

A LASTING PROPOSAL FOR ENDANGERED BAY-DELTA
FISH SURVIVAL: THE ENVIRONMENTAL WATER ACCOUNT
AND THE ACCUMULATION OF WATER CONTRACT RIGHTS
IN THE CENTRAL VALLEY PROJECT AND THE
STATE WATER PROJECT

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I. INTRODUCTION

In their operation of the Delta export pumps, the water agencies have routinely exceeded the take limits for winter-run salmon and Delta smelt ever since these fish were listed under the Endangered Species Act and the take limits were established. These unconscionable fish kills are threatening the very existence of these species, and are illegal. It is time for these agencies to comply with the law and to give the winter-run salmon and Delta smelt a chance to recover.¹

The San Francisco Bay-Delta is the center of an on-going struggle to meet California's growing water needs. The competing demands of rapid urban growth, continued economic development, and environmental restoration have caused decades of intense conflict involving farmers, politicians, environmentalists, and business people. In the 1990's, the Bay-Delta water management crisis reached a boiling point, giving rise to a new movement for cooperation among all interested parties. This fresh policy approach culminated in the signing of the CALFED agreement, a historic document that unites the multitude of Bay-Delta-related state and federal agencies under one unified management mandate. While much progress has taken place in the past ten years, Bay-Delta management still has a long path ahead. Among the most difficult tasks, Californians must come up with a durable solution to the continuous conflict between the massive Delta pumps, operated by the Central Valley Project ("CVP") and the State Water Project ("SWP"), and the endangered Delta fish species that are killed or otherwise adversely affected by these pumps.

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¹ Mike Sherwood, *Delta Water Export Pumps Killing Two Protected Fish Species*, (January 11, 2002), available at <http://www.earthjustice.org/news/display.html> [hereinafter Sherwood].

Bay-Delta management, under the authority of the CALFED agreement, have been experimenting with creative methods of operating the pumps in a manner sufficient to meet urban and agricultural needs while at the same time providing water for endangered fish species' ecosystem needs. It is important to keep the pumps working to supply California's agricultural industry with enough reliable water necessary to keep farming viable in the Central Valley. It is equally important to keep water flowing through the Bay-Delta to protect one of California's most valuable resources, our fish. As we shall see, management efforts to satisfy both needs have successfully safeguarded pumping reliability for water users, but have insufficiently protected Delta fish.

To solve the pump/fish dilemma, decision-makers must move towards a long-term rebalance of allocations and use of California's hydrologic resources. Only when a water diversion at the Delta pumps is consistently harmonized with the ecological needs of the Delta will sensitive fish species have a chance to recover. Shortsighted programs that provide insufficient and tentative protection to endangered fish not only place the fish species at ever-increasing risk of extinction, but also threaten California's agricultural water supply reliability goals by increasing the risk of an environmental backlash with extreme reductions in farm water deliveries for Bay-Delta ecosystem recovery purposes. By striving for a feasible, sustainable balance of uses of Bay-Delta water, this paper hopes to ensure that all interested parties' long-term needs and desires are fulfilled. Farmers and environmentalists must consider the consequences of another breakdown of Bay-Delta water management and participate cooperatively in formulating solutions.

To achieve a rebalance of water use, this paper suggest an organized effort to create and locate excess water in the Central Valley, specifically in the two water projects associated with the pumps. These water assets and the contract rights underlying them should be dedicated to Delta fish through permanent, lasting environmental water contracts conversions.² Water rights for fish have historically been difficult to obtain in California, but in order to protect both the Delta fish and agriculture's water reliability in the Central Valley, permanent rights may provide the missing piece in the Bay-Delta pump-versus-fish puzzle.

The background of this complex problem is needed to understand the suggested solution. While California water history, development, and current use is a fascinating subject, the background section below represents only a general outline of the most pertinent parts. After the background, we will delve into the possibility of water rights conversions

² While the ideas proposed here may or may not be currently feasible — politically, economically, and socially — they are meant to provide a springboard for new perspectives on Bay-Delta pump/fish management.

for Delta fish recovery purposes and the different ways this conversion might be accomplished.

II. BACKGROUND

A. *The Setting and Cast – the Bay-Delta Ecosystem, State Water Project (SWP), Central Valley Project (CVP), California Agriculture and Endangered Fish*

The Bay-Delta watershed, including the Sacramento and San Joaquin rivers, collectively drain much of California's yearly rainfall, including most flows from the Sierra Nevada Mountains and the Coast Range.³ The rivers draw water from approximately 39,000 square miles of California and meet at the Sacramento-San Joaquin Delta.⁴ Much of the water then turns westward towards the ocean, making its way through the San Francisco Bay, eventually passing under the Golden Gate bridge, and out into the Pacific.

While a portion of the water still follows this age-old path to the ocean, much of it is diverted at the Delta for human use and consumption. At times, up to 70% of the water flowing into the Delta can be pumped out of the Delta and into California's vast system of canals and aqueducts.⁵ This pumping occurs at two of humanity's most extraordinary engineering marvels. The Tracey Pumping Plant supplies the CVP with vast quantities of water, while the Harvey O. Banks Pumping Plant, the SWP's pumping facility in the Delta, has more than double the capacity of its counterpart.⁶

The SWP, created in 1960 when California voters approved a \$1.75 billion bond issue, has grown to include 32 storage facilities, reservoirs and lakes; 17 pumping plants; three pumping-generating plants; five hydroelectric power plants; and about 660 miles of open canals and pipelines.⁷ The California Department of Water Resources manages and operates the SWP with a staff of approximately 2,700 and an annual budget of \$1 billion.⁸ The project's goals include providing water to its diverse water users, maintaining water quality in the Delta, controlling

³ Randy Brown & Wim Kimmerer, *Environmental and Institutional Background for CALFED's Environmental Water Account*, (October 2001) (on file with CALFED Head Office in Sacramento, California) [hereinafter Brown].

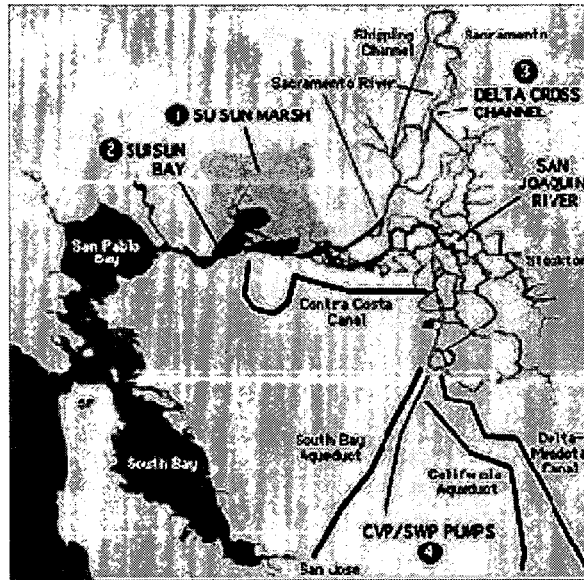
⁴ *Id.*

⁵ *CALFED Bay-Delta Program, Programmatic Record of Decision 2* (August 28, 2000) [hereinafter *ROD*].

⁶ Brown, *supra* note 3, at 19-23 (stating that SWP capacity is 10,300 cfs, while CVP capacity is 4,600 cfs).

⁷ California Department of Water Resources, *State Water Project Overview*, available at http://www.dwr.water.ca.gov/dir-state_water_projectR2/default.html [hereinafter *SWP Overview*].

