

# RECLAMATION

*Managing Water in the West*

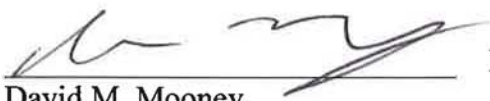
## FINDING OF NO SIGNIFICANT IMPACT

### Sacramento Deep Water Ship Channel Nutrient Enrichment Project

Recommended by:  Date: 9/19/2018  
Luke Davis  
Natural Resources Specialist

Concurred by:  Date: 9/19/2018  
Ben Nelson  
Acting Chief, Conservation and Conveyance Division

 Date: 9/20/2018  
Erwin Van Nieuwenhuyse  
Interagency Ecological Program Manager

Approved by:  Date: 9/20/2018  
David M. Mooney  
Area Manager



# 1 Background

Reclamation operates the Central Valley Project (CVP), a system of reservoirs, power plants, operable gates, pumping plants and canals that supply water for irrigation, municipal and industrial use and for wildlife refuges in the Central Valley. CVP operations are thought to contribute to the decline of Delta Smelt (*Hypomesus transpacificus*), an endemic fish listed as ‘threatened’ under the federal Endangered Species Act (ESA), by adversely affecting the extent and quality of its critical habitat. Under the Central Valley Project Improvement Act of 1992, Reclamation has the authority to fund activities that have the potential to reduce CVP impacts on smelt and their critical habitat and to undertake actions to improve Delta habitat conditions.

Conceptual models for the pelagic organism decline in the Sacramento-San Joaquin Delta suggest the potential for both “top-down” and “bottom-up” drivers of fish abundance. As in many estuaries, fish and other higher trophic level production in the open waters of the Delta region is fueled by phytoplankton production. However, the Delta has notably low phytoplankton production and biomass (Van Nieuwenhuysse 2007; Jassby 2008) resulting in low overall aquatic ecosystem productivity compared to other systems. Consequently, open waters of the Delta are considered food-limited (Kimmerer 2002). Increasing food resources (i.e., phytoplankton and zooplankton) will thus be expected to have a beneficial effect on the entire system, as well as for endangered native species such as Delta Smelt.

Previous research on the Toe Drain in the Yolo Bypass (Frantzich and Sommer 2015) demonstrated that pulses of algae-rich waters associated with enhanced net flows through the Toe Drain (as measured at the Lisbon Weir) can “seed” a significant algal bloom throughout the north Delta. A plausible mechanism for this phytoplankton bloom initiation is that the input of a large algal seed source from the Toe Drain into the relatively nutrient-rich waters from the lower Sacramento River (primary nutrient source is Sacramento Regional wastewater treatment facility) results in greatly enhanced phytoplankton production rates that exceed zooplankton and clam (*Corbicula*) grazing pressures. This allows the phytoplankton bloom to persist and propagate downstream until it is exported to the Bay.

To optimize the export of food resources from the Sacramento Deep Water Ship Channel (SSC), Reclamation’s multi-year (2012 – present) dataset suggests that nitrogen additions should enhance both primary (phytoplankton) and secondary (zooplankton) production and standing crops. It is hypothesized that it should be possible to manipulate the SSC in a manner that will allow Reclamation to grow up standing stocks of phytoplankton and zooplankton and pulse these food resources into the north Delta where the phytoplankton/zooplankton bloom may be self-sustaining for a period of time (roughly 1 month, but depending on river flows). In the SSC, there is the potential to control both water flow rates (diversions from Sacramento River) and nutrient concentrations (e.g., through nutrient additions) should preliminary studies support the efficacy of the system to enhance food resources in the north Delta.

Reclamation prepared the Sacramento Deep Water Ship Channel Nutrient Enrichment Project Environmental Assessment (EA) in preparation for the proposed action. Analyses and background information included in the EA are incorporated by reference.

## 2 Proposed Action

Under the Proposed Action, Reclamation will conduct a nitrogen enrichment pilot study at Navigation Light 74 (NL74) to test nutrient stimulation of primary and secondary production. NL74 is located within the “old water” zone and, therefore, experiences no net advection to the north Delta.

A proposed target level of dissolved inorganic nitrogen (DIN) of 0.5 mg N/L will be conducted for this nitrogen enrichment study. The nutrient enrichment target of 0.5 mg N/L compares to maximum seasonal DIN levels of about 0.4 mg N/L experience naturally at or around NL74. The enrichment study will occur in late September. This will restore nitrogen to levels that occur naturally earlier in the season before drawdown by phytoplankton growth.

The addition of nitrogen will be in the form of nitrate and will be added to about a 400 meter length of the SSC centered at NL74. A total of 112 kilograms of nitrogen will be applied. Aerial application (via crop duster) will be conducted in order to achieve a relatively uniform distribution pattern of fertilizer to the water surface. Following aerial application, a 40 foot research vessel will be used to mix the upper water column.

### Monitoring Plan

Reclamation will place YSI water quality sondes at depths of 1 and 5 meters within the water column at NL74. These sondes will monitor the entire plug of fertilizer enrichment during a tidal cycle by using the specific conductance to identify each water parcel as it moves up and down stream during a tidal cycle. YSI depths will be collected at a 2 day interval during the first 10 days and at 5 day intervals to a total of roughly 30 days.

