

Allied Fishing Groups

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**Black Bass Action Committee – Bass Classics of Santa Clara –
California Sportfishing Protection Alliance – California Trout –
California Striped Bass Association – Coastside Fishing Club –
Crockett Striped Bass Club – Delta Fly Fishers –
Diablo Valley Fly Fishermen – Fishery Foundation of California –
Fly Fishers for Conservation – Fly Fishers of Davis –
Friends of Butte Creek – Gold Country Fly Fishers – Granite Bay Flycasters –
Grizzly Peak Flyfishers – Mission Peak Fly Anglers –
North Coast Fishermen’s Association – NORCAL Kayak Anglers
Northern California Council / Federation of Fly Fishers –
– Pacific Coast Federation of Fishermen’s Assoc. – Palo Alto Flyfishers –
Peninsula Fly Fishers – San Jose Flycasters – Shasta Fly Fishers –
Recreational Fishing Alliance – Santa Cruz Fly Fishermen –
Small Boat Commercial Salmon Fishermen Association – Tracy Fly Fishers –
Tri -Valley Fly Fishers – United Anglers of California –
United Pier & Shore Anglers of California – USA Fishing –
Wilderness Fly Fishers – Trout Unlimited of California –
The National Wildlife Federation / American Sportfishing Association**

Delta Fishery Recovery and Restoration Vision

Introduction

The Allied Fishing Groups are a voice for the state’s commercial fishermen and the state’s two million recreational fishers. We represent over 40,000 fishers - essentially all the organized anglers who fish the Delta’s waters or depend on the Delta for their commercial fishing. We share common interests and concerns regarding the historic decline of the Delta’s aquatic ecosystem and the devastating impacts suffered by resident Delta fisheries, as well as fisheries that migrate through and are dependent on the Delta. The predominant cause of this fifty-year decline is the development, use, and export of water from the Delta and its tributaries.

The conveyance alternatives currently being considered by the Stakeholder Group lack essential information to evaluate the fishery benefits and liabilities. The only way to recover and restore the ecosystem productivity of the Delta is to rectify the hydrology and water quality impacts that have resulted from water development and water export in the Central Valley rivers and in the Delta.

Without essential information on how the proposed conveyance alternatives impact the Delta's aquatic habitat and fisheries, an informed decision cannot be made.

For this and other reasons stated below, we seek your support of our "Delta Fishery Recovery and Restoration Vision" and request that it be made an integral component of any alternative the Delta Vision Blue Ribbon Task Force recommends to the Resources Agency and the Governor.

Background

Including our vision is of paramount importance to our state's recreational anglers, the sportfishing industry, commercial fishermen, the commercial fishing industry, and to our right to access and fish in the waters of the State as granted by the State Constitution [Article 1, Section 25].

One of the main reasons there is a 'crisis in the Delta' is due to the lack of recognition of the economic importance of recreational angling, commercial fishing, and boating to the state's economy. The fisheries of the Delta and its tributaries play a vital role in supporting these industries. According to the U.S. Fish and Wildlife Service National Survey in 1996 ["National Survey of Fishing, Hunting and Wildlife Associate Recreation, 1996,"] California's sportfishing industry generated an economic output in excess of \$7 billion while drawing non-resident anglers to our state whose activities support tourism, the state's largest industry.

In addition, the estimated 1983 value for our commercial fishery was \$2.3 billion and the economic contribution from recreational boating was another \$11 billion dollars in 1995 (80% of the state's boat owners use their vessels to fish). Combining these economic sectors, generates some \$20 billion annually and represents a significant part of the state's economy that depends on healthy Delta fisheries to sustain this economic activity [Dept. of Boating and Waterways report -1997, "The Economic Impact of Boating in California"] .

The decline of the fisheries dependent on the Delta and its tributaries

became significant following the construction of the federal Central Valley Project in the 1950s and the State Water Project in the 1960s. The fisheries mitigation intended to compensate for the projects' impacts were never sufficient. This has resulted in significant, uncompensated economic losses for the sportfishing, commercial fishing, and boating industries of the state for decades.

A state Department of Fish & Game report estimated the financial repercussions of these declines at 7 billion dollars over the past fifty years [See the Department of Fish & Game's "Administrative Report #85-03 - Anadromous Fisheries Branch"]. Additionally, anglers, boaters and commercial fishermen have spent hundreds of millions of dollars on licenses, special fishery stamps, and federal excise taxes for the privilege of fishing.