⁸ *Id.*



Source: The Bay Institute

floodwaters, creating recreational activities, and enhancing the ecosystem for fish and wildlife.⁹

The Central Valley Project began as a California state initiative as well, but quickly fell into federal hands. In 1933, almost 30 years prior to the commencement of the SWP, California was eager to expand agriculture in the Central Valley.¹⁰ The California Legislature authorized the sale of \$170 million of bonds and the voters approved the measure, but the Great Depression quickly proved too devastating for project survival. The Federal Government stepped in, providing the necessary funds to continue the massive endeavor.¹¹

The CVP is now run by the Bureau of Reclamation,¹² an arm of the U.S. Department of Interior, and consists of 18 dams that create reservoirs with a collective capacity of 13 million acre-feet of water.¹³ According to the Western Area Power Administration, “the project’s 615 miles of canals irrigate an area 400 miles long and 45 miles wide—almost one third of California. Power plants at the dams have an installed capacity of

⁹ *Id.*

¹⁰ A. DAN TARLOCK ET AL., *WATER RESOURCE MANAGEMENT* 685 (4th ed. 1993).

¹¹ *Id.* at 685.

¹² *Id.* at 651.

¹³ Western Area Power Association, *Central Valley Project*, available at <http://www.wapa.gov/geninfo/ppcv.htm>.

more than 2,000 megawatts and provide enough energy for 650,000 people.”¹⁴

The CVP and the SWP, although separate in many respects, operate in conjunction with each other. Certain facilities, including the San Luis Reservoir and over 100 miles of the California Aqueduct, are used cooperatively by both projects.¹⁵ Because of this close relationship, an office housing managers from both projects, called the Joint Operations Center, has been set up in Sacramento.¹⁶ Further cooperative management initiatives are planned for the future.¹⁷

The two water projects play a major role in providing water for a key component of California’s overall economy, the Central Valley farm industry. In fact a full 85% of water diverted by the water projects goes to agricultural uses.¹⁸ Central Valley agriculture has been ranked first in the nation in terms of highest yields per acre and dollar value of farm produce.¹⁹ The Valley is comprised of over eleven million acres of total farmable acreage that produces over 250 varieties of major crops.²⁰ The area grows over half of the fruit and vegetables consumed by the entire population of the United States.²¹ Much of this agricultural activity is totally dependant on water deliveries from the Bay-Delta.

As well as providing the lifeblood to Central Valley agribusiness, the San Francisco Bay/Sacramento-San Joaquin Delta Estuary is “an area of unsurpassed ecological importance for salmon, migratory waterfowl, and a host of other plants and animals.”²² Over 750 species of plants and animal rely on the Bay-Delta for their ecosystem needs.²³ The Bay-Delta

¹⁴ *Id.*

¹⁵ United State Department of the Interior, Bureau of Reclamation, *Central Valley Project Homepage*, available at <http://www.mp.usbr.gov/cvp/> [hereinafter *DOI CVP Homepage*].

¹⁶ *Id.*

¹⁷ TOOLS TO AUGMENT 2002 CVP ALLOCATIONS, available at http://ww-woco.water.ca.gov/calfedops/notes/2002/feb/wtrsply_tools.pdf (outlining the use of joint point of diversion, a coordination/sharing initiative between the SWP and the CVP).

¹⁸ AMERICAN OCEANS CAMPAIGN, ESTUARIES ON THE EDGE: THE VITAL LINK BETWEEN LAND AND SEA 233 (March 17, 2002), available at <http://www.americanoseans.org/issues/pdf/sanfran.pdf> [hereinafter *AMERICAN OCEANS*].

¹⁹ *Citizen Net: Central Valley Partnership, Statistics on the Central Valley* (Autumn 1998), available at <http://www.citizenship.net/resources/valley/statistics.htm>.

²⁰ *Id.*

²¹ *Id.*

²² CALFED BAY DELTA PROGRAM SUMMARY (August 2000), available at http://calfed.water.ca.gov/adobe_pdf/2000/program_summary.pdf [hereinafter *SUMMARY*].

²³ *ROD*, *supra* note 5, at 1-2.

is home to approximately 130 fish species, 54 of which rely on the Delta ecosystem for survival.²⁴

The Bay-Delta sustains 80 percent of California's commercial fisheries,²⁵ contributing greatly to California's \$159 million fishery economy.²⁶ Importantly, Chinook salmon used to play a large part in the success of the state's fishery-based economy, but record declines, including a drastic catch decrease of 475,000 pounds between 1988 and 1990, have caused fishermen to look for new sources of revenue.²⁷

Among the fish species that depend on the Bay-Delta are eleven species listed as endangered or threatened by the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Services (NMFS) under the Endangered Species Act of 1973 (ESA). Both the winter-run²⁸ and the spring-run²⁹ of the aforementioned Sacramento River Basin Chinook salmon are endangered. The Delta smelt³⁰, a small fish found only in the Delta, is also listed for protection, as are the Sacramento splittail,³¹ four runs of Steelhead Trout (Central Valley, Northern California, South Central, and Central Coast ESU's),³² Tidewater Goby,³³ Coho Salmon (Central California Coast ESU),³⁴ and California Coastal Chinook Salmon.³⁵ The Endangered fish can affect pumping activities in significant ways, curtailing SWP/CVP water diversions.

In addition to these species that have been formally recognized under the ESA, other fish species may also be in danger and have been proposed for protection. The Green Sturgeon is currently being evalu-

²⁴ Sue McClurg, *Water Education Foundation: A Briefing on the Bay-Delta and CALFED* (September 2001), available at <http://www.water-ed.org/calfeddeltabriefing.asp> [hereinafter McClurg].

²⁵ *Id.*

²⁶ U.S. DEPT. OF COMMERCE, FISHERIES OF THE UNITED STATES, at 3 (1993).

²⁷ AMERICAN OCEANS, *supra* note 18, at 232.

²⁸ Reclassification of the Sacramento River Winter-Run Chinook Salmon From Threatened to Endangered Status, 59 Fed. Reg. 13836 (March 23, 1994).

²⁹ Determination of Threatened Status for Two Chinook Salmon Evolutionarily Significant Units (ESUs) in California, 64 Fed. Reg. 72,960 (Dec. 29, 1999).

³⁰ Determination of Threatened Status for the Delta Smelt, 58 Fed. Reg. 12,854 (Mar. 5, 1993).

³¹ Determination of Threatened Status for the Sacramento Splittail, 64 Fed. Reg. 5963 (Feb. 8, 1999).

³² Listing of Several Evolutionarily Significant Units of West Coast Steelhead, 63 Fed. Reg. 32996 (June 17, 1998).

³³ Determination of Endangered Status for the Tidewater Goby, 59 Fed. Reg. 5494 (Feb. 4, 1994).

³⁴ Listing of the Central California Coast Coho Salmon as Threatened in California, 61 Fed. Reg. 59028 (Nov. 20, 1996).

³⁵ Determination of Threatened Status for Two Chinook Salmon Evolutionarily Significant Units (ESUs) in California, 64 Fed. Reg. 72,960 (Dec. 29, 1999).

ated by the NMFS for ESA listing.³⁶ The Central Valley Fall- and Late Fall-Runs of Chinook Salmon have been named as candidates for listing based on significant risk factors including degraded spawning environments due to agricultural and municipal water activities.³⁷ As long as fish habitat in the Delta watershed continues to deteriorate, more species are likely to attain threatened or endangered status.