Grab samples will be collected at 50 meters and 200 meters upstream and downstream of the central nutrient plug. These samples will be analyzed for nutrients, extractable chlorophyll, dissolved organic compounds, turbidity, and total and volatile suspended solids concentration. These samples will determine if any nutrient dispersion has occurred.

Further information and analyses regarding the proposed action can be found in the SSC Nutrient Enrichment Project EA.

## 3 Findings

A Finding of No New Significant Impact may discuss significance in terms of the context and intensity of the impact (40 CFR 1508.27). Context in the Proposed Action is related to local

effects to the Delta and the SSC. Intensity refers to the severity of the impacts, which may include whether the action may adversely affect an endangered species or adversely modify its critical habitat.

The following were considered in evaluating intensity (40 CFR 1508. 27):

(1) Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal Agency believes that on balance the effect will be beneficial.

The Proposed Action has the potential to provide beneficial impacts to Delta Smelt and the Bay-Delta ecosystem.

(2) The degree to which the proposed action affects public health or safety.

The Proposed Action will not affect public health or safety.

(3) Unique characteristics of the geographical area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.

Under the Proposed Action there will be no new construction, ground-disturbing activities, or changes in land. The Proposed Action will not significantly impact historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.

(4) The degree to which the effects on the quality of the human environment are likely to be highly controversial

Reclamation received one comment in support of the Proposed Action during the public review. The effects of the Proposed Action are not highly controversial.

(5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.

There is some degree of uncertainty in the effects of the Proposed Action on biological resources, but Reclamation has consulted with the Service on the effects of the Proposed Action on Delta Smelt. The Proposed Action is a pilot study developed to benefit Delta Smelt and the Bay-Delta ecosystem. There are no unknown or unique risks.

(6) The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principal about a future consideration.

The Proposed Action does not represent a decision about a future consideration and would not establish a precedent for future actions with significant effects.

(7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small components.

The Proposed Action is a pilot study and is limited to the fall of 2018. The Proposed Action would not result in cumulatively significant impacts on the environment, as described in the EA.

(8) The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

This type of undertaking does not have the potential to cause effects to historic properties and there would be no new construction, ground-disturbing activities, or changes in land use as a result of this action.

(9) The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

The Proposed Action will not significantly affect listed threatened or endangered species or their designated critical habitat.

(10) Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

The Proposed Action will not violate requirements under Federal, State, or local law imposed for protection of the environment.

In accordance with National Environmental Policy Act (NEPA), Reclamation has found that the Proposed Action is not a major Federal action that will significantly affect the quality of the human environment. Therefore, an environmental impact statement is not required for carrying out the Proposed Action. The EA describes the existing environmental resources in the vicinity of the Proposed Action, and evaluates the effects of the No Action and Proposed Action on resources near the Navigation Light 74 of the SSC. The EA was prepared in accordance with NEPA, the Council of Environmental Quality regulation (40 CFR 1500-1508), and the Department of Interior regulations (43 CFR Part 46).

Potential impacts on several environmental resources not evaluated in detail in the EA were found to have minimal or nonexistent impact: Aesthetic Resources; Hazards and Hazardous Materials; Noise; Transportation; and Utilities, Public Services, Service Systems, Air Quality and Greenhouse Gas Emissions; Geology and Soil Resources; Socioeconomics; Land Use; and Agriculture.

Cultural Resources: This type of undertaking does not have the potential to cause effects to historic properties pursuant to 36 CFR Part 800. 3(a)(1). There will be no new construction or ground-disturbing activities and no changes in land use as a result of this action.

Indian Trust Assets: The Proposed Action does not have a potential to affect Indian Trust Assets. There will be no new construction or ground-disturbing activities and no changes in land use as a result of this action.

Indian Sacred Sites: There will be no new construction or ground-disturbing activities and no changes in land use as a result of this action; therefore this project will not inhibit use or access to any Indian Sacred Sites.

Environmental Justice: There will be no new construction or ground-disturbing activities and no changes in land use as a result of this action; therefore the Proposed Action will not result in adverse human health or environmental impacts to minority or low-income populations.

## **4 Cumulative Effects**

Past, present, and reasonably foreseeable future actions were identified and considered in the analysis in the EA (Section 3.5). No past, present, or probably future projects were identified in the project vicinity that when added to project-related impacts, would result in a significant cumulative impact, and that would be cumulatively considerable. Other projects occurring outside of the SSC would not be affected by the Proposed Action.

## **5 Public Review**

Reclamation released the draft EA for public review and comment from June 20, 2018 to June 27, 2018. The document was made available on Reclamation's website at:

[https://www.usbr.gov/mp/nepa/nepa\\_project\\_details.php?Project\\_ID=33481](https://www.usbr.gov/mp/nepa/nepa_project_details.php?Project_ID=33481)

On June 26, 2018, the State Water Contractors submitted comments to Reclamation in support of the Proposed Action, highlighting the Delta Smelt Resiliency Strategy foodweb related actions and coordination.