APPENDIX I

Imported Water Supply

1. INTRODUCTION

The San Gorgonio Pass Water Agency (Pass Agency) is one of 29 entities that contracts with the State of California's Department of Water Resources (DWR) for the delivery of water from the State Water Project (SWP) (collectively, the State Water Contractors).

> The SWP is the nation's largest state-built water and power development and conveyance system. Planned, designed, constructed and now operated and maintained by the California Department of Water Resources, this unique facility provides water supplies for 25 million Californians and 750,000 acres of irrigated farmland.
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> The California State Water Project is a water storage and delivery system of reservoirs, aqueducts, powerplants and pumping plants. Its main purpose is to store water and distribute it to 29 urban and agricultural water suppliers in Northern California, the San Francisco Bay Area, the San Joaquin Valley, the Central Coast, and Southern California. Of the contracted water supply, 70 percent goes to urban users and 30 percent goes to agricultural users.[1]

Every two years, DWR issues SWP reliability reports to assist the State Water Contractors and others who use SWP water, like the City of Banning, in planning for future deliveries.[2] In August 2010, DWR released the final version of the 2009 SWP Delivery Reliability Report (2009 Reliability Report).[3]

The 2009 Reliability Report identifies several risks or limitations on DWR's ability to reliably deliver each State Water Contractor's contracted or "Table A" allocation, namely:

- The inherent yearly variable location, timing, amount, and form of precipitation in California, and the amount snowpack, runoff, water in storage, and pumping capacity from the Delta (p. 19);
- The demand for the supply based on the extent of water conservation measures, local weather patterns, and water costs (pp. 19, 22);

[1] http://www.water.ca.gov/swp/

[2] DWR is legally obligated to prepare the SWP delivery reliability reports every two years as the result of a court-approved settlement agreement in the wake of the 3rd Circuit Court of Appeals ruling in the "Monterey Amendments" case in 2009.

[3] The full report can be accessed at this web address: http://baydeltaoffice.water.ca.gov/swpreliability/.

- Restrictions on SWP operations in accordance with the biological opinions of the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) issued on Dec. 15, 2008 and June 4, 2009, respectively (p. 21);
- Legal and institutional limitations from the State Water Resources Control Board's (SWRCB) Decision 1641, which curtail exports for the Vernalis Adaptive Management Plan (p. 21);
- Potential changes in hydrology due to climate change projections recommended by the Climate Action Team and sea level rise (p. 20) (See WSA Climate Change Appendix E);
- Potential Interruption/Disruption of SWP Deliveries due to earthquakes (p. 32);
- Risk of interruptions in SWP diversions from the Delta due to levee failures (p. 21).

This report provides a summary of the risks that form the basis of DWR's reliability projections in its 2009 Reliability Report, as well as a summary of several regional, state and federal processes underway aimed to address those risks, thereby improving SWP reliability. It is important to note that the future scenarios in the 2009 Reliability Report do not take into account any modification of the existing method of conveying water (e.g., peripheral canal) that might be made to reduce the conflict between fishery concerns and water quality reliability. The 2029 projections in the 2009 Reliability Report "assume the same institutional limitations as the 2009 simulations regarding requirements for Delta water quality flows and fish protection will be in place in 20 years; no facility improvements, expansions, or additions will be made to the SWP..."[4]

2. BAY DELTA

2.1 Description

The Sacramento-San Joaquin Bay Delta (Delta) is an immense, low-lying inland region east of the San Francisco Bay, at the convergence of the Sacramento and San Joaquin Rivers. It is at the core of California's two main water distribution systems — the federal Central Valley Project (CVP) and the SWP.

Biologists report that the Delta is in the midst of a human-caused shift to a different kind of aquatic habitat, one that holds risks for human and environmental health. The estuary is changing, they say, into a warmer and more stagnant water body where toxic algae blooms are common. Seasonal shifts in temperature and salinity that once defined and cleansed the estuary are disappearing. Causes are many, experts say, including urban and agricultural pollution and the introduction of thousands of foreign wildlife species. The Delta has also been managed for decades as a freshwater delivery tool serving the world's eighth-largest economy.

[4] 2009 Reliability Report, p. 21.

3. STATE WATER PROJECT RELIABILITY LIMITATIONS

3.1 Endangered and Threatened Species

Several fish species reside in the Delta. Currently, five Delta species (the winter-run and spring-run Chinook salmon, delta smelt, North American green sturgeon and Central Valley steelhead) are listed under the Endangered Species Acts (ESAs). Since the completion of Oroville Dam in 1967, the diked channels of the Delta have conveyed water to Central Valley's agriculture and to southern California and Bay Area cities. At the same time, estuary-dependent fish such as delta smelt, longfin smelt and striped bass declined, while freshwater lake species such as largemouth bass, bluegill and catfish increased.

When delta smelt, green sturgeon, winter and spring Chinook salmon and longfin smelt reached critically low numbers and were listed as threatened or endangered, management of the Delta ecosystem begin to change.

Several species, including delta smelt, are at their lowest levels in 42 years of recordkeeping. Two non-native fish, the American shad and threadfin shad, also set record lows, as reported by the California Department of Fish and Game's (DFG) December 2008 population survey of Delta fish species. The following three other species showed slight gains since 2007, but remain well below historical averages: the native longfin smelt, Sacramento splittail, and the non-native striped bass.

3.2 Biological Opinions

In June 2004, the Bureau of Reclamation (Bureau) issued a new joint operating plan for the SWP and CVP, known as the "Long-Term Central Valley Project Operations Criteria and Plan" (2004 OCAP) that governs operations for the next 25-40 years.[5] The 2004 OCAP also forms the basis for long-term CVP water supply renewal contracts with a number of farmers and irrigation districts in the Central Valley.

Pursuant to section 7 of the ESA, the Bureau consulted with the USFWS and NMFS with respect to threatened and endangered species that might be impacted by the 2004 OCAP. In 2004, the USFWS and NMFS issued two separate biological opinions (BiOps) and associated incidental take permits that govern operations of the SWP and the federal CVP to protect endangered species. The USFWS BiOp addressed delta smelt; the other, by NMFS, addressed the winter-run and spring-run Chinook salmon and the Central Valley steelhead.