The Bay-Delta ecosystem encompasses a wide geographic area, provides massive amounts of water to California's agriculture industry, and contains many endangered and threatened species. The need to protect and restore the rapidly degrading Bay-Delta ecosystem continues to grow as human water use increases, placing more and more species at risk of permanent extinction.

B. Plot Line and Build-up – Problems For Endangered Fish, Rising conflicts, and Impetus for Change

The Bay-Delta is critically important to California, providing drinking water for two-thirds of Californians and fueling Central Valley agriculture, the most productive farmland in the world.³⁸ While the diversion of vast quantities of water from the Bay-Delta has been key to California's economy and rapid population growth, the development has not come without cost. As indicated by the number of endangered fish species, the ecosystem of the Bay-Delta is in rapid decline.³⁹

Increased water diversions are chief among the dangers for endangered fish species in the Delta. The species of special concern for Delta water management are the four races of Chinook salmon, steelhead trout, delta smelt, Sacramento splittail, and the green sturgeon.⁴⁰ Fisheries scientists specifically identify these fish species as the most adversely affected by water project impacts.⁴¹ Specifically, fish are entrained in the pumps and killed. According to John Beuttler of the California Sportfishing Protection Alliance:

The water project pumps in the Delta are like the worlds largest vacuum cleaner sucking billions of young fish and larvae in the southern Delta to their death The project pumps are so powerful that they frequently reverse the natural outflow patterns of the Sacramento and

³⁶ Notice of Determination: Endangered and Threatened Species: 90-Day Finding for a Petition to List North American Green Sturgeon as Threatened or Endangered under the Endangered Species Act, 66 Fed. Reg. at 64793 (Dec. 14, 2001).

³⁷ Endangered and Threatened Species: Threatened Status for Two Chinook Salmon Evolutionarily Significant Units (ESUs) in California, 64 Fed. Reg. at 50394 (Sept. 16, 1999).

³⁸ *ROD*, *supra* note 5, at 1-2.

³⁹ Sherwood, *supra* note 1.

⁴⁰ Brown, *supra* note 3, at 24.

⁴¹ *Id.* at 3.

San Joaquin Rivers, which results in chaos for the estuary's ecosystem and fisheries.⁴²

Delta pumping not only kills fish directly, it creates havoc in the ecosystem. The massive flow reversals within the Delta region and increased salinity levels in Delta waters create a challenging environment for adult spawning fish and for migrating juvenile fish.⁴³ For the four races of Chinook salmon, "water project operations can affect stream-flow, temperature, and sediment loading, all factors that affect salmon movement and survival."⁴⁴ The salmon are most in danger during spawning and out-migration periods.⁴⁵ Less is known about steelhead and split-tail species, but Delta management agencies believe that they are affected by pumping activities in ways similar to the Chinook salmon.⁴⁶

Unlike the anadromous species, the Delta Smelt remain in the Delta area all year long, making it more vulnerable to project operations. Delta smelt are negatively affected by degraded Delta hydrology.⁴⁷ Reduced ecosystem functioning due to pumping activities, including impeded flushing of the Delta waters and subsequent higher retention levels of pollutants, causes disruption to food availability and habitat for the Delta Smelt.⁴⁸

Other negative effects of the Delta pumps included exposure of endangered fish species to increase predation from other fish.⁴⁹ When juvenile fish become disoriented and stray from their natural paths due to current reversals caused by the pumps, other, larger fish prey on the exposed fish. Additionally, fish are continually lost in the salvage process, when fish managers collect fish that survived a trip through the pumps from canals in order to put them back into the Bay-Delta.⁵⁰

Even with the identification of adverse impacts on endangered Delta fish species, the pumping activities continue:

⁴² Sherwood, *supra* note 1 (quoting John Beuttler of the California Sportfishing Protection Alliance).

⁴³ Holly Doremus, *Water, Population Growth, and Endangered Species in the West*, 72 U. COLO. L. REV. 361, Spring 2001 [hereinafter Doremus].

⁴⁴ Brown, *supra* note 3, at 28.

⁴⁵ *Id.*

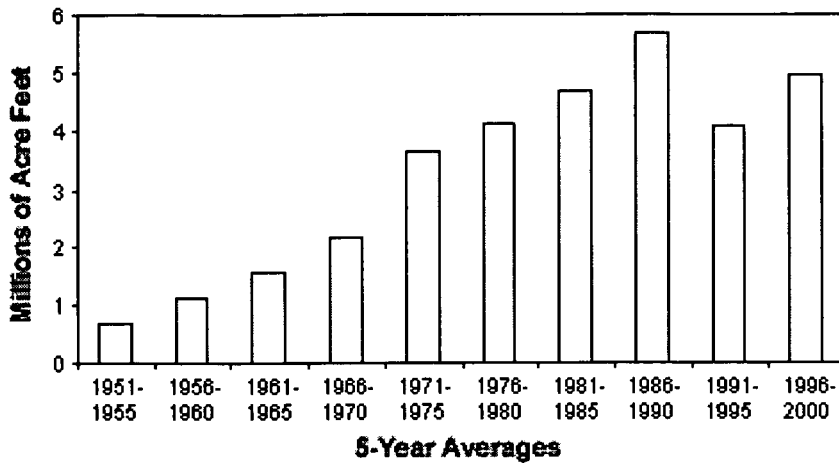
⁴⁶ *Id.* at 36-40.

⁴⁷ *Id.* at 38.

⁴⁸ AMERICAN OCEANS, *supra* note 18, at 233-234.

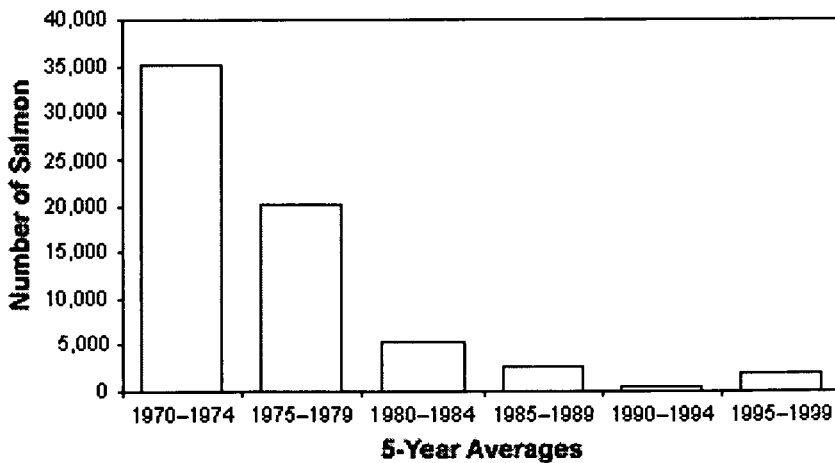
⁴⁹ McClurg, *supra* note 24.

⁵⁰ *Id.*



Source: California Interagency Ecological Program

As the above graph demonstrates, pumping from the Delta increased dramatically between 1950-1990. The largest increases are partly due to the development of the SWP in the mid-1960's resulting in increased farming opportunities in the Central Valley. The correlation between these diversion increases and the salmon population decreases indicated on the chart below highlight the connection between the pumps and the fish:



Source: California Department of Fish and Game

While many factors played into the decline of the salmon, the Bay-Delta pumps have played a major role in the decline of the Delta ecosystem and in causing the near extinction of many species of fish.⁵¹

With more fish in danger, water export deliveries by the CVP/SWP have become more unreliable. Laws protecting species listed under the Endangered Species Act caused pumping to stop at critical time for the fish, eliminating water project exporting for temporary periods at very short notice.⁵² “As other fish have been added to the endangered species list, the window for CVP and SWP export pumps has narrowed.”⁵³ As the window narrows more and more, water exports are curtailed causing extreme hardship to Central Valley farmers and others.

