

# **STAFF WORKING DRAFT FOR DISCUSSION PURPOSES ONLY**

Updated May 27, 2015

## **Draft Ecosystem and Water Quality Priorities and Relative Environmental Values**

Consistent with direction provided in California Water Code §79754, the California Department of Fish and Wildlife (CDFW) and the California State Water Resources Control Board (Water Board) are developing ecosystem and water quality priorities. Proposition 1, approved by California voters in 2014, established among other things in Chapter 8, a process to provide public funding for the public benefits of water storage projects if projects can demonstrate measureable improvements to the Delta ecosystem or tributaries to the Delta.

Under the Water Storage Investment Program (WSIP) established pursuant to Chapter 8 of Proposition 1, the CDFW and Water Board have drafted ecosystem priorities and water quality priorities, respectively, to articulate their agencies' institutional goals to improve ecosystem and water quality conditions in California. CDFW, Water Board, Department of Water Resources, and California Water Commission staff are currently collaborating to develop a process to evaluate and value project-level contributions in achieving ecosystem and water quality priorities. These priorities and relative environmental values will support evaluation and selection of water storage projects that submit applications for WSIP funding.

### **CDFW Ecosystem Priorities**

Water storage projects as defined in Chapter 8 of Proposition 1 must provide measurable improvements to the Delta ecosystem or to the tributaries to the Delta. Projects must also include, as a project purpose, ecosystem improvements as provided by the Department of Fish and Wildlife. Such improvements may include, but are not limited to, changing the timing of water diversions, improvements in flow conditions, temperature, or other measurable improvements that help restore aquatic ecosystems and native fish and wildlife species.

The priority fish species are state or federally-listed species, or joint-listed species under the California and federal Endangered Species Acts, and other at-risk native fish species that depend on the Delta and its tributaries for survival. These species include winter-run, spring-run, fall-run, and late-fall run Chinook salmon; Central Valley steelhead; Green sturgeon, White sturgeon; Delta smelt, Longfin smelt, Pacific lamprey, and Sacramento splittail. In addition to fish, ecosystem priorities include aquatic and terrestrial species that are obligate or opportunistic users of aquatic and riparian habitat and managed and unmanaged wetlands. These species include state or federally-listed species, or joint-listed species under the California and federal Endangered Species Acts, and other at-risk native species, including migratory birds of the Pacific Flyway, and that depend on the Delta and its tributaries for survival.

Department of Fish and Wildlife ecosystem priorities should be achieved by implementation of projects that benefit the Delta ecosystem or its tributaries through one or more of the following:

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- (1) Promote the recovery of endangered, threatened, and other at-risk native fish species and native fish assemblages through water project operations to achieve one or more of the following:
  - a. Provide cold water at the appropriate time and location to improve water temperatures for egg survival and fry rearing of salmon and steelhead in Central Valley tributaries.
  - b. Provide flows at the appropriate time and location to maintain adequate dissolved oxygen in redds and to prevent dewatering of salmon and steelhead redds in Central Valley tributaries.
  - c. Provide flows to reduce juvenile stranding of salmon and steelhead in Central Valley tributaries.
  - d. Operate facilities to avoid stranding of immigrating adult salmonids and sturgeons in floodways and bypasses.
  - e. Provide increased spring flows to improve conditions for juvenile and smolt rearing and out migration.
  - f. Provide summer flows to improve conditions for in-river rearing of juvenile salmonids.
  - g. Provide attraction flows at the appropriate time and location to benefit anadromous species during upstream migration to improve passage and reduce straying.
  - h. Increase Delta outflow in spring, summer or fall for pelagic fishes including Delta smelt and Longfin smelt; to increase survival of emigrating juvenile salmonids.
  - i. Restore and enhance seasonal patterns of flow and temperature to benefit life stage specific requirements of green sturgeon and white sturgeon including increased outflow to improve juvenile recruitment.
  - j. Operating as an integrated and coordinated system, use operational flexibility and water exchanges between state, federal and local storage projects to achieve the priorities described in this section.
  
- (2) Restore physical processes and flow regimes to improve native habitats and natural communities to promote the recovery of endangered, threatened and other at-risk native species through achieving one or more of the following:
  - a. Provide pulse flows to activate fluvial geomorphological processes, including accretion and erosion, channel form and function, and sediment transport,
  - b. Enhance habitat complexity and quality including run-riffle-pool complexes, large wood introduction, and increased escape cover.
  - c. Restore historic salmonid habitat in channels or sloughs, including re-watering channels.
  - d. Increase frequency, magnitude and duration of floodplain inundation to achieve multi-objective benefits of wetland habitat, primary productivity and food web support, juvenile fish rearing habitat, and alternative migration corridors.
  - e. Provide groundwater recharge and improve sediment quality and environmental water quality.
  - f. Restore access to anadromous fish habitat by improving fish passage.
  - g. Enhance salmonid habitat through implementation of sediment management plans.