The first fishery casualty of water development was the extinction of the San Joaquin River's spring-run salmon following the construction of Friant Dam. Several decades later, the Sacramento winter-run and the spring-run Chinook salmon were listed under state the federal Endangered Species Acts. The listing of Delta smelt, steelhead, and green sturgeon followed. Pelagic species are in also in grave condition, as Delta smelt are nearly extinct, and long-fin smelt, American shad, and striped bass are a mere remnant of their former abundance.

Our Delta Fishery Recovery and Restoration Vision

Our Delta Vision is to recover and restore these fisheries to their historical abundance. Our vision is a response to the long-term fishery declines and the collapse of the Delta's ecosystem productivity.

The promises made to the public by our government to protect and restore our fishery resources must be honored. In 1945, prior to the federal authorization to build the Central Valley Project, the Acting Regional Director for the Bureau of Reclamation promised the state of California that 'no water shall be diverted from any watershed which is or will be needed for beneficial uses within that watershed.' A few years later the San Joaquin River's spring-run of over 100,000 salmon were lost.

A little more than a decade later, the State Water Project was authorized following explicit statements that it would not to take water needed for beneficial uses in the areas where the water originated for export. Yet, fishing in 'area of origin watersheds', including the Delta, has been devastated by the State Water Project, exporting roughly three million acre feet of water annually in excess of the water supply created by building Oroville Dam on the Feather River (the cornerstone reservoir).

The federal Central Valley Project Improvement Act was passed by Congress in 1992. Among its primary purposes was the mandate to double the anadromous fisheries of the Central Valley. As of today, not one of these fisheries has been doubled. State legislation has also failed to increase anadromous fish populations.

We cite these failures to illustrate an endemic problem with the contracting process used to export the waters of the Delta and its tributaries. Both State and Federal contracting processes have promised to deliver more water than was surplus to the needs of the 'area of origin beneficial uses', including fisheries. Delivery of that water has significantly impacted the fishery resources and their aquatic habitat. The paradigm of over subscribing our water supplies for export is a fundamental culprit of the collapse of the estuary's ecological productivity and the decline of its fisheries.

To realize fishery recovery and restoration and bring sustainability to the Delta ecosystem, the following will be needed:

- At the heart of our vision is the requirement that our government properly discharge their legal responsibility as the public's trustees of these fisheries and their aquatic environment. The government is obligated to ensure the protection, restoration, and management of these resources in perpetuity. There is a large body of law that requires natural resources be so protected because they are a natural renewable heritage of substantial value to the citizens of our state and nation [See "National Audubon Society v. the Department of Water and Power, 464 U.S. 977 - 1983"]. This obligation not only extends to the Delta, but also to water development and water export upstream of the Delta.**
- The Delta requires restoration now. Exports must be reduced by several million-acre feet annually, or more, if the Delta is to begin**

to make a significant ecological recovery and become ecologically sustainable.

- **To solve the current over subscription of the Delta's waters, the Delta Vision should establish goals for substantially increasing regional water self-sufficiency, based on the adoption of best water conservation practices and the principle that the people of our state must live within the limits of our natural resources. This may include a comprehensive statewide water program with financial incentives for all water users to significantly increase water conservation.**

- **The Delta's aquatic environment should be managed to increase the residence time of its waters to generate an abundant, sustainable food supply, where and when it is ecologically needed. An improved hydrologic regime is necessary to meet this goal as well as the other flows needed by anadromous and resident Delta fishes.**

- **To achieve these goals, any conveyance alternative that is part of the Delta Vision should include the flow regime and management proposal contained in "A Long Term Vision For the Sacramento-San Joaquin Delta: A Work in Progress" submitted by The Bay Institute et. al. We recommend the adoption of the components recommended in The Bay Institute et. al. document, as this will help address the needs of the Delta's ecosystem and its fisheries, including the valuable black bass fishery. Please find our proposed flow regime in our Appendix.**

- **A sustainable solution must be based on best available science, including a science-based flow regime for the Delta that incorporates the interrelationship between water operations and conveyance, fish populations and abundance, and ecosystem functions. Participation by independent (academic) scientists should augment the traditional state and federal agency scientists. No single government agency (particularly one whose mission is exporting water) should hold veto power over science-based water management decisions.**

- **The Delta and its tributaries require a comprehensive water quality compliance program to ensure they meet the water quality standards established by the federal Clean Water Act, the state's Porter Cologne Act and Water Quality Control Plan. Hundreds of miles of the Delta's waterways are not in compliance with these requirements. The result is significant, long-term impacts to the**

Delta's aquatic environment and the productivity of its foodweb. Such toxicity has been identified by the Interagency Ecological Program as one of the primary factors involved in the 'Pelagic Organism Decline'.