Adding to the curtailment of farm water deliveries, the Central Valley Project Improvement Act (CVPIA) dedicated 800,000 acre-feet of water annually to fish and wildlife restoration purposes.⁵⁴ The CVPIA represents the federal government’s efforts to stave off further environmental destruction. Unfortunately for agriculture interests, the 800,000 acre-feet of water must come from somewhere and often farmers are being asked to manage their crops with less reliable water allocations.⁵⁵

With the stress on the system increasing and the demand for exported water unrelenting, the stakes grow progressively higher.⁵⁶ “Efforts to protect endangered fish have led to restrictions on water project operations and increases in fresh water outflow; both actions have sparked controversy.”⁵⁷

Conflicting managerial mandates caused inefficiencies that have compounded the water shortage problems, adding to the Bay-Delta difficulties. During the 1980’s and early in the 1990’s, the Delta system was managed by a variety of laws, accords, and judicial decisions implemented by different state and federal agencies. Water quality standards issued by the State Water Resources Control Board (discussed in depth below), the aforementioned fish protection measures mandated by the United States Congress in the CVPIA and by the ESA regulated by the FWS and NMFS all contributed to the management framework sur-

⁵¹ AMERICAN OCEANS, *supra* note 18, at 233.

⁵² DEPARTMENT OF WATER RESOURCES, DIVISION OF PLANNING AND LOCAL ASSISTANCE, BULLETIN 160-93, THE CALIFORNIA WATER PLAN UPDATE (October 1994), available at <http://rubicon.water.ca.gov/exsum/esch1.html>.

⁵³ McClurg, *supra* note 24.

⁵⁴ U.S. BUREAU OF RECLAMATION, *CVPIA Homepage* (May 17, 2002), available at <http://www.mp.usbr.gov/cvpial/>.

⁵⁵ Central Valley Project Improvement Act, Pub. L. No. 102-575, 106 Stat. 4600, (1992). See also, *DOI CVP Homepage*, *supra* note 15.

⁵⁶ Doremus, *supra* note 43, at 375-376.

⁵⁷ McClurg, *supra* note 24.

rounding the survival and protection of fish populations in the Delta.⁵⁸ While some of these programs helped the ecosystem and fish, continual conflict over the interpretation and implementation of the various mandates caused repeated fish kills in excess of the water projects permits and years of Bay-Delta habitat degradation.⁵⁹

Among the most important controversies in the management of the Bay-Delta resource, water quality standards epitomize the difficulties presented by the lack of coordination among the multitude of state and federal actors and laws that contribute to the estuary's functioning in the later part of the century. Water quality in the Bay-Delta hinges on a variety of important factors, including salinity barriers. To stave off salinity barriers, water exports are decreased to allow fresh water to push out the salt water. In 1978, the State Water Resources Control Board issued a decision, D-1485, setting water salinity standards for Suisun Marsh, a brackish area of the Delta.⁶⁰ While this decision clearly defined restrictions on both the CVP and the SWP,⁶¹ the U.S. Bureau of Reclamation, charged with the operation of the CVP, refused to adhere to state mandated water quality standards.⁶²

After a period of negotiations, the State Water Resources Control Board finally sued the United States. The Bureau argued that federal preemption allowed the CVP to operate under its own standards, while the Board contended that all water contracts issued in California should conform to the water quality standards under state law.⁶³ In 1986, in a famous decision, the court held that the Board prevailed on the preemption issue, but at the same time, the court ordered the Board to reconsider project restrictions based on all water users in the system and not simply focusing exclusively on the SWP/CVP.

The State Water Resources Board then restudied and revised its standards over another period of years only to be told in 1993 by the EPA that its revisions did not adequately protect fish.⁶⁴ Finally in 1994, all of the parties sat down and formed an agreement, the Bay-Delta Accord, which was followed by the signing of the Bay-Delta Water Quality

⁵⁸ Joseph L. Sax, *The New Age of Environmentalism*, 41 WASHBURN L.J. 1, 3-4 (Fall 2001).

⁵⁹ Christina Swanson, *The First Annual State of the Environmental Water Account Report 4* (Sept. 2001), available at <http://www.bay.org/science/EWA01-4.pdf> [hereinafter Swanson].

⁶⁰ STATE WATER RESOURCES CONTROL BOARD D-1485 (on file at the State Water Resources Control Board) [hereinafter SWRCB D-1485]. See also, U.S. v. SWRCB, 182 Cal. App.3d 82, 107 (1986).

⁶¹ SWRCB D-1485.

⁶² U.S. v. SWRCB, 182 Cal. App. 3d 82 (Cal. App. 1986)

⁶³ *Id.*

⁶⁴ STATE WATER RESOURCES CONTROL BOARD PROPOSED RULE D-1630.

Control Plan a year later.⁶⁵ Even as agreements have been signed, resolution of the conflict over who is going to provide the water for salinity control persists as the CVP/SWP pressure water users north of the Delta to reduce their diversions instead of relying on reductions in project deliveries for all of the necessary water.⁶⁶

To resolve all of the controversies over managerial conflicts and the general water shortage, many changes needed to be made, both in project operations and in ideology. Changes to Delta water management ideology began to occur in the late 1980's and early 1990's. Between 1987 and 1992, California experienced its second worst drought in history.⁶⁷ All the interests that rely on Bay-Delta water suffered during this drought. As the projects reduced exports to farmers and municipalities, fish populations decreased alarmingly.

Many policy-makers, including then-Gov. Pete Wilson, argued that the dramatic developments in the Bay-Delta controversy necessitated an entirely new approach to the problem.⁶⁸ The federal government responded with the formation of a cooperative workgroup commonly called Club-FED, consisting of federal Bay-Delta agencies including the U.S. Bureau of Reclamation, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service and EPA.⁶⁹ The consolidation of management agencies provided a method to reduce conflicts and increase efficiency in Bay-Delta decision-making.⁷⁰

Club-FED eventually became the framework for a much broader state-federal cooperative management group. In June 1994, state and federal government officials formalized their cooperative efforts in signing a framework agreement.⁷¹ The officials agreed to coordinate CVP/SWP pumping actions to protect endangered species and to begin to create long-term solutions to problems in the Bay-Delta Estuary.⁷²

Soon after the signing of the Framework agreement, the state and federal lead agencies signed the more formal 1994 Bay-Delta Accord. Importantly, the various signatory agencies undertook a comprehensive effort to solve Bay-Delta conflicts and management problems. The program became known as CALFED.

⁶⁵ CALFED *Bay-Delta Program History*, available at <http://calfed.ca.gov/About-Calfed/ProgramHistory.shtml>.

⁶⁶ STATE WATER RESOURCES CONTROL BOARD, ORDER WR 2001-05, ORDER STAYING AND DISMISSING PHASE 8 OF THE BAY-DELTA WATER RIGHTS HEARING AND AMENDING REVISED DECISION 1641 (April 26, 2001).

⁶⁷ McClurg, *supra* note 24.

⁶⁸ *Id.*

⁶⁹ *Id.*

⁷⁰ *Id.*

⁷¹ CALFED *Bay-Delta Program Overview*, (Oct. 22, 1998), available at <http://calfed.ca.gov/general/overview/html> [hereinafter *Overview*].