In July 2006, the Bureau reinitiated consultation with the USFWS and NMFS with respect to the 2004 BiOps (with the addition of the North American green sturgeon,

[5] Bureau of Reclamation, Long Term Central Valley Project Operations Criteria and Plan CVP-OCAP (Jun. 30, 2004).

which was listed in April 2006), following the filing of legal challenges to the 2004 BiOps and ESA compliance. (*Pacific Coast Federation of Fishermen's Associations, et al. v. Gutierrez et al.,* No. 1:06-CV-00245-OWW-GSA (court invalidated the 2004 NMFS BiOp and ordered NMFS to prepare a new BiOp); *Watershed Enforcers v. California Department of Water Resources*, Case No. RG06292124, Order (Alameda County Sup. Ct. March 22, 2007) (court found the SWP had failed to obtain a permit required under the California Endangered Species Act (CESA) that would provide protections for delta smelt, salmon and steelhead); *Natural Resources Defense Council, et al. v. Dirk Kempthorne, et al.,* Case No. C-05-01217 OWW LJO (on May 25, 2007, Judge Wanger found the 2004 USFWS BiOp legally defective.)

3.2.1 2008 USFWS Biological Opinion (Delta Smelt)

On December 11, 2008, the USFWS issued a new BiOp for OCAP (2008 BiOp).[6] The 2008 BiOp concluded that "the coordinated operations of the CVP and the SWP, as proposed, are likely to jeopardize the continued existence of the delta smelt."[7] The BiOp also concluded that "the coordinated operations of the CVP and SWP, as proposed, are likely to adversely modify delta smelt critical habitat."[8] The 2008 BiOp included Reasonable and Prudent Alternatives (RPA) and measures it deemed necessary to minimize the effect of the proposed actions on the delta smelt. For example, the alternatives seek to reduce entrainment of pre-spawning adult delta smelt during December to March by controlling flows and to prevent direct mortality of delta smelt larvae and juveniles by entrainment by improving flow conditions in the Central and South Delta.

3.2.2 2009 NMFS Biological Opinion (Salmonids)

In June 2009, NMFS issued a new BiOp (2009 BiOp)[9] replacing the 2004 BiOp. The 2009 BiOp also concluded that current water exports through the Delta could jeopardize Chinook salmon, Central Valley steelhead and green sturgeon. The new BiOp addresses the continued, coordinated operation of the CVP and the SWP and its impacts on the Sacramento River winter-run Chinook salmon, the Central Valley spring-run Chinook salmon, the Central Valley steelhead, the Central California Coast steelhead, the Southern Distinct Population of North American green sturgeon, and the Southern Resident killer whales that eat salmon. Several lawsuits have challenged the new BiOps, and they are detailed below.

This new BiOp concludes that CVP and SWP operations will jeopardize these species, and destroy or adversely modify critical habitat, unless significant additional

[6] 2008 BiOp.
[7] 2008 BiOp, p. 276.
[8] 2008 BiOp, p. 278.
[9] National Marine Fisheries Service, Biological Opinion and Conference Opinion on the Long Term Operations of the Central Valley Project and State Water Project (June 2009).

restrictions on water exports are imposed.[10] Accordingly, the 2009 BiOp contains additional restrictions on SWP and CVP operations. NMFS calculated that these restrictions will further reduce the amount of water the SWP and CVP combined will be able to export from the Delta by five to seven percent (about 330,000 AFY).[11] DWR estimated a 10 percent average water loss, expected to begin in 2010, under this BiOp. The BiOp also delineated water-temperature and flow guidelines that NMFS states are necessary for protecting these species. The flow guidelines could mean even more reductions. NMFS blames the current decline in salmon on the operation of these projects, which also threaten orcas.

3.2.3 Litigation Challenging the 2008 and 2009 Biological Opinions

A significant amount of ESA litigation has been initiated involving at least three Delta fish species: the striped bass, the delta smelt and several salmon species in the Delta.[12] Over thirty water agencies have joined in these lawsuits. As of July 2010, at least a dozen related cases involving fish and Delta pumping were working their way through federal and state courts.

3.2.3.1 Challenges to 2008 USFWS Biological Opinion (Smelt)

As explained above, the USFWS's 2008 BiOp concluded that "the coordinated operations of the CVP and the SWP, as proposed, are likely to jeopardize the continued existence of the delta smelt."[13] The 2008 BiOp included RPAs and measures it deemed necessary to minimize the effect of the proposed actions on the delta smelt. In response to USFWS's new RPAs, a series of lawsuits were filed by Delta farmers and water agencies challenging the 2008 BiOp.

On March 3, 2009, the San Luis & Delta-Mendota Water Authority and the Westlands Water District brought suit against USFWS and other federal agencies challenging the 2008 BiOp.[14] The lawsuit alleges that the 2008 BiOp is arbitrary, capricious and contrary to law. Specifically, plaintiffs allege that the BiOp ignores opposing scientific data, misstates and misapplies the data it cites, is internally inconsistent in the use of

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[10] 2009 BiOp, p. 575.

[11] 2009 BiOp, p. 720.

[12] *San Luis & Delta-Mendota Water Authority et al. v. Gary Locke et al.*, Case No. 1:09-CV-01053-OWW-DLB; S*tockton East Water District v. United States Nat'l Oceanic and Atmospheric Administration et al.*, Case No. 1:09-CV-01090-OWW-DLB; *State Water Contractors v. Gary Locke, et al.*, Case No. 1:09-CV-01378-OWW-SMS; *Kern County Water Agency, et al. v. United States Bureau of Reclamation, et a*l., Case No. 1:09-CV-01520-OWW-SMS; *Oakdale Irrigation District, et al., v. United States Department of Commerce, et al*., Case No. 1:09-CV-01580-OWW-DLB; *Metropolitan Water District of Southern California v. National Marine Fisheries Service, et. al*, Case No. 1:09-CV-01625-OWW-SMS. These actions have all been consolidated under the lead case, San *Luis & Delta-Mendota Water Authority, et al. v. Gary Locke, et al*., Case No. 1:09-CV-01053-OWW-DLB.

[13] 2008 BiOp, p. 276.

[14] *San Luis & Delta-Mendota Water Authority et al. v. Salazar, et al.*, Case No. 1:09-CV-00407-OWW-DLB.

data, is speculative, arbitrarily attributes adverse effects to CVP operations that are actually linked to other stressors, and fails to rationally relate the impacts of CVP operations to population level effects. The lawsuit claims that USFWS violated NEPA based on its failure to prepare an environmental impact statement (EIS). The lawsuit also requested a preliminary injunction, which was granted on May 29, 2009 and is discussed in more detail below.

The State Water Contractors also filed a suit challenging the 2008 BiOp.[15] This lawsuit made claims similar to the allegations made in the suit filed by San Luis & Delta-Mendota Water Authority and Westlands Water District. On March 12, 2009, yet another lawsuit challenging the 2008 BiOp was filed by the Coalition for a Sustainable Delta.[16] Like previous lawsuits, this one alleged violations of the ESA, including a failure to rely on the best scientific and commercially available evidence, failure to adequately analyze effects of SWP and CVP on the delta smelt, and failure to comply with regulatory requirements for specifying a RPA.