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- h. Restore riparian communities to increase shading and reduce water temperatures for aquatic species and to support terrestrial species.
  - i. Enhance habitat through removal or modification of flood infrastructure, including levees and weirs.
  
- (3) Enhance commercial and recreational opportunities through achieving one or more of the following:
  - a. Provide reservoir-based recreation, both consumptive and non-consumptive uses, including fishing, hunting, boating, swimming, nature observation, and education.
  - b. Increase populations of economically valuable commercial or recreational species.
  - c. Increase wildlife habitat on refuges or provide increased water supply to refuges.
  
- (4) Reduce the negative impacts of non-native species on native species and natural communities
  - a. Develop and implement invasive species management plans.
  - b. Develop and implement water project operations plans which utilize methods such as flushing flows and thermal control to suppress non-native species abundance and distribution and promote restoration of natural communities.
  
- (5) Prevent or reduce negative impacts from in-river structures on anadromous fishes
  - a. Remediate unscreened or poorly screened diversions that entrain fish.
  - b. Remediate existing barriers to improve fish passage.
  - c. Construct and operate facilities to reduce stranding and mortality of adult salmonids and sturgeons in floodways and bypasses.
  
- (6) Increase quality and quantity of aquatic and riparian habitat and managed and unmanaged wetlands
  - a. Provide water to enhance wetlands and riparian habitat for the benefit of aquatic and terrestrial species.
  - a. Enhance managed seasonal wetlands on wildlife refuges and other lands being managed for public, ecosystem values.

## CDFW Relative Environmental Values

Proposed projects may vary widely in the magnitude, mix, location, and timing of benefits. Relative environmental values will be assessed for ecosystem benefits based on:

- (1) The number of ecosystem and water quality priorities addressed.
- (2) Projects that implement actions in recovery plans and strategies, initiatives, and conservation plans.
- (3) Environment water use efficiency-concurrent benefits, multiple uses of the same block

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- (4) The quantitative value of the ecosystem and water quality benefits, along with the spatial and temporal component of those benefits, described using metrics such as flow, volume of coldwater pool, temperature, duration of benefit, floodplain inundation acres, number of recreational days, and species life stage.
- (5) Proximity of projects to areas that are already being protected and managed for ecosystem values.
- (6) The expected magnitude of the measurable benefits; for example, a measurable increase in a population or habitat area; a reduction in water quality contaminant concentrations or reduction in the frequency of exceedance to achieve a water quality benefit.
- (7) Projects that include clear metrics and performance measures.
- (8) The certainty of achieving the benefits including operational commitments to provide assurances that the benefits will be achieved, or the ecosystem benefit provides a greater likelihood of species recovery or significant habitat enhancement, or the water quality benefit provides a greater likelihood of bringing the affected water body into compliance.
- (9) Immediacy of benefits provided. Benefits achieved sooner are preferable to benefits achieved later.
- (10) The duration or permanence of the benefits.
- (11) Projects that clearly include strategies for climate change adaptation and resilience.

Other characteristics specific to individual proposed projects may also be considered in the determination of relative environmental value during review of proposals.

## ***Monitoring and Management of Public Benefits***

Projects funded under Chapter 8 of Proposition 1 must be operated and managed to provide the public benefits funded by WSIP. Assurances that the public benefits will be provided shall be based on:

- (a) A detailed operations plan, describing how the proposed project will be operated to provide the ecosystem benefits under a projected range of hydrologic conditions. The plan shall also describe how operational decisions will be made if conditions fall outside the range of projected conditions. The operations plan must be consistent with the methods and process used to quantify ecosystem benefits.
- (b) A monitoring, assessment and reporting plan, describing how operations will be monitored and verified, the physical benefits that will be measured, and the location and frequency of measurements.
- (c) A list of operational, monitoring, and reporting commitments. This list will be provided to state and federal regulatory and permitting agencies for inclusion, at each agency's discretion, as conditions of or articles in a permit or license. Any project funded under the

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Act shall prepare comprehensive reports that include, at a minimum, a comparison of actual operations to those described in the operations plan.

(d) An adaptive management plan.

(e) A detailed finance plan.

## **State Water Board Water Quality Priorities**

*To be distributed in a separate document.*