⁷² *Id.*

C. *Denouement — CALFED – A Badly Needed Ecosystem Management Solution*

The mission of the CALFED Bay-Delta Program is to develop a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system.⁷³

In signing the CALFED Record of Decision (ROD) on August 28, 2000, the major players in California water management took a historic step towards a realistic, long-term, ecosystem-wide plan for balanced use of one of the most valued resources in the West — water.⁷⁴ CALFED is a collaborative coalition of over 20 federal and state agencies assembled to coordinate the management of California's complicated Bay-Delta watershed.⁷⁵

The CALFED program is designed to unify managerial mandates in order to reduce problems caused by overlapping, contradicting, and/or insufficient directives pertaining to the control of Bay-Delta waters and the protection of imperiled fish species. According to Professor Sax, in the “new era” of ecosystem management, watershed wide decision-making will give rise to efficient, lasting, and balanced solutions.⁷⁶ CALFED's central document, the ROD, lays out four expansive goals: 1) provide reliable water supply for agriculture and cities; 2) improve water quality; 3) control flooding; and most importantly for our purposes 4) restore the Sacramento-San Joaquin ecosystem, including the Bay-Delta, and the fish runs that live and breed there.⁷⁷ CALFED's broad goals reflect the optimism felt by many for this cooperative, system-wide effort towards resolution of California's water conflicts.

CALFED has taken on an enormous task with great expectations from all involved. In an attempt to live up to these high expectations, CALFED officials incorporated many management innovations into their plan. CALFED agencies have agreed to a flexible management approach incorporating “a high level of stake-holder participation,” the concept of scientific adaptive management, and a phased approach to the implementation of new policies and programs.⁷⁸ This commendable component of flexibility emphasized in CALFED ideology reflects a respect for the experimental nature of the massive endeavor CALFED has undertaken.

In addition, CALFED agencies have identified six solution principles to guide decision-making on an on-going basis. Solutions should be

⁷³ *ROD*, *supra* note 5, at 9.

⁷⁴ *See Sax*, *supra* note 58, at 3-4.

⁷⁵ *ROD*, *supra* note 5, at 1.

⁷⁶ *Sax*, *supra* note 58, at 4.

⁷⁷ *ROD*, *supra* note 5, at 2.

⁷⁸ *ROD*, *supra* note 5, at 3-5.

affordable, equitable, implementable, durable, able to reduce conflicts in the system, and they should cause no significant redirected impacts.⁷⁹ These solution principles will provide management agencies with guidance for decisions not yet faced or even understood.

CALFED is an invaluable contribution to ecosystem management for the 21st century. In unifying management of the Bay-Delta system, setting forth clear goals, requiring future flexibility, and structuring decision-making around solid solution principles, CALFED has given Californians a framework with which they may work towards a realistic, long-term resolution of the Bay-Delta water conflicts.

III. ENVIRONMENTAL WATER ACCOUNT

Among the most experimental components of CALFED, the Environmental Water Account ("EWA") was hailed as an innovative solution to the vexing problem of providing adequate water for the environment while not limiting water for agricultural purposes.⁸⁰ The EWA is a flexible tool that purchases, borrows, shifts, and strategically manages water throughout the watershed in order to provide healthy habitat for fish populations at critical times.⁸¹ The EWA's goal is to provide water for fish "without the need to reduce project deliveries."⁸² Despite the widespread optimism at its inception, after a year of EWA operations, a chorus of suggestions for improvements resounds.

The EWA is a key element of CALFED's water management plan.⁸³ It utilizes a block of water, approximately 380,000 acre-feet per year, to flexibly meet the needs of endangered species in the Bay-Delta.⁸⁴ Ideally the creative acquisition and use of EWA water will not reduce water deliveries to water contractors south of the Delta, the customers serviced by water from the pumps.⁸⁵ While the EWA involves much less total water than some other Delta watershed programs, such as the CVPIA's 800,000 acre-feet per year, the EWA's importance lies in its flexibility and its ability to make pumping curtailment decisions in real-time.⁸⁶ The EWA is meant to augment water availability to fish at critical times and fine-tune the balanced management of the Delta ecosystem and the

⁷⁹ SUMMARY, *supra* note 22, at 6.

⁸⁰ Barton H. Thompson, *Markets for Nature*, 25 WM. & MARY ENVTL. L. & POL'Y REV. 261, 314 (Winter 2000).

⁸¹ SUMMARY, *supra* note 22, at 14.

⁸² *Id.*

⁸³ Brown, *supra* note 3, at 3.

⁸⁴ ROD, *supra* note 5, at 58. See also Cynthia Koehler, *Putting It Back Together: Making Ecosystem Restoration Work* 64 (June 2001), available at <http://www.savesfbay.org/putting.html> [hereinafter Koehler].

⁸⁵ ROD, *supra* note 5, at 54-55

⁸⁶ SUMMARY, *supra* note 22, at 14. Koehler, *supra* note 84, at 64.

SWP/CVP pumps.⁸⁷ If achieved, a functional EWA program may bridge the gap between on-going water reclamation activities and the restoration of fisheries in the Delta.

The EWA operates in a tiered system. The first tier described in the EWA system consists of baseline water and no EWA water is used.⁸⁸ The water flowing through the system designated as the baseline includes unallocated water, CVPIA water, and water needed to fulfill the terms of the Water Quality Control Plan and ESA fish protection measures.⁸⁹ The second tier of water is mainly EWA water.⁹⁰ The EWA water is meant to fulfill the needs of imperiled fish when the baseline water becomes temporarily inadequate. Third tier water remains somewhat enigmatic. CALFED has committed to providing additional water if tier 1 and tier 2 water are inadequate for fishery protection and restoration purposes.⁹¹ CALFED has generally failed to state where this water will come from.⁹² Most assume that the water will be purchased at market rates.⁹³

EWA water is used to protect fish in the Delta in a variety of ways. Most importantly, EWA managers can ask for pumping reductions at critical times for Delta fish.⁹⁴ While exports at the pumps are curtailed, stored EWA water replaces supplies the contractors would otherwise have lost.⁹⁵ The contractors receive their “no net loss” guarantees in this way. By reducing pumping activities, fewer fish are killed in the pumps themselves, fewer fish are threatened and eaten by predator fish in the forebay and surrounding waters, and fewer fish are lost in the salvage process.⁹⁶

⁸⁷ SUMMARY, *supra* note 22, at 14.

⁸⁸ ROD, *supra* note 5, at 57.

⁸⁹ ROD, *supra* note 5, at 57.

⁹⁰ Also included in Tier 2 is water from the Ecosystem Restoration Program (ERP). The ERP is a separate CALFED program with similar goals, though less focused on problems directly in the Bay-Delta region. “Through the EWP, the CALFED agencies will: improve salmon spawning and juvenile survival in upstream tributaries . . . by purchasing up to 100,000 acre feet of water per year.” CALFED *Environmental Water Program*, available at <http://www.calfedewp.org/about.html>.

⁹¹ ROD, *supra* note 5, at 57.

⁹² Consider the language in the ROD that states: “Tier 3 is based upon the commitment and ability of CALFED Agencies to make additional water available should it be needed. It is unlikely that assets beyond those in Tier 1 and Tier 2 will be needed to meet ESA requirements.” ROD, *supra* note 5, at 58. The assets for Tier 3 water are not identified and therefore the promise of tier 3 water availability is left without water to fulfill it.