On April 8, 2009, the Metropolitan Water District of Southern California (MWD) also filed a lawsuit against USFWS and other federal agencies challenging the 2008 BiOp.[17] MWD alleged that USFWS failed to consider widely available scientific reports in issuing the 2008 BiOp; properly consider a variety of stressors that can harm the delta smelt, including predators, contaminants, invasive nonnative species, submerged aquatic vegetation, and in-Delta diversions; properly measure and assess species abundance; and use the best available scientific information.

On May 21, 2009, Delta farmers filed yet another lawsuit alleging that through the adoption of the invalid 2008 BiOp, the named federal agencies "have unlawfully restricted the amount of water that flows from the Sacramento-San Joaquin Delta southward."[18] The Pacific Legal Foundation (PLF), on behalf of three San Joaquin Valley farming operations, alleged that the 2008 BiOp fails to show how the pumping reductions from the Delta would benefit the delta smelt, and did not take into account the economic effects of the ruling. The lawsuit seeks to invalidate the 2008 BiOp, and asks the federal courts to "retain jurisdiction over this matter until such time as defendants have fully complied with the U.S. Constitution [and] the Endangered Species Act."

In January 2010, the PLF filed an appeal to the Ninth Circuit asking the court to invalidate USFWS' delta smelt water cutbacks as unconstitutional. PLF filed the appeal not only on behalf of its farmer clients, but also on behalf of all others in the

[15] *State Water Contractors v. Salazar, et al.*, Case No. 1:09-CV-00422-OWW-GSA.
[16] *Coalition for a Sustainable Delta, et al. v. United States Fish and Wildlife Service, et al.*, Case No. :09-CV-00480-OWW-GSA.
[17] *Metropolitan Water District of Southern California v. United States Fish and Wildlife Service, et al.*, Case No. 1:09-CV-00631-OWW-DLB.
[18] *Stewart & Jasper Orchards v. United States Fish and Wildlife Service*, United States Eastern District Court, No. 1:09-CV-00892-OWW-DLB, Complaint at page 1.

San Joaquin Valley and Southern California suffering from water cutbacks. On March 25, 2011, the Ninth Circuit held that the application of ESA to the delta smelt does not violate the commerce clause of the United States Constitution and affirmed the district court's ruling.

3.2.3.1.1 Preliminary Injunction Rulings

On May 29, 2009, Judge Wanger granted the preliminary injunction that San Luis & Delta-Mendota Water Authority and Westlands Water District requested against the 2008 BiOp in their lawsuit filed March 3, 2009. The injunction was issued at a time when delta smelt had declined to their lowest population level, according to surveys by DFG.

In his order granting the injunction, Judge Wanger agreed with the plaintiffs that the reduction of exports to their agricultural operations would result in "irreparable" economic and environmental harm in violation of NEPA. He cited those damages as including loss of water supplies, damage to permanent crops, crop loss or reduction in crop productivity, job losses, reductions in public school enrollment, limitations on public services, impaired ability to reduce the toxic effects of salt and other minerals in the soil, groundwater overdraft, increased energy consumption, and land fallowing that causes air quality problems. Judge Wanger also concluded that USFWS was required to explain why alternative, less restrictive Lower and Middle River flows would not adequately protect the delta smelt, taking into consideration location, abundance, entrainment, and all other assessment criteria in evaluating risk to the species.

On June 24, 2009, the federal court consolidated the six lawsuits challenging the delta smelt BiOp under the caption *Delta Smelt Consolidated Cases*. All filings are now made in the lead case, *San Luis & Delta-Mendota Water Authority et al. v. Salazar et al*., Case No. 1:09-CV-00407-OWW-DLB (2009).

On February 10, 2010, Judge Wanger denied motions by San Luis & Delta Mendota Water Authority, Westlands Water District and other water agencies for a temporary restraining order against the implementation of RPA Component 1, Action 2 set forth in the 2008 BiOp, which calls for halting pumping in the Delta to protect the Delta smelt under certain circumstances. On February 8, 2010, the USFWS notified plaintiffs in the *Delta Smelt Consolidated Cases*, as required, that it planned to implement Action 2 and shut off pumps in the Delta. Plaintiffs filed motions for a temporary restraining order to keep the pumps operating, however, Judge Wanger's denial of that motion meant that the pumping was halted in accordance with the RPA Component 1, Action 2 of the 2008 BiOp.

On May 27, 2010, Judge Wanger issued a 126-pages of findings of fact and conclusions of law regarding Plaintiffs' request for a preliminary injunction finding that DWR must consider humans along with the delta smelt in limiting use of the delta for

irrigation. He found that water users made convincing arguments that the federal government's science did not prove that increased pumping from the delta imperiled the smelt and that the Bureau erred by failing to ensure that its alternatives used the best available science. However, Judge Wanger's ruling recognizes that the smelt are a species on the brink of extinction, and as the water users seek to increase pumping levels that have been reduced to protect the tiny fish, they likely will face a tougher challenge than with the salmon. Rather than holding hearings regarding an injunction, the court granted the parties' request to attempt to negotiate an appropriate agreement.

In June 2010, water users reached a short-term compromise with environmentalists and the federal government on Delta pumping levels for the remainder of June that face potential cutbacks to protect the threatened delta smelt. The BiOp regulates delta pumping levels by setting a range of water flows in parts of the San Joaquin River known as the Old and Middle rivers. The compromise permitted the pumping of the maximum amount of water allowed by the BiOp, but it also keeps the BiOp in place and does not allow pumping at levels higher than those set forth in the plan. On July 1, 2010, all pumping restrictions required under the 2008 BiOp ceased.

3.2.3.1.2 Court Invalidates 2008 BiOp

On December 14, 2010, Judge Wanger struck down the 2008 BiOp, agreeing with arguments by San Luis & Delta Mendota Water Authority, Westlands Water District and other water agencies that the water export restrictions it imposed on the SWP and federal CVP were arbitrary, capricious and unlawful. Judge Wanger concluded that a variety of factors unrelated to the operation of the projects that adversely affect delta smelt were not accounted for in the BiOp and that many of the restrictive measures imposed by the BiOp were adopted in violation of the federal ESA and Administrative Procedure Act. Wanger said that USFWS did not follow its own regulations, which require the agency to study whether the pumping restrictions are economically and technologically feasible. Under the ruling, the USFWS must reconsider the BiOp and ensure it is prepared in a manner consistent with the court's decision and applicable law. However, in a win for environmentalists, Judge Wanger did acknowledge that SWP and CVP pumping was harming delta smelt.

