

Water Storage Investment Program

Agenda Item #9 Priorities and Relative Environmental Value

August 17, 2016

California Water Code §79754

The regulations shall include:

- the priorities and relative environmental value of ecosystem benefits as provided by the Department of Fish and Wildlife and
- the priorities and relative environmental value of water quality benefits as provided by the state board.

Regulations Article 3 – Quantification and Management of Benefits, Section 6005 Priorities Ecosystem Priorities

CDFW Ecosystem Priorities – Flow and Water Quality

- i. Provide cold water at times and locations to increase the survival of salmonid eggs and fry.
- ii. Provide flows to improve habitat conditions for in-river rearing and downstream migration of juvenile salmonids.
- iii. Maintain flows and appropriate ramping rates at times and locations that will minimize dewatering of salmonid redds and prevent stranding of juvenile salmonids in side channel habitat.
- iv. Improve ecosystem water quality.
- v. Provide flows that increase dissolved oxygen and lower water temperatures to support anadromous fish passage.

CDFW Ecosystem Priorities – Flow and Water Quality (cont'd)

- vi. Increase attraction flows during the upstream migration to reduce straying of anadromous species into non-natal tributaries.
- vii. Increase Delta outflow to provide low salinity habitat for Delta smelt, longfin smelt, and other estuarine fishes in the Delta, Suisun Bay, and Suisun Marsh.
- viii. Maintain or restore groundwater and surface water interconnection to support instream benefits and groundwater dependent ecosystems.

CDFW Ecosystem Priorities – Physical Processes and Habitat

- i. Enhance flow regimes or groundwater conditions to improve the quantity and quality of riparian and floodplain habitats for aquatic and terrestrial species.
- ii. Enhance the frequency, magnitude, and duration of floodplain inundation to enhance primary and secondary productivity and the growth and survival of fish.
- iii. Enhance the temporal and spatial distribution and diversity of habitats to support all life stages of fish and wildlife species.
- iv. Enhance access to fish spawning, rearing, and holding habitat by eliminating barriers to migration.

CDFW Priorities – Physical Processes and Habitat (cont'd)

- v. Remediate unscreened or poorly screened diversions to reduce entrainment of fish.
- vi. Provide water to enhance seasonal wetlands, permanent wetlands, and riparian habitat for aquatic and terrestrial species on state and federal wildlife refuges and on other public and private lands.
- vii. Develop and implement invasive species management plans utilizing techniques that are supported by best available science to enhance habitat and increase the survival of native species.
- viii. Enhance habitat for native species that have commercial, recreational, scientific, or educational uses.

Regulations Article 3 – Quantification and Management of Benefits, Section 6006 Relative Environmental Values Ecosystem Improvements

Relative Environmental Values (REVs) – Ecosystem Improvements

- 1) Number of ecosystem priorities targeted by the project.
- 2) Magnitude ~~and certainty~~ of ecosystem improvements.
- 3) Spatial and temporal scale of ecosystem improvements.
- 4) Inclusion of an adaptive management and monitoring program that includes measurable objectives, performance measures, thresholds and triggers to achieve the ecosystem benefits.
- 5) Immediacy of ecosystem improvement actions and realization of benefits.
- 6) Duration of ecosystem improvements.

Relative Environmental Values – Ecosystem Improvements (cont'd)

- 7) Consistency with species recovery plans and strategies, initiatives, and conservation plans.
- 8) Location of ecosystem improvements and connectivity to areas already being protected or managed for conservation values.
- 9) Efficient use of water to achieve multiple ecosystem benefits.
- 10) Resilience of ecosystem improvements to the effects of changing environmental conditions, including hydrologic variability and climate change.

Regulations Article 3 – Quantification and Management of Benefits, Section 6005 Priorities Water Quality Priorities

State Water Board Water Quality Priorities

- 1) Improve water temperature conditions in water bodies on California's Clean Water Act (CWA) Section 303(d) list that are impaired for temperature.
- 2) Improve dissolved oxygen conditions in water bodies on California's CWA 303(d) list that are impaired for dissolved oxygen.
- 3) Improve nutrient conditions in water bodies on California's CWA 303(d) list that are impaired for nutrients.
- 4) Improve mercury conditions in water bodies on California's CWA 303(d) list that are impaired for mercury.
- 5) Improve salinity conditions in water bodies on California's CWA 303(d) list that are impaired for sodium, total dissolved solids, chloride, or specific conductance/electrical conductivity.

State Water Board Water Quality Priorities (cont'd)

- 6) Protect, clean up, or restore groundwater resources in high- and medium-priority basins, ~~determined~~ designated by the Department.
- 7) Achieve Delta tributary stream flows that resemble natural hydrograph patterns or other ~~functional~~ flow regimes that have been demonstrated to improve conditions for aquatic life.
- 8) Reduce current or future water demand on the Delta watershed by developing local water supplies and improving regional water self-reliance.
- 9) Provide water for basic human needs, such as drinking, cooking, and bathing, in disadvantaged ~~or similarly situated~~ communities, where those needs are not being met.

Regulations Article 3 – Quantification and Management of Benefits, Section 6006 Relative Environmental Values Water Quality Improvements

Relative Environmental Values – Water Quality Improvements

- 1) Number of different water quality priorities for which corresponding public benefits are provided by the project.
- 2) Magnitude ~~and certainty~~ of water quality improvements.
- 3) Spatial ~~and temporal~~ scale of water quality improvements.
- 4) **Temporal scale of water quality improvements.**
- 5) Inclusion of an adaptive management and monitoring program that includes measurable objectives, performance measures, thresholds, and triggers for managing water quality benefits.

Relative Environmental Values – Water Quality Improvements (cont'd)

- 6) Immediacy of water quality improvement actions ~~and realization of benefits~~.
- 7) Immediacy of the realization of water quality benefits.
- 8) Duration of water quality improvements.
- 9) Consistency with water quality control plans, water quality control policies, and the Sustainable Groundwater Management Act (2014).
- 10) Connectivity of water quality improvements to areas that support beneficial uses of water or are being managed for water quality.
- 11) Resilience of water quality improvements to the effects of climate change and extended droughts.

Relative Environmental Values – Water Quality Improvements (cont'd)

- ~~10) Extent to which water quality improvement provides water for basic human needs, such as drinking, cooking, and bathing, in disadvantaged or similarly situated communities, where those needs are not being met.~~
- 12) Extent to which undesirable groundwater results that are caused by extractions are corrected.

How will REV scores be determined?

Priorities	REV Criteria					Score
	REV Criterion 1	REV Criterion 2	REV Criterion 3	REV Criterion 4	...	
Priority 1	Points	Points	Points	Points		Sum
Priority 2						
Priority 3	Points	Points	Points	Points		Sum
Priority 4						
Priority 5						
...						
						<p>Total points earned out of total possible = REV SCORE</p>

Sum All Points to get REV Score



Questions