⁹³ Brown, *supra* note 3, at 3.

⁹⁴ CALFED *Bay Delta Program's Environmental Water Account Facts and Background*, available at <http://www.calfed.water.ca.gov/programs/ewa/FactSheet.html> [hereafter *Fact sheet*].

⁹⁵ *Id.*

⁹⁶ McClurg, *supra* note 24.

EWA water can also be used to increase flows in certain streams during critical times for anadromous fish by augmenting releases from up-stream dam facilities. The water can help to provide adequate conditions in tributaries for successful spawning and egg incubation.⁹⁷ EWA water can also facilitate the outflow of juvenile salmon by maintaining natural Delta flow and current patterns. Much of these needs are theoretically met by tier 1 baseline conditions, including CVPIA water, but the EWA is designed to add to these flows when and where needed.

Finally, EWA water can be used to affect Delta flow patterns with the goal of minimizing misdirection of fish as they navigate the Delta.⁹⁸ Because the pumps can alter net flow patterns in the Delta, fish can literally get sucked towards the pumps. EWA, in concert with tier 1 water, can help to reduce these ecologically adverse occurrences.

The EWA acquires its water assets in a variety of ways. First and foremost, EWA water comes from direct purchase agreements with willing buyers.⁹⁹ CALFED projected that the EWA will need to purchase approximately 185,000 of the 380,000 acre-feet of water every year.¹⁰⁰ Second, the EWA will acquire "variable assets" by using various managerial strategies, including increased SWP/CVP pumping activities during ecologically non-critical times in order to store water for future use.¹⁰¹ This second method can involve the temporary relaxation of water quality standards within the Delta.¹⁰² Third, the EWA can borrow water using stored EWA water as collateral.¹⁰³ Some of the debts may be forgiven during especially wet years.¹⁰⁴

In addition, CALFED agencies specifically intended to endow the EWA account with a one-time allocation of 200,000 acre-feet of water before the first year of operations.¹⁰⁵ This water is meant to provide EWA managers a backdrop source of water for repaying water loans accrued during the water year and for other EWA activities, including emergency allocations.¹⁰⁶ This water was not signed over to the EWA before the first year of operations.¹⁰⁷

Management and operational responsibility of the EWA is shared by state and federal agencies. Fishery agencies (U.S. Fish and Wildlife Service, National Marine Fisheries Service, and California Department of

⁹⁷ Swanson, *supra* note 59, at 16.

⁹⁸ *Id.* at 17.

⁹⁹ *ROD*, *supra* note 5, at 58.

¹⁰⁰ *Id.*

¹⁰¹ *ROD*, *supra* note 5, at 57-58.

¹⁰² Brown, *supra* note 3, at 2.

¹⁰³ *Fact sheet*, *supra* note 94. *See also*, Swanson, *supra* note 59, at 8.

¹⁰⁴ Swanson, *supra* note 59, at 13.

¹⁰⁵ *ROD*, *supra* note 5, at 57.

¹⁰⁶ *Id.*

¹⁰⁷ Swanson, *supra* note 59, at 20.

Fish and Game), along with the stakeholder groups and the CALFED Operations Group, will be directly involved in the allocation of assets.¹⁰⁸ Acquisition of assets is the responsibility of the Bureau of Reclamation and the Department of Water Resources.¹⁰⁹

Funding for the EWA comes from federal and state governments.¹¹⁰ During the first seven years, CALFED plans to invest \$200 million to set up the EWA.¹¹¹ In addition, CALFED officials say the program needs at least \$90 million annually to successfully acquire needed water assets.¹¹² Money can be used to fund water purchases, to cover wheeling and power costs and to provide for fish studies and other incidentals.¹¹³ In 2001, the EWA had \$59 million at its disposal.¹¹⁴

When the full allocation of water is made available to the EWA at the beginning of any given water year, then guarantees are issued to the water projects and their customers.¹¹⁵ These guarantees state that environmental water needs will not reduce water deliveries to South Delta contractors.¹¹⁶ EWA managers are then required to use the EWA water assets to best protect all of the endangered species in the Delta for the whole year. The projects are to work with the EWA managers to facilitate the expenditure of EWA water accurately.¹¹⁷ The project managers however are freed of constraints on pumping activities if fish kills at the pumps spike and EWA water is unavailable.¹¹⁸ The EWA is meant to cover the endangered fisheries' needs. It is also meant to guarantee consistent deliveries to water contractors without surprise interruptions for fish preservation purposes.

IV. EWA PROBLEMS IN THE FIRST YEAR

In its first year of implementation, water year 2001, the EWA failed to live up to its high expectations of balanced protections. In fact, the guarantees issued to project contractors in reliance on EWA water allowed, even dictated, a record loss of winter-run salmon at the pumps. The water users received their water reliability, but the ecosystem suffered.

¹⁰⁸ *ROD*, *supra* note 5, at 55.

¹⁰⁹ *Id.*

¹¹⁰ *Id.*

¹¹¹ McClurg, *supra* note 24.

¹¹² CALFED EWA FINANCE PLAN (December, 12, 2000), available at http://calfed.ca.gov/adobe_pdf/rod/EWA_Finance_Plan.pdf.

¹¹³ Swanson, *supra* note 59, at 29.

¹¹⁴ *Id.* at 15

¹¹⁵ *ROD*, *supra* note 5, at 57.

¹¹⁶ *Id.*

¹¹⁷ *Fact sheet*, *supra* note 94.

¹¹⁸ *ROD*, *supra* note 5, at 57.

According to the U.S. Bureau of Reclamation, more than 20,000 winter-run salmon were lost in 2001¹¹⁹ – 170% of what would have been allowed without the EWA guarantees.¹²⁰ This unfortunate outcome resulted from a variety of factors.

Many critics point to technical deficiencies in EWA management as the main reason for its inaugural year's insufficiencies.¹²¹ Fish science is still highly imperfect. The record take exceedances of winter-run salmon provide the best example. Insufficient monitoring, modeling, predictions, and analysis all led to an underestimate of migrating juvenile fish populations. This underestimate caused premature use of EWA water resources marked for juvenile salmon protection.¹²² The majority of EWA winter-run salmon water was spent on protecting the first group of young fish to arrive in the Delta. When juvenile fish continued to enter the Delta in increased numbers and they began to accumulate around the pump areas, the surprised EWA managers had already used up all of the water earmarked for salmon.¹²³

Not being a hydro-technician or an ecologist, I cannot suggest meaningful ways to improve the science behind the decisions made by EWA managers. Instead I wish to address CALFED's underlying policy decisions in creating weak water allocation tools and suggest a means of making the EWA a solid piece of the Bay-Delta puzzle.

While the general principles underlying the program are admirable, the asset accumulation tools the EWA has to work with are insufficient.¹²⁴ While the science component may not be easily fixed, EWA managers should have enough water to cover errors when they occur. Looking again at the 2001 winter-run salmon experience, lack of sufficient water resources forced EWA managers into an unenviable corner. When the majority of the salmon finally arrived in the Delta, pumping curtailments could not be sustained because EWA account-managers agreed that

¹¹⁹ UNITED STATES BUREAU OF RECLAMATION CENTRAL VALLEY OPERATIONS OFFICE FISH REPORT (September 2001), *cited in* Letter from Michael R. Sherwood, Staff Attorney, & Susan Britton, Attorney, to Donald Evans, Secretary of Commerce, et al., Notice of Violation of the Endangered Species Act and of Intent to Sue for Exceedance of Incidental Take Limits for Sacramento River Winter-Run Chinook Salmon and Delta Smelt, and Other Violations 4 (January 10, 2002) *available at* <http://www.earthjustice.org/news/documents/DeltaPumps60-day.pdf> [hereinafter Sherwood].