The ruling itself is not expected to have an immediate effect on water deliveries. Details of any changes will be decided in future court hearings.

3.2.3.1.3 Parties Reach Temporary Settlement Agreement Re: Project Operations

On February 25, 2011, Judge Wanger approved a limited settlement reached by the parties in the *Delta Smelt Consolidated Cases*.[19] Following their December 2010 victory, the water agencies filed a preliminary injunction on January 28, 2011 seeking to partially lift some of the 2008 BiOp's pumping restrictions in 2011. The settlement agreement resolved the water agencies' motion. The agreement, reached by the water agencies, the federal government, the State of California, environmental groups and others involved in the case, temporarily replaces some of the pumping restrictions under the 2008 BiOp with more flexible and transparent operating criteria that will control until June 30, 2011 and provides for greater stakeholder involvement in decision-making. The new criteria relax flow limitations in Old and Middle rivers and are intended to provide protections to the smelt while also increasing the amount of water delivered by SWP and CVP to farmers and other water users across the state. In addition to the new stakeholder process, USFWS will also be required to provide notice to the court 48 hours in advance of implementing any change in Delta pumping restrictions.

3.2.3.1.4 Challenges to the 2009 NMFS Biological Opinion

On June 15, 2009, the San Luis & Delta-Mendota Water Authority and Westlands Water District filed a lawsuit challenging the NMFS 2009 BiOp.[20] The lawsuit alleged that the BiOp failed to adequately define or analyze effects based on the regulatory baseline, resulting in arbitrary attribution of adverse effects to CVP and SWP operations rather than to other stressors; failed to utilize the best available scientific data, misstated and inconsistently applied data, and relied on speculation; and failed to rationally relate the impacts of the CVP and SWP to population level effects on the subject species. In August 2009, the State Water Contractors filed a similar lawsuit in federal court challenging the 2009 BiOp.[21] The State Water Contractors further claim that the 2009 BiOp failed to take into account the many other factors and stressors contributing to the fish population decline, such as changing ocean conditions.

Subsequent lawsuits were also filed by the Kern County Water Agency, the Coalition for a Sustainable Delta[22], and MWD,[23] containing similar allegations about the 2009 BiOp's deficiencies and violations of the ESA and NEPA.[24] Kern County Water

[19] *See* Stipulation and Order for Interim Remedy through June 30, 2011, *San Luis & Delta-Mendota Water Authority et al., v. Salazar, et al.*, Case No. 1:09-CV-00407-OWW-DLB (Feb. 25, 2011.).

[20] *San Luis & Delta-Mendota Water Authority et al. v. Gary Locke et al.*, Case No. 1:09-CV-01053-OWW-DLB.

[21] *State Water Contractors v. Locke, et al*, United States Eastern District Court, Case No. 1:09-CV-01378-OWW-SMS.

[22] *Kern County Water Agency et al v. Gary Locke, Secretary of Commerce, et al.*, Case No. 1:09-CV-01520-OWW-DLB.

[23] *Metropolitan Water District of Southern California v. National Marine Fisheries Service et al.*, No. 1:09-CV-01625-OWW-SMS

[24] Several other lawsuits were filed challenging the 2009 BiOp's effects on watersheds other than the Delta: *Stockton East Water District v. National Marine Fisheries Service et al.*, No. 1:09-01090-OWW-

Agency officials argue that further reductions in wet years would compromise the agency's ability to bank water underground, a practice that brings a measure of reliability to the agencies' supplies. The seven cases filed against the 2009 BiOp were consolidated in September 2009 (*Salmon Consolidated Cases*) and all future litigation will proceed under the lead case, *San Luis & Delta Mendota Water Authority et al. v. Gary Locke et al*, No. 1:09-CV-01053-OWW-DLB.

As a result of the storms in early 2010 and high flows rushing through the Delta and out to sea, unable to be diverted by the CVP and SWP facilities, certain plaintiffs challenging the BiOps sought temporary relief from the pumping restrictions from the federal court hearing the salmon cases. On February 5, 2010, the court granted a temporary restraining order in *The Salmon Consolidated Cases*, ruling that the federal agencies did not analyze the environmental impacts of the water supply restrictions as required under NEPA.

On May 18, 2010, Judge Wanger issued findings of fact and conclusions of law regarding Plaintiffs' request for a preliminary injunction in *The Salmon Consolidated Cases*. Plaintiffs challenged the implementation of two components of the RPAs developed by NMFS that impose minimum San Joaquin River inflow requirements in conjunction with maximum permissible exports. While the Court did not issue an order, it did indicate that the Plaintiffs had already succeeded on their NEPA claims and were likely to succeed on at least some of their ESA claims. Specifically, the Court determined that NMFS acted arbitrarily and capriciously in formulating the alternatives. In mid-December 2010, Judge Wanger heard arguments on cross motions for summary judgment. This case involves many of the same issues implicated in the challenge to the 2008 BiOp, which was invalidated by Judge Wanger on December 14, 2010. Judge Wanger has not yet issued a decision on the cross motions for summary judgment.

On February 3, 2011, plaintiffs in *The Salmon Consolidated Cases* filed a motion for preliminary injunction seeking to enjoin implementation of certain components of the 2009 BiOp's RPA. A hearing on the motion was held in late March 2011 but Judge Wanger has not yet issued a decision.

3.2.3.2 Striped Bass Restoration

On January 29, 2008, the Coalition for a Sustainable Delta sued DFG in federal district court for implementation and enforcement of striped bass sport fishing regulations and programs, which it alleges result in the take of federally-protected species in violation of the ESA because striped bass represent a direct predatory threat to the delta smelt and salmon.[25] Until recently, the DFG restocked striped

DLB and *Oakdale Irrigation District, et al. v. United States Department of Commerce et al.*, No. 1:09-CV-01580-OWW-DLB.

[25] *Coalition for a Sustainable Delta, et al. v. Carlson, et al.*, United States Eastern District Court, Case No. 1:08-CV-00397-OWW-GSA.

bass as part of an active population management program. The lawsuit asserted that the regulations resulted in continuing and unlawful harm, injury and death to fish species native to the Delta, including the Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, Central Valley steelhead, and delta smelt. Litigation is ongoing in this case. Trial is set for 2011.

