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January 9, 2019

Bill Emlen, Director  
Solano County Resource Management  
675 Texas St., Suite 5500  
Fairfield, CA 94533

**SUBJECT: Comments on Proposed Lookout Slough Restoration Project**

Dear Director Emlen:

The North Delta Water Agency (NDWA/Agency) submits these comments on the proposed Lookout Slough Project (Proposed Project), a tidal restoration project being developed in Solano County on Lookout Slough located in the Lower Yolo Bypass, west of Liberty Island and north of Cache Slough.

NDWA has a clear statutory mandate to assure that the lands within the North Delta have a dependable supply of water of suitable quality sufficient to meet present and future beneficial uses.<sup>1</sup> In accordance with its statutory responsibilities, in 1981 the NDWA and the Department of Water Resources (DWR/Department) executed the *Contract for the Assurance of a Dependable Water Supply of Suitable Quality* (1981 Contract or Contract).

The 1981 Contract contains certain water quality criteria to be maintained year-round at seven monitoring locations. The Contract water quality criteria varies from month to month, and from year to year, based on the Four River Basin Index; with the criteria at each location based on the 14-day running average of mean daily electrical conductivity (EC). The Contract also contains provisions pertaining to physical changes that obligate DWR to avoid or repair damages from hydrodynamic changes, and if necessary, require limitations on the operations of the SWP pumps and reservoirs in order to maintain water quality compliance.

The Agency is concerned that the creation of tidal habitat through modification or breaching of levees as proposed in the Lookout Slough restoration project will affect water quality, surface water elevations and velocities, and individual water rights. Comments herein are intended to facilitate DWR's compliance with the 1981 Contract and to ensure that any significant adverse impacts to water users and Delta channels associated with the proposed project are properly described, analyzed, and mitigated in accordance with applicable law.

<sup>1</sup> North Delta Water Agency Act, Chapter 283, Special Statutes of 1973.

Any projects affecting existing water quality, water surface levels, local diversions, and flood flow velocities that can erode levees should involve early and meaningful consultation with responsible, trustee, or otherwise affected agencies and water users, including NDWA and Reclamation Districts in the vicinity.

If the Proposed Project is intended to provide ecosystem credits as part of the State's goal to meet habitat restoration goals to address specific habitat restoration requirements in the U.S. Fish and Wildlife Service biological opinion Reasonable and Prudent Alternative 4 to restore 8,000 acres of tidal habitat to benefit Delta smelt for the coordinated operation of the SWP/CVP and compliance with the Fish Restoration Program, then this fact should be disclosed to the public.

### **Proposed Project**

The overarching goal of the Proposed Project is to increase tidal action and inundation of more than 3,000 acres within RD 2098 by modifying existing levees in order to support recovery of endangered fish species by enhancing the productivity and food availability for Delta smelt; and creating juvenile salmonid rearing habitat.

According to a CVFPB July 2018 staff report, the project as currently proposed entails constructing a setback levee along Duck Slough and Liberty Island Road and the existing Yolo Bypass west levee at Shag Slough would be breached and degraded to provide connectivity between Lookout and Shag Sloughs.

These proposed activities would alter hydrology, resulting in an increase of the tidal prism in the Cache Slough Complex, and, in turn, reduce tidal range, which could lower water elevations and reduce water quality due to greater salinity incursion. Large portions of the project site would become permanent, open water area with greater depths at high tides and winter high flow events. Therefore, channel banks would be subjected to more intensive wave-fetch forces leading to erosion of the levee slopes for reclamation districts in the vicinity, including, but not limited to RD 146, RD 501, RD 536, RD 1667, RD 2060, RD 2084, RD 2093, and RD 2104.

In addition, there are probably about 30-40 diverters in the area that could experience lowered surface water elevations as well as regulatory restrictions and increased costs associated with a greater presence of endangered fish species in the vicinity of these local diversion intakes, including intakes maintained by agencies such as RD 2060 and RD 2068.

Reclamation District 2060 was formed in 1922 to protect Hastings Tract's 5,350 farmable acres from flooding. The district maintains 16.02 miles of Project Levees, and has an appropriative water right to divert water from Barker Slough, Cache Slough, Lindsay Slough, Ulati Creek and Hastings Cut.

RD 2068, consisting of approximately 13,200 farmable acres, was formed in 1924 with the intent to provide agricultural water, drainage, and levee maintenance services. The district is located in the Delta Uplands area of Yolo and Solano counties, in an area also known as the Cache Slough Complex. RD 2068 provides flood protection by maintaining 50 miles of drainage channels and a drainage pump, and 8.23 miles of Project Levee for the CVFPB that serves as the western border of the SRFCP in the Yolo Bypass, which is designed to safely convey floodwaters from the Sacramento River down to an outlet at Rio Vista. RD 2068 also operates an open canal gravity distribution system supplied by a network of four primary pumping plants diverting water for irrigation from Haas Slough and the Dixon Drain. The district also collects and distributes agricultural runoff originating from deliveries within its boundaries.

### Potential Water Supply and Water Quality Impacts

Water diversions within NDWA occur by two principal methods: siphons and electric pumps. The siphon systems within NDWA were designed with historic landside and water surface elevations in north Delta channels as a base line. If the elevation differential between these two elevations (referred to as "head") is not sufficient, the siphon will not work. When water surface elevations in Delta channels are lowered, longer durations are necessary to apply the same amount of water under existing conditions. If an electric pump is needed to replace a siphon, the costs are quite substantial. For example, if power lines are present at the landside base of the levee, the costs are \$25,000 for the utility to put a transformer and string power to the new electric pump. In addition, a new pump column, impellor and motor of sufficient size to replace a 12-inch siphon's water flow costs an additional \$25,000. The labor to install the pumping facility is an additional \$8,000. Permit costs and timelines need to be factored in as well.