- **Effective governance should include a single entity to oversee the management of the Delta, the protection of its ecosystem and its tributary rivers, and all of the affected fisheries. To achieve the consistent application of such management and protections, consideration should be made to amending the State Constitution.**
- **The extent to which the State Water Project facilities and operations are reconfigured to significantly reduce the project's impact on the Delta's ecosystem could be rendered ineffective if the federal Central Valley Project continues operations as usual. A comprehensive solution will need to ensure that its operation will assist, and not hinder, the recovery goals for the Delta.**
- **A comprehensive solution is needed to address predation and entrainment losses at the state and federal Delta pumping plants.**
- **Should a new system of conveyance or water storage be necessary to achieve a sustainable Delta, those who are the direct beneficiaries of the exported water should pay the financial costs.**
- **A comprehensive program that prevents the introduction of all undesirable non-native aquatic species is needed immediately. This program should minimize or eliminate the impact of the current undesirable exotic species on the Delta's ecosystem.**

Respectfully submitted:

**John Beuttler
Conservation Director
California Sportfishing Protection Alliance
On Behalf of the Allied Fishing Groups**

Appendix

Proposed Delta Flow Objectives*

The following flow, export and infra-structure operations, and water quality objectives are designed to support a viable and sustainable Delta and upper estuarine ecosystem, and to protect and promote recovery of priority fish species. Specific numeric objectives are based on: 1) best available scientific understanding of relationships between water management operations in the Delta and fish population abundance and distribution responses; 2) best available scientific understanding of estuarine ecosystem function; and 3) historic water management operations and trends over time. Proposed objectives are more comprehensive and more protective than present Water Quality Control Plan (SWRCB 1995, 2006), which based on population status and trends for multiple priority anadromous and estuarine fish species, are insufficiently protective.

Proposed objectives are for:

- Delta Inflows
- Delta Outflows
- In-Delta Channel Flows
- Diversions and Exports
- Barrier Operations
- Water Quality (Dissolved Oxygen)

For most water year types and seasons, the objectives are designed to provide multiple layers of protection (e.g., outflow objectives, export restriction based on inflows, and objectives for in-Delta channel flows) and they can be achieved through multiple managed operations (e.g., integrated management of inflows from Sacramento and San Joaquin Rivers, CVP and SWP export operations, and/or barrier operations). Inter-annual variation is incorporated into the objectives based on Sacramento and San Joaquin basin water year types. Intra-annual (i.e., seasonal) variation is incorporated in to the objectives based on monthly and/or seasonal time scales for specific objectives.

*** Excerpted from "A Long Term Vision For the Sacramento-San Joaquin Delta: A Work in Progress" submitted by The Bay Institute, et. al.**

Delta Flow Objectives

Water Year type (based on Sacramento or San Joaquin Index, as appropriate. Objectives for Oct.-Jan to be based on water year type of previous year)	W	AN	BN	D	C
Delta Inflows					
Sacramento River (at Rio Vista)					
July-Aug.	7000 cfs	6000 cfs	5000 cfs	5000 cfs	4000 cfs
Sept.	6000 cfs	5000 cfs	5000 cfs	4000 cfs	1500 cfs
Oct.-Jan.	7000 cfs	6000 cfs	6000 cfs	5000 cfs	5000 cfs
<p><u>Biological rationale:</u> Higher summer and fall Sacramento River flows contribute to improved Delta outflow conditions, improved habitat quality, and high abundance of juvenile delta smelt (see Delta Outflow, below). For critical (C) years, September objective designed to allow salinity intrusion into Delta to increase seasonal variation in salinity and outflows and for potential control of some non-native plant and animal species (i.e., as recommended by PPIC report, 2007). Spring flows (Feb.-June) on Sacramento River will likely be controlled by Spring Delta Outflow objectives (see below).</p> <p><u>Comparison to current objectives:</u> More protective for fish and wildlife beneficial uses.</p>					
San Joaquin River (at Vernalis)					
Feb.	3420 cfs	3420 cfs	2280 cfs	2280 cfs	1500 cfs
March	5000 cfs	5000 cfs	3420 cfs	2280 cfs	1500 cfs
April 1-4	7000 cfs	5000 cfs	5000 cfs	5000 cfs	2000 cfs
April 15-May 15	VAMP*	VAMP*	VAMP*	VAMP*	VAMP*
May 16-31	7000 cfs	5000 cfs	5000 cfs	3420 cfs	2000 cfs
June	5000 cfs	5000 cfs	3420 cfs	2280 cfs	1500 cfs
July-Jan.	1500 cfs	1500 cfs	1500 cfs	1500 cfs	1500 cfs

