic to California, and are seriously or moderately threatened in California. Impacts to these species or their habitat must be analyzed during preparation of environmental documents relating to CEQA, as they meet the definition of rare or endangered (CEQA Guidelines, § 15380).

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Additionally, burrowing owl (*Athene cunicularia*) is currently a candidate species under CESA and is afforded the same protection as a CESA-listed species (CEQA Guidelines, § 15380, subds.(b)). Unauthorized take of this species pursuant to CESA is a violation of Fish and Game Code section 2080 et seq.

Recommendation 3: Provide botanical survey data, as CDFW's Protocols for Surveys and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities states on page 7, "...botanical field surveys over a number of years may be necessary if the special status plant is an annual or short-lived plant having a persistent, long-lived seed bank and populations of the plant are known to not germinate every year. Visiting the project area in more than one year increases the likelihood of detecting special status plants, particularly if conditions change. To further substantiate negative findings for a known occurrence, a visit to a nearby reference site may help ensure that the timing of botanical field surveys was appropriate.". If subsequent surveys have not been completed, please plan at least an additional season of botanical surveys.

Recommendation 4: Western burrowing owl habitat assessments should be performed in accordance with Appendix C. Habitat Assessment and Reporting Details of the Staff Report on Burrowing Owl Mitigation (2012).

COMMENT 4: Fish entrainment and stranding

Issue: Chapter 2, "Effects on Entrainment" section states that larval smelt would have the potential to be entrained by the pump station and juvenile salmonids are expected to be excluded. These statements, without citations, do not provide support for "less than significant with general protection measures" findings. Chapter 2, Effects of Stranding, goes on to state, "[T]o further reduce juvenile stranding, the proposed Project features would be graded to allow volitional passage through the proposed Project area and reconnect with the Toe Drain." Without more clarity as to the specific design feature elevations, it is unclear how volitional passage will be maintained.

Recommendation 5: The draft supplemental EIR should be revised to include additional supporting evidence, such as citations to relevant literature to support statements made about effects on fish entrainment. The draft supplemental EIR should be revised to include project feature invert elevations. Additionally, to inform ongoing analysis about potential fish response to the Project, CDFW recommends incorporating fish monitoring data from Yolo Flyway Farms in the environmental impacts analysis of the draft supplemental EIR as this dataset is likely more representative when it comes to potential fish presence in the project area than the data sources currently cited.

COMMENT 5: Compatibility of Land Uses and Long-term Operations, Monitoring, and Maintenance.

Issue: Section 2.4 (Page 2-23 – 27) of the draft supplemental EIR describes a variety of ongoing operations and management activities within the managed wetlands, floodplain agriculture and the Project as a whole required to achieve the multi-benefit objectives. Specific management and operation tasks are identified, and a conceptual model timeline of seasonal management activities is provided. CDFW previously commented on the lack of specificity in identifying who will ultimately be responsible for carrying out the ongoing operations and management tasks, how those tasks will be funded, and that an adaptive management plan should be established with stakeholder involvement to ensure the compatibility of different land uses proposed under the project. Furthermore, CDFW requested more specificity as to what constitutes, "ecologically sensitive seasonal floodplain agriculture and fish-friendly waterfowl management" mentioned in the Notice of Preparation and on Page 2-13 of the draft supplemental EIR. The subsequent Section 2.4 (Page 2-26) goes on to say that

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“Managed floodplain agriculture in the proposed Project area would generally follow standard practices for rice production in the Yolo Bypass, consistent with current operations, with modifications targeted toward fish and waterfowl food production and juvenile salmonid rearing.” Presumably these modifications are what constitute ecological sensitivity, but the draft supplemental EIR provides no details nor identifies any specific trade-offs in terms water or nutrient/herbicide management that will need to be implemented to achieve these benefits to fish and wildlife. Furthermore, the conceptual management timeline identifies potential conflict areas in the timing of flooded conditions and draw down required for floodplain agriculture and managed wetlands relative to juvenile salmonid rearing needs and the peak abundance period for smelt. Rice fields and managed wetlands are typically drawn down in March prior to the end of the rearing and peak abundance periods for the fish species the restoration is intended to benefit.

Evidence impact would be significant: Managed wetlands primarily managed for the benefit of waterfowl may or may not be compatible with fish food production depending on the specific management practices employed (Williamshen et al., 2021). Managed wetlands are recognized as novel ecosystems that support a mixture of native and non-native aquatic species (Moyle et al., 2014; Aguilar-Medrano et al., 2019), and management objectives may be at odds with the Project objective of solely benefiting native aquatic species.