On many islands, power lines are not present at the land side base of the levee and there is not enough voltage to supply the power needed for new power draws on the existing utility company system. The cost of stringing new wires and poles are approximately \$50,000 per quarter mile. New pumps would therefore necessitate improvements in the utility provider's electrical system, with those costs borne by the RD or landowner.

Freshwater flows from the Sacramento River that are conveyed through Miner and Sutter Sloughs and tidal action are the primary factors influencing water quality in the Cache Slough Complex, with local agricultural diversions having a greater effect during summer irrigation. In general, the river flow in Steamboat and Miner Sloughs is higher when the Delta Cross Channel (DCC) is closed, so tidal exchange varies with both Sacramento River flow and DCC operation. The altering or breaching of levees would alter the hydrodynamics in the vicinity, potentially resulting in greater salinity intrusion from increased tidal flux, amplitude, and range.

In addition to immediate damage to planted crops, salt loading of soils can occur when water with high concentrations of salt compounds is used for irrigation of crops, even over a short period of time, degrading the long-term productivity of the ground. Permanent crops such as pears and wine grapes are especially intolerant of salt loading, resulting in reduced yields and long-term health issues for the trees and vines. Once permanent crops are lost or hurt due to salt loading in the soils, it will take a long time for the land to fully regain its productivity (if ever), and growing permanent crops may no longer be possible in some areas.

### Concluding Recommendations

In light of the aforementioned potential impacts to water users in Solano County, the NDWA encourages the county to work with project proponents to ensure the level of analysis and modeling provided in the associated environmental analysis required under CEQA are adequate, with the details necessary to determine the location, severity, duration, and seasonal differences of water quality and availability impacts and ultimate compliance with the NDWA 1981 Contract. Any significant local water supply impacts should be identified in a full EIR with detailed mitigation measures offered to reduce the severity of impacts on crops and soil conditions, efficient operation of local water diversions, and to comply with salinity criteria in the 1981 Contract.

Each habitat restoration project proposed in the Cache Slough Complex, including the proposed Lookout Slough Project, should disclose the severity of changes in EC levels resulting from the project. Increases in mean daily EC during the irrigation season or extreme salinity fluctuations occurring on an hourly basis, can be particularly harmful to crops under the altered tidal exchange created by proposed levee modifications and breaches. Further, longer diversion periods may be required due to reduced efficiency of irrigation siphons and pumps as a result of lowered surface water elevations from project implementation.

Velocities would generally be expected to increase in channels downstream of levee breach locations and decrease upstream of breaches, and flows may increase to accommodate the increased tidal prism. Changes in velocities may create scouring (erosion) of nearby levees that could exceed levee stability thresholds during high flow winter conditions and cause seepage on adjacent lands/crops. The County should request project proponents identify specific groundwater and surface water monitoring stations be installed prior to implementation of the Proposed Project in order to determine baselines from which impacts can be measured, and to identify specific mitigation measures necessary to prevent and repair any seepage damage associated with altered hydrodynamics created by the project. Mitigation measures may also be necessary to screen or consolidate local intakes and provide incidental take coverage to local diversions if engendered species populations increase in the area.

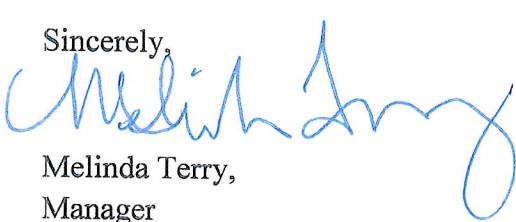
The County should request the project proponents provide an analysis of how water quality under the altered hydrodynamic conditions would fluctuate during periods when the DCC gates are open for water exports and closed to prevent endangered fish from being pulled toward the SWP/CVP pumps in months that local irrigation is occurring. If daily and hourly salinity levels spike in the Cache Slough Complex due to the increased tidal prism created by the Proposed Project, water diversions at RD 2060 and RD 2068 as well as dozens of individual landowner diversions could be adversely affected.

Since the Proposed Project's objectives include compliance with Biological Opinions on State Water Project and Central Valley Project and reduction of flood risks, the County should request the costs of impacts to local water users and reclamation districts should be fully covered by the State. Some of the levees located in the vicinity of the Proposed Project experienced erosion damage in the February 2017 storms and require repair and rehabilitation prior to any alteration of hydrodynamics in the area is created by habitat restoration projects. Local landowners should not have to bear any costs associated with mitigating adverse water supply or quality impacts created by the Proposed Project.

Utilization of funding provided in the Delta Levees Special Projects Program with a 100% State cost share could be used to improve and reinforce levees in the project vicinity, to screen or consolidate local intakes, to ensure efficiency of existing siphons by maintaining adequate water elevations or provide new pumps and electricity infrastructure, to provide incidental take coverage to local diversions, and to comply with water quality criteria and other channel obligations in the 1981 Contract. These mitigation measures should be funded and implemented by the State prior to installation of this habitat restoration project.

The NDWA appreciates Solano County's commitment to protecting local water users in the Cache Slough region and your active engagement with project proponents considering tidal restoration projects such as the proposed Lookout Slough Project. We support your efforts to identify how to avoid or fully mitigate adverse impacts that would affect the operation and maintenance of local water supply and flood control infrastructure in the project area. Please contact us if we can be of assistance with your discussions with the State on this proposed habitat restoration project.

Sincerely,



Melinda Terry,  
Manager