* VAMP = April 15 – May 15. Flow objectives determined by San Joaquin basin unimpaired hydrology and the VAMP experiment design

Biological rationale: Statistical relationship between spring flow and escapement of San Joaquin basin Chinook salmon 2.5 years later (TBI 2005; comments to SWRCB for Per. Rev. of 1995 WQCP; **Figures – from SWRCB comments**). Minimum flow for summer, fall and winter to maintain suitable dissolved oxygen conditions in SJR between Turner Cut and Stockton (see Dissolved Oxygen, below).

Comparison to current objectives: More protective for fish and wildlife beneficial uses (and see Delta Outflow, Fall, below).

Yolo Bypass (Feb-May) (discharge from Yolo Bypass into Cache Slough)	30,000 cfs (for 45 consecutive days)	20,000 cfs (for 45 consecutive days)	10,000 cfs (for 45 consecutive days)	5,000 cfs (for 45 consecutive days)	2000 cfs (for 45 consecutive days)
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Biological rationale: Seasonal long-duration inundation of floodplain beneficial for outmigration survival and growth of Sacramento basin Chinook salmon, spawning and recruitment of splittail, and production and export of phyto- and zooplankton to the north Delta (Sommer et al. 2001. Fisheries 26(8):6-16).

Comparison to current objectives: More protective for fish and wildlife beneficial uses. There is presently no objective for flow through and discharges from the Yolo Bypass into the Delta. Note: This flow objective should be supplemented by improvements in: a) Sacramento and Fremont Weir facilities to allow diversion of water from the river into the bypass under a range of Sacramento River flow conditions; and b) passage facilities at one or both weirs for upstream migrant fishes (e.g., sturgeon).

Delta Outflow

Delta Outflow (spring and fall) is expressed in terms of seasonal or monthly average and/or ranges of X2 values. Specific monthly flow requirements will need to be computed based on upstream unimpaired hydrology (e.g., for spring outflows, similar as for current WQCP objectives) and/or the flow-X2 equations.

Spring Outflow (Feb-June) (mean, range)	60 km (57-63 km)	63 km (60-66 km)	66 km (63-69km)	70 km (67-73 km)	73 km (70-76 km)
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Range of X2 reflects variation in hydrology within each water year type. Within the five month period, required flows (and resultant X2 values) will vary by month, with higher flows (and lower monthly average X2 values required during the early spring period than during the later spring period (i.e., similar to current spring outflow objectives; SWRCB 1995).

Biological rationale: Statistical relationship between abundance and /or survival of estuarine fish and invertebrate species (e.g., Jassby et al. 1995; Kimmerer 2004; **Figure X=fish abundance v X2 graphs – annotate to show year type dependent ranges of required X2**).

Comparison to current objectives: More protective for fish and wildlife beneficial uses. Current spring outflow objectives are insufficiently protective (i.e., correspond to unacceptable low abundance and/or survival of several priority species) in critical, dry, and below normal year types under current storage, conveyance and export capacity. Current objectives for wetter years would be insufficiently protective under conditions of increased storage and diversion capacity (i.e., which would decrease the magnitude and frequency of current “excess” flows in wetter years that currently provide important periodic good ecological conditions to the estuary.

Fall Outflow					
Sept.-Dec.	<80 km	<80 km	<80 km	<84 km	
Sept.					>100 km*
Oct.-Dec.					<84 km

* 3-day running average of X2 >100 km for 7 consecutive days during the month of September.