It has been demonstrated that flooded rice fields can potentially support rapid growth for juvenile salmonids stocked into managed rice fields through elevated zooplankton production relative to channelized river habitats (Katz et al., 2017;). However, 15 years of studies investigating juvenile salmon rearing in rice fields have yet to show a consistent benefit to salmon beyond in situ growth (Corline et al. 2017, Katz et al. 2017; Jeffres et al. 2020; Sommer et al. 2020; Holmes et al. 2021). Evidence of a consistent positive effect of that experienced growth is missing. Studies are ongoing in both Yolo Bypass and Sutter Bypass on this subject and until further data is available this management action should not be assumed to provide a net benefit to salmon. Additionally, recent work (Sommer, 2020) with DWR staff as the lead authors, synthesized the results of 5 years of studies investigating salmonid response to rearing in flooded agricultural fields and one of their principal findings was that agricultural fields designed to be used for fish habitat: *“Need to have sufficient structural integrity to support deeper water and flow. Our observations suggest that typical production rice fields do not meet these criteria.”*

In addition to the scientific uncertainties regarding benefits to salmon either stocked or entrained into rice fields, winter-flooded rice fields are often drawn down rapidly by late February or March to prepare for spring planting. In contrast, historical floodplain inundation in the Sacramento Valley frequently extended into April and May during wetter water years, overlapping with peak juvenile salmon floodplain rearing periods (Sommer et al., 2001; Opperman et al., 2017). The duration and onset of field inundation in rice agriculture may therefore not consistently align with peak juvenile salmon occupancy windows in floodplain habitats and can vary significantly from year to year based on hydrology, water allocations, and farm management decisions. Field studies conducted on rice fields in the Yolo Bypass indicate that duration of inundation and timing of drainage directly influence juvenile salmon growth, survival, and successful egress, and that altered drainage timing can affect stranding risk, prey availability, and habitat quality (Sommer, 2004; Takata, 2017).

While managed inundation of rice fields in the Yolo Bypass has demonstrated potential to provide rearing habitat and food resources for juvenile Chinook salmon (*Oncorhynchus tshawytscha*) under certain conditions, there remains substantial uncertainty about whether the timing and duration of inundation under

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standard agricultural management regimes and standard rice agricultural methods in the Yolo Bypass (see next comment) are consistently compatible with the ecological needs of these species throughout their critical life stages. Specifically, the seasonal timing of water inflows and drawdown in rice systems may not align with juvenile salmonid outmigration timing or with the habitat use windows of other native species such as Delta smelt (*Hypomesus transpacificus*) and longfin smelt (*Spirinchus thaleichthys*), whose life histories are closely linked to hydrologic variability and extended floodplain connectivity (Moyle et al., 2016; Sommer et al., 2007).

Recommendation 6: This potential temporal mismatch between water management optimized for rice production and waterfowl habitat, and hydrologic conditions that maximize juvenile native fish rearing, warrants more complete evaluation in the draft supplemental EIR analysis. Without such evaluation, it remains unclear whether proposed tidal wetland restoration and continued agricultural land uses are fully compatible in achieving native fish recovery objectives. As such, CDFW does not recommend incorporating the rice agriculture elements in the Project at this time. Water control infrastructure should be opened immediately before or after overtopping events so that fish can escape agricultural fields and managed wetlands. For more information on scientific uncertainties regarding managed floodplains see previous comments from CDFW on this Project and https://s42845.pcdn.co/wp-content/uploads/Floodplains-Regimagined_Clean_Uncertainty_TM_032524.pdf. If these elements are ultimately retained, some of the issues raised above (e.g., timing of water management relative to fish needs and banning or reducing the use of agricultural chemicals) could be addressed in a long-term adaptive management framework that establishes performance standards and monitoring triggers designed to optimize benefits for native fish species while balancing agricultural and waterfowl management objectives.

At a minimum, the CEQA document should acknowledge and evaluate this potential temporal mismatch and should acknowledge and discuss the general scientific uncertainty regarding benefits of juvenile salmonid rearing in flooded rice fields as either a significant impact or a data gap requiring further study. Avoidance, minimization, and monitoring measures should be considered to ensure that floodplain agricultural and managed wetland practices support, rather than inadvertently constrain, ecological outcomes for listed fish species.

COMMENT 6: Potential Contaminant Exposure from Use of Rice Agricultural Runoff as Fish Food Source

Issue: The draft supplemental EIR discusses the use of agricultural drainage water from rice fields in the Sacramento–San Joaquin Delta as a potential food resource for fish species but provides limited evaluation of potential contaminant exposure associated with this practice. Flooded rice fields and associated agricultural drainage water can contain residues from pesticides, herbicides, nutrients, and other agricultural chemicals that may be transported into adjacent aquatic habitats used by fish and other aquatic organisms.