3.2.3.3 Additional ESA Litigation

On November 13, 2009, the Center for Biological Diversity filed separate lawsuits challenging the USFWS' failure to respond to a petition to change the delta smelt's federal status from threatened to endangered and the USFWS' denial of federal listing for the longfin smelt.[26] The delta smelt and longfin smelt cases were filed in the United States District Court for the Eastern and Northern Districts of California, respectively. The lawsuit regarding the uplisting of the smelt was dismissed in April 2010 after USFWS issued a notice that reclassification of the delta smelt from threatened to endangered may be warranted and initiated a status review of the species. The lawsuit regarding the longfin smelt was settled by a stipulated settlement agreement pursuant to which USFWS agreed to complete a 12-month finding of the longfin smelt by September 30, 2011 based on a rangewide status review of the species.

3.2.3.4 State Litigation

Several lawsuits have also been filed in state court regarding the Delta and the impacts of CVP and SWP pumping on listed species. On December 1, 2008, the California Water Impact Network (C-WIN) and the California Sportfishing Protection Alliance (CSPA) filed a lawsuit in Sacramento County Superior Court against DWR, the SWRCB and the Bureau to halt water deliveries from the Delta until the state and federal export operations comply with various environmental laws and cease injuring Chinook salmon, steelhead and delta smelt.[27] Plaintiffs allege that operations of the SWP and CVP pumps reduce the quantity of freshwater within the Delta, and alter flow patterns, killing fish. The plaintiffs request that the defendants be permanently enjoined from diverting water from the Delta until the SWRCB holds a hearing to establish reasonable water diversions that protect the public trust, and the Bureau and DWR's operations conform with the law.

3.2.3.5 Violation of CESA

[26] *Center for Biological Diversity, et al. v. Salazar, et al.*, United States Eastern District of California (Fresno), No. 1:09-CV-02092-OWW-DLB; *Center for Biological Diversity, et al. v. Salazar, et al.*, United States Eastern District of California (Sacramento), No. 2:09-CV-03154-JAM-GGH; *Center for Biological Diversity, et al. v. Salazar et al.*, United States Northern District of California (San Francisco), No. 3:09-CV-05370-MHP.

[27] *California Water Impact Network, et al. v. California Department of Water Resources, et al.*, No. 2008-00027894 (Sac. Cnty. Sup. Ct).

Several cases CESA cases have been filed in state court. In October 2006, Watershed Enforcers, a project of the California Sportfishing Protection Alliance, filed a lawsuit against DFG and DWR, alleging that they violated CESA by capturing and killing threatened spring-run Chinook salmon, endangered winter-run Chinook salmon and threatened delta smelt at DWR's South Delta pumping facilities without securing the legally required authorization from DFG.[28] On April 18, 2007, the Alameda County Superior Court found that DWR was illegally killing fish through operation of the SWP, and gave DWR 60 days to either comply with CESA or shut down the SWP's pumps.[29] In June 2010, the appellate court found that DWR and DFG were subject to the CESA requirements and thus were required to obtain a take permit in connection with operation of the SWP pumps.[30]

In December 2008, the State Water Contractors filed suit against the California Fish and Game Commission and DFG in Los Angeles Superior Court challenging the Commission's decision to potentially impose substantial cuts in SWP water deliveries to much of the San Francisco Bay area, the San Joaquin Valley, and southern California in an effort to protect the longfin smelt.[31] The lawsuit asserted that the Commission's November 14, 2008 decision opened the door for dramatic new restrictions on SWP and CVP water pumping operations out of the Delta without any significant corresponding benefit to the fish species and, in so doing, violates key elements of CESA. In March 2009, the Los Angeles County Superior Court dismissed this lawsuit.

3.3 Non-Species Threats Facing the Delta

The Delta also faces non-species threats. The Delta Protection Commission has drafted a comprehensive list of those threats:

- insufficient levee integrity;
- proximity to seismic fault zones;
- population growth and increased demand on all Delta infrastructure;
- potential increase in water supply demands for more than 23 million Californians;

[28] *Watershed Enforcers v. California Department of Water Resources*, No. RG06292124 (Alameda Sup. Ct.).

[29] After DWR appealed the decision of the Alameda County Superior Court and the order was temporarily stayed, Watershed Enforcers filed another suit against DFG requesting that the court direct DFG to determine whether the federal BiOps, issued under the federal ESA, are consistent with the requirements of CESA.

[30] *Watershed Enforcers v. California Department of Water Resources et al.*, No. A117750 (Cal. Ct. App. First App. Dist.). Although DWR complied with the trial court's writ and obtained proper authorization from the California Department of Fish and Game (DFG), rendering the case moot, the appellate court decided the appeal due to the importance of the issue.

[31] *State Water Contractors v. Fish and Game Commission. et al.*, No. BS 118166 (Los Angeles Cty. Sup. Ct.).

- urban encroachment in the Primary and Secondary Zones;
- insufficient integrated regional planning and implementation;
- disputes over public access;
- invasion of non-native species in the waterways, rising ocean levels and other water quality issues; and
- lack of stewardship and social responsibility, e.g., abandoned vessels, dumping and pollution.[32]

Other concerns include: pesticide runoff from farming; drainage from contaminated mines in the Sierras; salt water intrusion; and subsidence of low-lying islands.

Levee failure and impacts from climate change pose particularly significant threats. Recently, DWR opined that over the next 50 years there is a two-thirds chance of a catastrophic levee failure in the Delta, leading to multiple-island flooding and intrusion of seawater.[33]

In addition, many predict that in the future the Delta will inevitably become more salty due to climate change. (See also Appendix F (Climate Change).) Warmer temperatures, sea level rise and higher flood flows brought by climate change threaten to further erode the Delta's already fragile sustainability.[34] Climate change experts predict that seas could rise by 12 inches by 2050, and up to three feet or more by the end of the century. This will increase pressure on the existing structures that keep water contained, i.e., levees, rock and dirt mounds. Currently, during a typical storm with extreme high tides, there is only about a one-foot buffer between those waves and the top of the levee. Even without levee failures, Delta water supplies and aquatic habitat will be affected due to sea water intrusion, which will require larger releases of fresh water upstream to repeal the sea and maintain salinity levels for municipal, industrial and agricultural uses. This will mean that changes in upstream and in-Delta diversions, exports from the Delta, and improved conveyance through or around the Delta may be necessary. In addition, most Delta islands lose about one inch of elevation per year, as soil is oxidized and blown away. Most Delta experts agree that eventually the fragile balance of salt and fresh water will shift in favor of salt.

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[32] Delta Protection Commission, *2006-2011 Strategic Plan* 3 (Adopted July 27, 2006).