Biological rationale: POD research on habitat quality index during the fall (i.e., low habitat quality for delta smelt in fall related to reduced outflows and upstream location of X2; summarized by Sommer 2007; **Figure=habitat quality**); statistical relationship between abundance of juvenile delta smelt and fall salinity (i.e., reduced outflow during fall correlated with lower abundance of juvenile delta smelt; Contra Costa Water District, 2006 and 2007; **Figure from DS petition or CCWD**). For critical (C) years, the September objective is designed to allow salinity intrusion into Delta to increase seasonal variation in salinity and outflows and for potential control of some non-native plant and animal species (i.e., as recommended by PPIC report, 2007).

Comparison to current objectives: More protective for fish and wildlife beneficial uses. Current fall outflow objectives allow intrusion of X2 upstream of 80 km in all year types, conditions known to be related to poor habitat quality (for delta smelt and striped bass) and low abundance of juvenile delta smelt the following year. Objective for September in critical years provides opportunity to create more saline conditions in the Delta than presently allowed to increase seasonal and inter-annual salinity variation.

In-Delta Channel Flows

Qwest					
(at Jersey Point)					
Feb.-June	>0 cfs	>0 cfs	>0 cfs	>-1000 cfs	>-1500 cfs
July-Aug.	>0 cfs	>0 cfs	>-1000 cfs	>-2000 cfs	>-2500 cfs
Sept.	>0 cfs	>0 cfs	>-1000 cfs	>-2000 cfs	>-3000 cfs
Nov.-Jan.	>0 cfs	>0 cfs	>-1000 cfs	>-2000 cfs	>-2500 cfs

Biological rationale: Negative Qwest correlated with low inflows from the San Joaquin, Cosumnes, and Mokelumne Rivers, high exports and Delta diversions, and Delta Cross channel operations. Negative Qwest conditions prevent downstream transport and facilitate upstream entrainment and of small fish and plankton into the central and southern Delta, increasing vulnerability to their loss at the export pumps. (Figure = possib indicator to show worsening conditions over time)

Comparison to current objectives: More protective for fish and wildlife beneficial uses. There is presently no objective for reverse flows on the lower San Joaquin River.

Old/Middle River (combined flow)	>0 cfs	>-2000 cfs	>-2000 cfs	>-3500 cfs	>-3500 cfs
Jan.-March	>0 cfs				
April 1-14	>0 cfs				
April 15-May 15	>0 cfs				
May 16-31	>0 cfs	>0 cfs	>-2000 cfs	>-3500 cfs	>-5000 cfs
June	>-3500 cfs	>-3500 cfs	>-5000 cfs	>-5000 cfs	>-5000 cfs
July-Dec.					

Biological rationale: Negative flows on Old and Middle River are correlated with export rates, San Joaquin River inflows, and operations of the Head of Old River barrier and south Delta agricultural barriers. High magnitude reverse flows on Old and Middle River are correlated with high incidental take of adult delta smelt and longfin smelt and other priority species. For delta smelt and longfin smelt, winter and spring period coincide with presence of pre-spawning and spawning adult fish and larval and small juveniles in the Delta (POD results, summarized by Sommer 2007, and also cite Pelagic Fish Action Plan; Figure X=take v ORMR, multiple species).

Comparison to current objectives: More protective for fish and wildlife beneficial uses. There is presently no objective for Old and Middle River flows.

Diversions and Exports

Export/Inflow ratio (as CVP+SWP exports/total Delta inflow)					
Dec.-March	0.20	0.20	0.20	0.20	0.20
April-June	0.20	0.30	0.30	0.35	0.35
July-Nov.	0.50	0.50	0.60	0.65	0.65

Biological rationale: For winter (when adult delta and longfin smelt move into Delta to spawn), statistical relationship between E/I ratio and longfin smelt abundance measured later in the year (LFS abundance is higher when E/I previous winter is low, with an apparent threshold at approximately 0.20; TBI 2007, LFS petition, Figure x). For spring, summer and fall, current E/I ratio objective. In wet years, maximum ratio of inflow exported = 0.325; in dry and critical years, maximum ratio of inflow diverted annual = 0.425.

Comparison to current objectives: More protective for fish and wildlife beneficial uses. New winter objective based on analysis for longfin smelt.