Recent research indicates that pesticide contamination may occur not only in the water column but also through accumulation in aquatic food web components such as zooplankton. Because zooplankton and other invertebrates are primary prey for many fish species, including threatened and endangered fish, contaminants present in agricultural drainage water may be transferred through trophic pathways.

A growing body of literature indicates that rice agriculture and associated agricultural runoff can introduce pesticides into Delta aquatic ecosystems, potentially affecting both water quality and aquatic food webs. Studies have

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documented that Delta waters contain complex mixtures of current-use pesticides derived from both agricultural and urban runoff (Weston and Lydy 2010; Weston et al. 2014; De Parsia et al. 2018; Orlando et al. 2014).

Recent work by Orlando et al. (2025) provides further evidence that pesticide exposure in the Delta food web may be strongly influenced by flow conditions and agricultural drainage inputs. That study found that pesticide concentrations in both water and zooplankton increased in association with augmented flow pulses using agricultural tailwater in the Yolo Bypass and Sacramento River system. Zooplankton samples frequently contained multiple pesticides and showed particularly frequent detections of hydrophobic compounds that bioaccumulate in aquatic organisms. Because zooplankton are a primary food source for juvenile fish in the Delta, including species such as the Delta smelt, Chinook Salmon, and longfin smelt, this bioaccumulation pathway represents a potential mechanism for contaminant transfer through the aquatic food web (Orlando et al. 2025).

The study further documented that zooplankton samples frequently contained mixtures of multiple pesticides, with detections occurring in the vast majority of samples analyzed. Importantly, hydrophobic pesticides, including several insecticides commonly used in agricultural and urban settings, were detected more frequently in zooplankton than in water samples, consistent with bioaccumulation processes. Such accumulation can lead to trophic transfer and may affect fish growth, physiology, and survival (Fong et al. 2016; Orlando et al. 2025).

Additionally, Orlando et al. (2025) found that augmented flow pulses generated using agricultural tailwater were associated with increased pesticide concentrations in the Yolo Bypass and nearby Delta habitats. These findings suggest that management actions intended to enhance food web productivity—such as increasing flows or mobilizing agricultural drainage water—may also increase pesticide exposure within the food web, potentially offsetting some ecological benefits.

Beyond bioaccumulation, numerous studies have demonstrated that pesticides can adversely affect aquatic organisms through both lethal and sublethal mechanisms. Pesticides have been shown to alter zooplankton community composition, reduce survival, and impair growth and reproduction (Hanazato 2001; van Wijngaarden et al. 2014; Arenas-Sánchez et al. 2018). These effects may cascade through aquatic food webs by reducing the availability or nutritional quality of prey resources for fish species.

Given the importance of zooplankton as prey for pelagic fishes in the Delta and the documented presence of complex pesticide mixtures within this trophic pathway, the use of rice agricultural runoff to support fish food production may present a pathway for contaminant exposure that could affect sensitive fish species and aquatic food web dynamics.

Recommendation 7: To ensure compliance with the analytical requirements of CEQA, the draft supplemental EIR should be revised to clearly define the agricultural management practices that would be implemented if rice cultivation is incorporated into the proposed multi-benefit project. This should include a description of pesticide use practices, timing of chemical applications, water management strategies, drainage and tailwater management, and any best management practices intended to minimize the transport of agricultural chemicals into adjacent aquatic habitats used to support fish prey production. Providing this level of project detail would allow for a clearer evaluation of whether rice cultivation associated with the project could introduce pesticide residues or other contaminants into the aquatic food web. Where appropriate, the draft supplemental EIR should also identify monitoring or adaptive management

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measures to ensure that water quality and food web benefits associated with the project are not offset by unintended contaminant exposure associated with agricultural drainage inputs.

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a database which may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e).) Accordingly, please report any special-status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDDB). The CNDDDB field survey form can be filled out and submitted online at the following link:

<https://wildlife.ca.gov/Data/CNDDDB/Submitting-Data>. The types of information reported to CNDDDB can be found at the following link:

<https://www.wildlife.ca.gov/Data/CNDDDB/Plants-and-Animals>.

ENVIRONMENTAL DOCUMENT FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of environmental document filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the environmental document filing fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.)

CONCLUSION

CDFW appreciates the opportunity to comment on the draft supplemental EIR to assist DWR in identifying and mitigating Project impacts on biological resources.

Questions regarding this letter or further coordination should be directed to Elijah Portugal, Senior Environmental Scientist, at (707) 428-2088 or Elijah.Portugal@wildlife.ca.gov; or Sara Kern, Senior Environmental Scientist, (Supervisory) at Sara.Kern@wildlife.ca.gov.

Sincerely,

DocuSigned by:

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ec: Office of Land Use and Climate Innovation SCH No. 2024070944
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