[33] *See* Lester Snow, "Protecting Sacramento/San Joaquin Bay–Delta Water Supplies and Responding to Failures in California Water Deliveries," Testimony Before the U.S. House of Representatives Committee on Resources, Subcommittee on Water and Power, Washington, D.C. (April 6, 2006), available at http://www.publicaffairs.water.ca.gov.

[34] Department of Water Resources, *Managing an Uncertain Future: Climate Change Adaptation Strategies for California's Water* (October 2008).

4. PROCESSES UNDERWAY TO ADDRESS RELIABILITY LIMITATIONS

In response to these threats to the SWP, several processes have been initiated that are designed to study these threats and provide solutions. These processes are discussed below. DWR's 2009 Reliability Report addresses the status of several of these planning activities that may affect SWP reliability, such as: (1) The Delta Risk Management Strategy; (2) the Water Bonds; (3) the Delta Habitat Conservation and Conveyance Program; (4) the Delta Vision Process; (5) the CALFED Ecosystem Restoration Program Conservation Strategy; and (6) the Bay Delta Conservation Plan.

4.1 Levees

The state is actively studying the risk of levee failure and potential impacts to SWP supplies and developing a plan to protect the Delta.[35] There are several concurrent processes for resolving these challenges. In the spring of 2006, at the recommendation of CALFED, an interagency effort that includes 23 state and federal agencies that have management or regulatory responsibility for the Delta, DWR began a two-year Delta Risk Management Study (DRMS) to analyze risks to the levee system. The February 2009 Phase I Risk Analysis Report includes a discussion of the region's assets, existing problems with the system, the degree of risk that exists and the potential consequences of multiple levee failures. Phase II, which is currently in progress, will focus on developing a set of improvement strategies to manage the risks identified in the Phase I analysis.

4.2 Bonds

In response to concerns over the integrity of the levee system, the state significantly increased the budget for levee repairs in 2006, and a $5.4 billion natural resources bond was approved by voters in November 2006 (Proposition 84), which assigns additional funds for flood control in the Delta and to plan for future water supplies.

In 2008, the California Legislature failed to reach agreement on several billion-dollar water bond measures. However, the decline of the Delta ecosystem and the resultant reduction in water supply triggered the enactment of five new water bills and an accompanying bond package in early November 2009. One of those bills, Senate Bill 1,[36] was focused solely on addressing Delta issues. The bill reformed state policy in the Delta, created a new Delta governance structure, and required development of a new Delta management plan. The policy reforms are designed to connect management of all Delta resources so the health of the Delta can be restored. The

[35] Department of Water Resources, Delta Risk Management Strategy, information available at http://www.water.ca.gov/floodmgmt/dsmo/sab/drmsp/.

[36] SB 1, Chapter 5 of the 7th Extraordinary Session of 2009, Sacramento-San Joaquin Delta Reform Act of 2009.

bill also reformed the Delta governance structure, which included creation of the Delta Stewardship Council, a committee tasked with overseeing the Delta and developing a wide-ranging Delta management plan by the end of 2011.[37] Other Delta governance changes included reform of an existing Delta governance body (the Delta Protection Commission), required the SWRCB to appoint a Delta watermaster charged with enforcement of the SWRCB's water rights orders regarding the Delta, and created a new Delta Conservancy, which is tasked with carrying out projects that advance either ecosystem restoration or economic development in the Delta.

None of the new legislation authorizes a peripheral canal; instead, it adds a new layer of oversight by requiring the Bay Delta Conservation Plan (BDCP), discussed below, to demonstrate to the Council that an alternate conveyance plan meets certain goals and is consistent with the comprehensive Delta management plan and existing environmental requirements.[38] In November 2009, a motion to put an $11 billion bond proposition on the November 2010 ballot was passed in the California State Senate and the California State Assembly. The bill was slated to be put on the ballot in November 2010 for approval by California votes. However, in August 2010, the Legislature approved removal of the bond from the 2010 ballot. If the bond had been approved, it would have provided billions of dollars to build new water projects and a program to protect the state's aging levees. The bond bill will now be the ballot in 2012.

4.3 Conveyance Facilities (Peripheral Canal)

High salinity levels in the Delta have been a concern for decades. One proposed alternative method to alleviate salinity levels is the construction of a conveyance facility around the Delta to carry Sacramento River water directly to the state and federal pumps without allowing it join with Delta water, creating a consistent and manageable flow from the Sierra Nevada Mountains. The 43-mile Peripheral Canal, first proposed by the Bureau to the Interagency Delta Committee (IDC) in early 1963, became one of the most controversial issues in California water policy. By early 1965, the proposed canal had gained widespread acceptance among policymakers, but in 1982 voters defeated the Peripheral Canal measure. Environmentalists helped aid in its defeat by alleging that if southern California diverted large amounts of water from the estuary, the entire Delta ecosystem would collapse.

The Peripheral Canal proposal is being explored again today, as many believe that circumventing the need to pump directly from the Delta would take pressure off

[37] Senate Bill 7x 1 (reforms state policies, programs and governance for the Sacramento-San Joaquin Delta), SB 7x 2 (authorizes a $11.13 billion bond with more than $1 billion added for local groundwater, recycled water and drought relief practices), SB 7x 6 (groundwater monitoring), and SB 7x 7 (water conservation) passed out of both houses of the Legislature on November 4, 2009.

[38] Senate Bill 7x 1 (reforms state policies, programs and governance for the Sacramento-San Joaquin Delta).

endangered fish species and the ailing ecosystem by reducing the state's reliance on fragile levees to channel water to pumps that entrain millions of fish annually. Part of the BDCP, discussed below[39] that is currently being developed, calls for construction of a similar peripheral canal that will allow some water to bypass the fragile Delta on its way south to farming and metropolitan areas. Supporters believe that the canal could be operated to restore more natural flows in the streams and sloughs within the Delta, to benefit fish, and to decrease the number of fish sucked into the pumps. The canal could also be designed to lower water levels in the Delta during flooding, and would allow an uninterrupted water supply south of the Delta in the event of a large-scale levee collapse triggered by an earthquake. Another alternative is to construct a smaller canal that could be used in combination with a channel through the Delta enclosed by strengthened levees, or a dual conveyance strategy. Many of California's water agencies, including DFG and environmental groups such as The Nature Conservancy, support the construction of a peripheral canal. The Nature Conservancy became the first large environmental organization to endorse a peripheral canal (or "isolated conveyance facility"), which signals a drastic transformation in Delta politics.