Export/SJR inflow ratio (as CVP+SWP exports/total San Joaquin River flow at Vernalis)	2.0	2.0	2.0	2.0	2.0
Feb.-March	1.0	1.0	1.0	1.0	1.0
April 1-14	VAMP*	VAMP*	VAMP*	VAMP*	VAMP*
April 15-May 15	1.0	1.0	1.0	1.0	2.0
May 16-31	2.0	2.0	2.0	3.0	3.0
June					

* VAMP = April 15 to May 15. Flow objectives determined by San Joaquin basin unimpaired hydrology and the VAMP experiment design
Biological rationale: Statistical relationship between San Joaquin River spring flow, exports and escapement of San Joaquin basin Chinook salmon 2.5 years later (TBI 2005; comments to SWRCB for Per. Rev. of 1995 WQCP; **Figures – from SWRCB comments**). High Export/SJR inflow ratios also contribute to high magnitude reverse flows on Old and Middle River and resultant high incidental take of multiple priority fish species. Greater protection is provided in the later winter/early spring period (pre-VAMP) for spawning and early rearing of delta and longfin smelt.
Comparison to current objectives: More protective for fish and wildlife beneficial uses.

Sacramento River Diversion rate (relevant for BDCP Options 2, 3, and 4)	0.20	0.20	0.20	0.20	0.20
Dec.-March	0.20	0.20	0.35	0.35	0.35
April-June	0.50	0.50	0.50	0.65	0.65
July-Aug.	0.65	0.65	0.65	0.65	0.80
Sept.	0.65	0.65	0.65	0.65	0.65
Nov.					

Note: This objective is relevant for BDCP Options 2, 3, and 4, which propose to divert water for export more directly from the Sacramento River. It is likely that for any direct diversion from the Sacramento River (i.e., into an isolated conveyance facility)
Biological rationale: Objective similar to Export/Inflow ratio with greater protection provided in the later winter/early spring period (pre-VAMP) for spawning and early rearing of delta and longfin smelt.
Comparison to current objectives: There is presently no objective for the proportion of flow in the Sacramento River that can be directly (or indirectly) diverted for export from the Delta.

Barrier Operations

Delta Cross Channel Nov.-Jan. Feb.-April 15 April 15-May June-Oct.	Closed* Closed Closed** Open	Closed* Closed Closed** Open	Closed* Closed Closed** Open	Closed* Closed Closed** Open	Closed* Closed Closed** Open
<p>* = closed for up to 60 days, as determined by fisheries agencies. ** = closed for up to 30 days, as determined by fisheries agencies. <u>Biological rationale:</u> Statistical relationship between survival of Sacramento basin Chinook salmon through the Delta with and without DCC closed (cite our SWRCB comments? EWA or salmon workshop and figures). <u>Comparison to current objectives:</u> More protective for fish and wildlife beneficial uses.</p>					
Head Of Old River Oct.-Nov. April 15-May 15 All other months	Closed* Closed** Open	Closed* Closed** Open	Closed* Closed** Open	Closed* Closed** Open	Closed* Closed** Open
<p>* = closed for up to 45 days, as determined by fisheries agencies based on adult San Joaquin basin Chinook salmon migration timing. ** = closed for VAMP unless open conditions are requested by fisheries agencies for protection of other species. <u>Biological rationale:</u> Improved upstream migration success of adult San Joaquin basin Chinook salmon (fall) and reduced entrainment loss of juvenile Chinook salmon and steelhead outmigrants during 31-day VAMP. <u>Comparison to current objectives:</u> Similar to current operations.</p>					
Agricultural Barriers Dec.-May June July-Nov.	Open Open Open	Open Open Open	Open Open Closed*	Open Closed* Closed*	Open Closed* Closed*
<p>* = tidal operations only as needed based on water levels unless priority fish species present in southern Delta. <u>Biological rationale:</u> Reduced entrainment loss of adult and juvenile priority fishes at CVP and SWP export pumps and local diversion; improved downstream transport of larval and juvenile fishes; improved Old and Middle River flow conditions and resultant reductions in incidental take <u>Comparison to current objectives:</u> More protective for fish and wildlife beneficial uses.</p>					
Dissolved Oxygen					
San Joaquin River (all) (Turner Cut to Stockton)	≥6.0 mg/L				

Units of measure and measurement periods:

Flows are minimum monthly average flows. For all months, the 5-day running average of flow must be >80% of the required monthly level.

X2 values are maximum monthly averages.

Export/Inflow ratios (i.e., for total Delta inflow, San Joaquin River inflow, and for Sacramento River flow) are maximum 3-day running averages.

Dissolved Oxygen is the daily average value.

Additional protections:

Current regular and real-time monitoring programs to remain in place.

Monitoring and reporting for presence of larval fishes (<20 mm in length) at CVP and SWP fish salvage facilities.