¹²⁰ Sherwood, *supra* note 119.

¹²¹ See Swanson, *supra* note 59, at 26-27.

¹²² *Fact sheet*, *supra* note 94.

¹²³ *Id.*

¹²⁴ Noting that the EWA has only been functioning for one year, I realize that I may be premature with my criticisms. When the EWA comes up for a full re-evaluation in four years, however, it will be useful to have a range of alternatives fleshed out and ready for contemplation side-by-side with the relative successes and failures of the EWA in its infancy. It is for this purpose that I present my ideas.

some water had to be preserved for other actions for other fish later in the year.¹²⁵ Tier 1 baseline water could not adequately protect the fish. Tier 2 EWA water became quickly inadequate as well because the water was all used up on the first fish to enter the Delta. According to CALFED, tier 3 water should have been acquired and used.¹²⁶ CALFED agencies instead determined that tier 3 water could not be purchased at premium rates because the EWA still had some water in its accounts (this water was specifically reserved for other fish for actions later in the year).¹²⁷ From the managers' perspective, however, EWA water for winter-run salmon had been used to its fullest extent. Pumping ramped up to usual levels and the fish kill continued.¹²⁸ To avoid these types of situations in the future, EWA managers need ready access to a continuous source of water assets.

V. EWA AS A CONTRACT RIGHT HOLDER IN THE CENTRAL VALLEY PROJECT AND THE STATE WATER PROJECT

The EWA must become a solid and growing account of water rights rather than a revolving door of tentative and uncertain water allocations and purchases. By utilizing California law and by encouraging participation from all stakeholders, CALFED agencies charged with EWA management can accumulate adequate and appropriate rights that will provide a constant reserve of water for effective fishery conservation. In shifting some rights from agricultural to environmental purposes, a sustainable balance of use will emerge, creating the means to issue real, long-term guarantees to farmers.¹²⁹

The stated purpose of the EWA is two-fold: to provide water for fish restoration so as to increase water reliability to Central Valley water users. To accomplish the first fish restoration prong, the EWA program needs to gradually accumulate water contract rights for Bay-Delta fish. Building a consistent reserve of water within the CVP/SWP will give EWA managers the ability to face critical situations with readily available resources. With this water at their disposal, these managers will be able to curtail pumping when necessary and avoid negative impacts on

¹²⁵ Swanson, *supra* note 59, at 27-29.

¹²⁶ *ROD*, *supra* note 5, at 58.

¹²⁷ Swanson, *supra* note 59, at 30.

¹²⁸ *Id.*

¹²⁹ As outlined by CALFED's six solution principles mentioned above — affordability, equity, implementability, durability, reduction of conflicts in the system, and no significant redirected impacts — CALFED agencies must use a cooperative, pragmatic, and fair problem-solving approach in coming up with new programs. *ROD*, *supra* note 5, at 3. With this approach clearly in mind, we turn towards a rethinking of the EWA as an account that ensures a future that is beneficial for the Delta ecosystem and all the fish that live within, while shoring up long-term reliability interests for project contractors in the Central Valley.

ecosystem health and/or fish populations of the type we saw in water year 2001.

To achieve truly long-term water reliability for the Central Valley, a realistic balance of uses must take shape. Current lawsuits show the fragility of the CALFED accord and cooperative coalition.¹³⁰ If farmers really want to count on continual deliveries for generations to come, they must be willing to be a part of the solution to fish protection in the Delta. If CALFED falls into disarray, then the farmers "guarantees" will guarantee them nothing but more lawsuits and a return to years of the sporadic reductions in water deliveries to the Central Valley.

The CALFED ROD did not go far enough in providing water for EWA operations. A flat guarantee of no reductions to Central Valley interests is unrealistic and will eventually lead to another irresolvable conflict of allocations.

Many of the problems in the first year of EWA implementation stem from unreliable water assets. If water assets had been secure, then EWA managers would have been able to aggressively curtail pumping when endangered fish persisted near the pumps. With a build-up of rights in the CVP/SWP, EWA managers would have a stable "income" of water every year. With a reliable source of water, the EWA program will be able to more effectively protect Delta fish. By ensuring the continual protection of Delta fish, EWA contract rights would eventually provide Central Valley water users with real guarantees of reliable water in the form of healthy Delta fish populations.

The EWA water rights would be in the SWP/CVP system, only the water would be EWA water. Instead of not pumping the water previously used to satisfy Central Valley needs, the water would still be pumped, transported and stored. The water from the EWA contract right would be used as designated by EWA managers to compensate for pumping curtailments during critical times for fish in Delta. Under an EWA water rights system, mistaken management or science decisions will not cause record fish-kills. Instead these types of mistakes would only cause reductions in overall EWA water resources.

As the EWA stands now, the tools designed to endow the program with enough water for the year will not always yield expected amounts.¹³¹ Fish restoration managers will face difficult decisions in light of shortfalls, decisions of the type the EWA was initially designed to avoid. The EWA should not take the form of a regulatory bank account with varying deposits in and withdraws out. This system of funding the EWA is too tenuous; it relies too greatly on government's continued funding and on the natural conditions of the watershed during each particular

¹³⁰ See Sherwood, *supra* note 119.

¹³¹ ROD, *supra* note 5, at 58 n4.

year. If these two sources of EWA water income fail, both the farmer's guarantees of reliable water and the ecosystem restoration objectives will suffer immeasurably.

The EWA, despite its flaws, is generally a valuable program for CALFED's restoration goals and purposes. By re-scoping the EWA, it can become a powerful program that benefits both farmers and fish in the long term.

A. *Opposition, Legal Distinctions, and Section §1707*

The idea of environmental water rights for fish protection purposes will meet a deluge of strident opposition. A major stumbling block in the way of establishing environmental water rights has been California's reluctance to recognize in-stream water rights, rights that reserve water for fish and simply leave the water to take its natural path. In-stream rights for fish are not fully recognized by California water law.

Case law shows that the appropriative system of water rights requires users to divert the water from its place of natural occurrence in order to perfect his/her right.¹³² In a 1979 case, the California Court of Appeals made it clear that in-stream water rights are statutorily invalid.¹³³ The Court held, "that every application for a permit to appropriate water shall set forth, inter alia, the location of and description of the proposed headworks, ditch, canal, and other works, the proposed place of diversion, and the time within which it is proposed to begin and to complete construction."¹³⁴ The *Caltrout* decision stymied environmental groups' efforts to expand protectable flow levels in sensitive streams and rivers.

Caltrout was decided before the designation of many of California fish species as endangered or threatened. New attitudes towards water management include a higher priority for fish and the environment.¹³⁵ A carte blanche for in-stream rights for environmental uses in California, however, is still impossible. Because the establishment of in-stream, environmental rights would require no significant investment from environmental groups, all remaining unappropriated water in California could be claimed for fish, arresting growth and dramatically affecting the water market.¹³⁶

¹³² This diversion is in fact the very reason for the adoption of appropriative system in California, as miners high in the Sierra began to need water farther and farther away from streams and rivers.

¹³³ *California Trout, Inc. v. SWRCB*, 153 Cal. Rptr. 672 (Ct. App. 1979).