Some environmental groups and others, including many Delta landowners and residents, believe that the canal would decrease Delta water flows and allow greater exports to southern California, thereby threatening wildlife and increasing the concentration of pollutants and potentially causing stagnant flows. Delta residents argue that removing water from the Delta would aggravate adverse Delta conditions because as less water flows in from the east, salty water from the Bay would flow into the Delta, and agricultural runoff would remain trapped, leaving its sloughs and canals unsuitable for drinking water or irrigation of Delta lands. In May 2009, DWR sent petitions to several property owners in the Delta seeking access to land for preliminary studies related to construction of a peripheral canal.

4.3.1 Bay Delta Conservation Plan (BDCP)

The BDCP will allow SWP water contractors, an association of 27 agencies, who must comply with the federal and state ESAs, to work cooperatively to attain incidental take coverage via a Habitat Conservation Plan (HCP) and a Natural Community Conservation Plan (NCCP) for a new conveyance system; namely, a peripheral canal. The BDCP is being developed with the leadership of the BDCP Steering Committee, and with the participation of agencies, stakeholders, the public, and independent scientists.[40] The BDCP Steering Committee includes federal and state agencies, local and regional water agencies, fish agencies, environmental organizations, and organizations representing agricultural interests.

[39] Information available at http://baydeltaconservationplan.com/Home.aspx.
[40] Information available at http://baydeltaconservationplan.com/Home.aspx.

Currently, the BDCP is identifying strategies to improve the overall health of the Delta and is developing environmentally-sound ways to transport fresh water through and/or around the Delta. The BDCP aims to establish water flows that: (1) mimic natural flows; (2) steer fish away the state and federal water pumps; and (3) restore habitat areas throughout the Delta. Under this conservation plan, state and federal water projects may be constructed and operated with a conservation based approach that will provide funding for ecosystem restoration. The BDCP has identified several endangered species that the plan will cover and manage. The draft conservation strategy includes biological goals and objectives for approximately 50 endangered and threatened wildlife and plant species, and also identifies conservation measures to help in their recovery. Species considered for coverage include: Delta smelt, Green sturgeon, longfin smelt, Winter-run Chinook salmon, and Spring-run Chinook salmon, along with several terrestrial species.

While officials state that no definite decisions have been made, documents under review as part of the BDCP call for a large canal that would divert up to two-thirds of Sacramento River flows depending on the time of year (up to 15,000 cubic feet per second (cfs)). At this time it is unclear how the BDCP will specifically impact water operations. However, it is clear that the BDCP will propose water operations criteria that will determine how much water could be diverted from the Sacramento River via a new water conveyance facility. Currently, a range of operations is being studied that will limit the amount of water available for diversion depending on the time of the year and real-time flows. For instance, from December through April the proposed rules would require a base flow of 9,000 to 15,000 cfs in the Sacramento River before any water could be diverted at a North Delta diversion. These rules will be put in place to support the BDCP's goals of fish recovery and the restoration of natural seasonal flows. Officials also state that the canal will likely stretch around the east side of the Delta, rather than the west side, bisecting farmland in west San Joaquin County. The BDCP cost is estimated at $140 million. Half of this expense will be funded by DWR through agreements with the State Water Contractors. The remaining $70 million is expected to come from federal water agencies.

On March 13, 2008, DWR — the lead agency on the Steering Committee — issued a notice of preparation of an EIS/EIR for the BDCP. The final EIS/EIR is estimated to be available until late 2012. At that point, the process of applying for take permits may begin.

An administrative draft of the BDCP should be available in mid-2011. Public review and comments of the BDCP are slated for late 2011 to early 2012. The final BDCP is expected near the end of 2012.[41] Jerry Meral, Deputy Secretary of the California Resources Agency recently provided the Steering Committee with a letter regarding

[41] More information about the schedule for the BDCP is available at http://baydeltaconservationplan.com/Schedule/PlanDevelopmentSchedule.aspx.

the direction being given to the BDCP technical consultants moving forward on January 28, 2011.

The BDCP is currently receiving strong support from the state and will serve as regulatory approval for the peripheral canal. However, in April 2009, two water agencies challenged the BDCP in federal district court.[42] The case was dismissed in September 2009 as being premature and unripe.

At least one major water user has pulled its support from the continued development of the plan in late November 2010.[43]

4.4 Delta Vision Process

On September 28, 2006, the governor signed an executive order to develop the Delta Vision process to provide a management program for the Delta.[44] The Delta Vision Committee was comprised of five state Cabinet secretaries. Delta Vision builds on work that was done through the CALFED program. The process assessed the Delta's many uses and resources in light of climate change and land use conditions. Further, it developed a sustainable management program for the Delta's multiple uses.

The final draft report, entitled "Our Vision for the California Delta," was released on January 17, 2008. The report includes the "Delta Vision's 12 Integrated and Linked Recommendations" which will be used to shape policy in the Delta. These recommendations are listed below, and promote the preservation of the Delta ecosystem and long-term planning for sustainable growth. The report also includes near-term actions, which include state government acquisition of floodplains, an executive order for guidance on inappropriate land development in the Delta, standards for levee improvements, emergency planning, sea-level rise planning, ecosystem revitalization projects, and improvements in conveyance and storage systems. The task force recommends that these near-term actions be taken through the Governor and the Legislature in executive actions, upcoming bond measures and through related legislation.

Governor Schwarzenegger's two-year Delta Vision process concluded at the end of 2008 with a series of strategic recommendations for long-term, sustainable management of the Delta. The Delta Vision Committee's final implementation report contains schedules for policy setting and on-the-ground improvements to the plumbing system and environment.

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[42] *Central Delta Water Agency, et al. v. United States Fish and Wildlife Service, et al.*, United States Eastern District Court, No. 1:09-CV-00861-OWW-DLB.

[43] New York Times, "Effort Falters on San Francisco Bay Delta" (Dec. 14, 2010).

[44] Information is available at http://deltavision.ca.gov/index.shtml.

The report proposes several actions as to how the Delta should be managed to fulfill its co-equal goals of water supply reliability and ecosystem restoration. Recognizing that any solution will take many years, or even decades, the report calls for a sequence of short-term actions to improve water supplies and the environment, which includes installing new fish protection screens, and stockpiling rock and other emergency response materials around the Delta in preparation for a levee failure. The implementation plan sets priorities based on the Delta Vision Strategic Plan developed by the Governor's Delta Vision Blue Ribbon Task Force.

The plan contains 73 recommendations grouped to meet seven goals, including:

- Legally acknowledge the co-equal status of the Delta ecosystem and water supplies. Panel members observed that historically the environment has taken a back seat to water deliveries and recommended the state's Constitution be amended to put those values on equal footing.