¹³⁴ *Id.* at 820.

¹³⁵ See *ROD*, *supra* note 5, at 2.

¹³⁶ Gregory A. Thomas, *Conserving Aquatic Biodiversity: A Critical Comparison of Legal Tools for Augmenting Streamflows in California*, 15 STAN. ENVTL L.J. 3, 21 (Jan. 1996).

Although arguments based on the *Caltrout* decision could be used to argue against EWA environmental water rights, there are three important distinctions between the *Caltrout* types of rights and the EWA rights proposed here.

First, the overall CALFED backdrop to the EWA's establishment of contract rights allows CALFED agencies to operate with wide latitude. Indeed the whole idea behind the organization of CALFED was to get away from statute and precedent driven decision-making. CALFED stands for the principle that the resolution of California's water problems lies in conflict resolution through negotiations and creative re-thinking of water management. Within this initiative lies a great amount of leeway for solutions that will benefit all parties.

Second, EWA water rights in the CVP/SWP avoid *Caltrout*-type problems because they are not in-stream rights per se. EWA rights would be contract rights, bought, paid for, and maintained by EWA agencies. These contract rights require investment and continual payments for deliveries, thus eliminating the concerns that environmentalists could freely claim all remaining water in California.

Third, California law has changed since the *Caltrout* decision. Most importantly, California enacted Water Code §1707. Section 1707 allows water rights owners to dedicate portions of their water to environmental uses.¹³⁷ The §1707-dedicated waters are then protected in their natural course and function to benefit ecosystems and fish. The §1707 concept and law could provide the legal avenue for CALFED to acquire contract rights for the EWA program.

The principle behind §1707 is to encourage environmental stewardship and conservation by farmers. Instead of facing a future of completely losing their rights to the water in the case of a major environmental catastrophe or completely losing their right to farm portions of their land as with current land retirement programs, §1707 asks farmers to participate in proactive solutions by dedicating part of their water to environmental uses. When the legislature passed §1707, many did not realize the potential results of this statute. §1707 creates the ability to transform existing water rights to in-stream environmental rights, an impossible task prior to the passage of §1707.

By encouraging §1707 dedications from CVP/SWP users specifically for use in its account, the EWA could begin to carve out a portion of reliable water for fish protection. EWA would need to accumulate its rights in a gradual, non-assertive manner to avoid massive opposition and a breakdown of cooperation between fish managers and water users. EWA would be able to encourage dedications to its fund in two ways: 1)

¹³⁷ CAL. WATER CODE § 1707.

subsidize efficiency equipment for farmers; 2) promote awareness and ownership of environmental solutions among farm communities coupled with annual water rights drives.

Although opposition is inevitable, the background principles of the CALFED program combined with the untested nature of environmental contract water rights, and §1707 will allow the EWA to achieve the acquisition of rights within the CVP/SWP systems.

B. Efficiency Measures

By funding water use efficiency measures in the urban, agricultural and project context, CALFED hopes to reduce demands on California water. As described in the CALFED ROD, “a water use efficiency program of this magnitude is aggressive and unprecedented nationally.”¹³⁸ By selectively linking parts of the water use efficiency program with the EWA through §1707 dedications, CALFED will be able to provide consistent resources for the EWA. This would ensure water for the fish in the Bay-Delta and solidify farmer’s water rights in the Central Valley.

Ideally, CALFED would set aside a portion of the \$1.5-2 billion¹³⁹ in the water use efficiency budget for EWA incentive programs. Using money from the efficiency program, Central Valley farmers would implement efficiency measures such as lining irrigation ditches or installing drip irrigation. The farmers then would actively dedicate the water saved to the EWA account.

While the EWA is building up solid reserves of wet water,¹⁴⁰ the farmers also gain. Not only do the farmers receive water conservation equipment at highly subsidized rates or for free, but the Central Valley as a whole will begin to ensure the delivery guarantees it so highly cherishes. By providing water rights to the EWA through cooperative efforts, the farmers will be helping to make CALFED and the EWA long-term successes. Achieving a workable balance of uses must be a primary goal in Bay-Delta management. This balance will create a lasting and stable program of water allocation.

In addition to these benefits, the Central Valley farmers who participate in this program should be recognized for their contributions to the overall health of the state. The Governor will deem these farms “water conservation farms.” This status may be used to market products, encourage visitors, or simply give the farmers ownership of the efforts made to help resolve the conflicts over water in California.

¹³⁸ *ROD*, *supra* note 5, at 64.

¹³⁹ *ROD*, *supra* note 5, at 63.

¹⁴⁰ Wet water is actual, tangible water existing in the system as opposed to water entitlements that simply exists on paper.

EWA water existing in the CVP/SWP system on an annual basis based on rights established through cooperative efficiency improvements will help to provide the EWA managers with the resources to sustain a successful fish protection/restoration program while at the same time securing long-term assurances to the Central Valley farmers.

C. Promoting Awareness and Ownership of Environmental Solutions Among Farm Communities and Annual Water Rights Drives

The need for collaboration among all interested parties invested in the Bay-Delta watershed has led to high-level cooperation among all of the agencies involved in CALFED. While this is seen as a positive step in the right direction, the mandate of cooperative solutions must be taken to a more powerful level. It must incorporate all of the people who have a stake in the final outcome of the Bay-Delta situation. Instead of instituting all of the changes to the Bay-Delta in a top-down method, CALFED must give farmers the ability to contribute to the solution in significant and lasting ways.

By creating awareness in the Central Valley of the environmental problems facing California's water systems, CALFED may spur the interests of those whose rights are at stake and motivate them to create solutions. With access to community-based solution plans, such as the EWA accumulation of environmental water rights, farmers within the Central Valley may respond with strong contributions to the overall resolution. Ownership over the development of solutions has long been a core principle in creating sustainable changes. Here, farmers must have the means to become part of the solution to the Bay-Delta ecosystem restoration, instead of constantly being regarded as a main cause of the problem.

An annual water rights drive would serve to tie the community-based solutions together. Water rights donated during the drives would be converted to EWA rights to be used accordingly. Throughout the Central Valley, irrigation districts would compete on a per capita basis for the highest level of rights donated. The winning district would gain recognition for being an environmentally friendly community and for being among the communities that are committed to a lasting solution to the water problems.

By turning towards Central Valley farming interests for solution tactics and initiative, CALFED agencies will empower local communities with the knowledge that they are contributing to a resolution. As these communities tighten up their water budgets, they will in turn begin to reap the benefits of real guarantees – long-term guarantees that will only come when a workable balance of water uses comes to fruition.

VI. CONCLUSION

The EWA will not become a viable, lasting CALFED program until it is sufficiently funded with its own source of guaranteed water. The tentative nature of the EWA as it stands now neither guarantees water reliability to the Central Valley nor fish survival/recovery. By building up water rights in the EWA account, CALFED will be able to fulfill its commitments. By locking in these CVP/SWP contract rights, CALFED will help Central Valley farmers attain long-term water reliability by striking a reasonable and sustainable balance of uses and water allocations. This balance of use will also enhance fish recovery efforts by providing the Bay-Delta ecological system with readily available water to address sensitive fish species needs. The EWA as it stands now represents an inventive approach to a difficult problem. The final fish restoration solution will require adaptations to the original plan, cooperation from all of the stakeholders, and a continued commitment to proactive and lasting program within the CALFED structure. If we succeed in reaching a semblance of harmony, then all participants, including both the fish and the farmers, will win.