- Recognize and enhance the unique cultural, recreational and agricultural values of the Delta.

- Restore the Delta ecosystem.

- Promote statewide water conservation, efficiency and sustainable use.

- Build new conveyance and water storage facilities. According to the report, it is likely that the best option to convey water from north to south is to build a new aqueduct to take water from the Sacramento River near the capital directly to pumps near Tracy but only as part of the larger Delta Vision package.

- Address the threat of flooding through better emergency preparedness, land use regulation and policy, and develop a plan to strengthen high-priority levees.

- Establish new agencies to improve governance.

4.5 Bay-Delta Water Strategic Workplan

The SWRCB is in the process of reviewing and updating the 2006 Strategic Workplan for the Bay-Delta (Workplan), which will include making any needed changes to water rights and water quality regulation consistent with the program of implementation.[45]

[45] Information is available at

The Workplan identifies beneficial uses of the Delta, water quality objectives for the reasonable protection of those beneficial uses, and a program of implementation for achieving the water quality objectives. First, the SWRCB will focus on the southern Delta salinity and San Joaquin River flow objectives, and the program that implements those objectives. Following completion of the preview process for the Workplan, the SWRCB will undertake any additional water quality control planning that is identified through that process.

The Workplan requires a comprehensive review of both the Bay-Delta Plan and other implementation measures designed to establish interim and long-term water quality objectives, and to protect fish and wildlife, beneficial uses of water, and the public trust. The Workplan includes information-gathering activities by the SWRCB that may affect the scope of the Bay-Delta Plan revision or provide scientific summaries to date at the commencement of the environmental review process. Those activities included an October 2008 scoping meeting on periodic review of the Bay-Delta Plan and a series of evidentiary hearings on a number of critical factual issues concerning the Delta's ecology.

The final periodic staff report was approved by the SWRCB on August 4, 2009. The report recommended that the SWRCB conduct further review in the water quality control planning process of the following: Delta Outflow Objectives, Export/Inflow Objectives, Delta Cross Channel Gate Closure Objectives, Suisun Marsh Objectives, Reverse Flow Objectives, Floodplain Habitat Flow Objectives, Changes to the Monitoring and Special Studies Program, and Other Changes to the Program of Implementation. The report also stated that further review will be taken with regard to southern Delta salinity and San Joaquin River flow objectives, which were previously identified as issues for further review. Based on information received during the periodic review and follow-up workshops on the issues identified for additional review, SWRCB staff will develop recommendations for any needed changes to the Bay-Delta Water Quality Control Plan.

Updates to the Workplan are generally reported quarterly. The most recent update was issued in January 2010. These updates report changes to the individual actions indentified in the Workplan.

4.6 Delta Plan

On February 14, 2011, the Delta Stewardship Council released its much anticipated first draft of the "Delta Plan," a framework the Delta Stewardship Council hopes to use for addressing some of the most vexing problems that have faced the Delta, including achieving the state's coequal goals of providing a reliable water supply, while protecting, restoring, and enhancing the Delta's ecosystem. The Delta Stewardship Council is seeking public and stakeholder input for preparing its final

http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/strategic_plan/.

plan, which is due in November 2011 and will eventually become a state regulation for managing Delta resources. This is the first of several drafts of the Delta Plan expected to be released over the course of 2011. The Delta Stewardship Council notes that performance measures, targets, and graphics for the plan are still under development and will not be provided until they are completed. As well, much of the technical information related to facts and supporting citations will be updated on an ongoing basis. Nonetheless, the Delta Stewardship Council hopes the key issues presented in this draft will provide a table for discussion, and that discussion will generate input from stakeholders and the public to help draft the final version of the document.

This is only the first of seven anticipated drafts of the Delta Plan that will be produced this year, including the final draft due in November. Four successive drafts will be created through May, with the fourth version being the basis for the plan's Draft EIR. After circulating the environmental review document in June, the Delta Stewardship Council will incorporate public comments and revise the plan until the final version is prepared for the Delta Stewardship Council's November 2011 meeting.

4.7 Delta Flow Criteria

The Sacramento-San Joaquin Delta Reform Act of 2009 required the SWRCB to develop new flow criteria to protect public trust resources for the Delta ecosystem. The statute further required the SWRCB to submit its flow criteria determinations to the Delta Stewardship Council within 30 days of their development. The SWRCB conducted a public process in the form of an informational proceeding, held on March 22-24, 2010, to develop the flow criteria, and released a draft *Report on Development of Flow Criteria for the Sacramento-San Joaquin Delta Ecosystem* on July 21, 2010, for public review and comment. On August 3, 2010, the SWRCB adopted Resolution 2010-0039 approving the final report[46] determining new flow criteria for the Delta ecosystem necessary to protect public trust resources. On August 25, 2010 the executive director of the SWRCB submitted the final report to the Delta Stewardship Council.

The report concluded that restoring the Delta's collapsing fisheries and hydrologic rhythms are "fundamentally inconsistent with continuing to move large volumes of water through the delta for export."[47] Generally, the report's recommendations called for significantly increased flows into and through the Delta, particularly during the winter and spring months, and imposed limits on reverse flows associated with pumping by the state and federal export pumps in the South Delta. In order to

[46] State Water Resources Control Board, *Development of Flow Criteria for the Sacramento-San Joaquin Delta Ecosystem* (Aug. 3, 2010), available at http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/deltaflow/docs/final_rpt080310.pdf.

[47] The report noted, however, that the flow criteria did not consider any balancing of public trust resource protection with public interest needs for water.

preserve the attributes of a natural variable system to which native fish species are adapted, the report specifically called for the following flow criteria (expressed as a percentages of natural or unimpaired inflows and outflows):

- 75% of unimpaired Delta outflow from January through June;
- 75% of unimpaired Sacramento River inflow from November through June; and
- 60% of unimpaired San Joaquin River inflow from February through June.

The report also called for Fall outflows to maintain brackish water habitat in the Delta in wetter years and positive flows or low reverse flows in Delta channels in most years. The State Board also recommended measures to improve water quality and restore natural habitat, noting that protection of public trust resources "cannot be achieved solely through flows." Other criteria set forth in the report included: increased Fall Delta outflow in wet and above normal years; Fall pulse flows on the Sacramento and San Joaquin Rivers; and flow criteria in the Delta to help protect fish from mortality in the central and southern Delta resulting from operations of the State and federal water export facilities. The report also includes determinations regarding: variability and the natural hydrograph, floodplain activation and other habitat improvements, water quality and contaminants, cold water pool management, and adaptive management.