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# Fixing the Delta: How Will We Pay for It?

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# Summary

The Sacramento–San Joaquin Delta is the hub of California's largest water supply systems—and also of its most visible current controversy over water. Water from rivers in the upper Central Valley and much of the Sierra Nevada mountains flows through the Delta. Some is pumped into the intakes to the State Water Project and the federal Central Valley Project, which transport the water by canal to Valley farmers and to urban users in Southern California, as well as to a number of San Francisco Bay area communities. The Delta is also a critical resource for several fish species, some of which spend their lives in and around the Delta, while others pass through in their travels between the ocean and their spawning areas upstream. Populations of some of these species have declined rapidly in recent years and have been identified as threatened or endangered under federal and state Endangered Species Acts. Courts and regulatory agencies have imposed dramatic restrictions on water-project pumping in an effort to protect these species. The Delta environment faces other threats as well, from rising sea levels expected as a consequence of global warming to a major earthquake, considered highly likely at any moment, and from the fragility of its 1,100 miles of levees.

CALFED (a consortium of state and federal agencies and others interested in preserving the Delta) and, more recently, a Blue Ribbon Task Force appointed by Governor Schwarzenegger have studied the problems facing the Delta and have recommended a number of responses. They include new governance arrangements for the Delta, levee repair, habitat restoration and other environmental improvements, a peripheral canal, and the construction of new reservoirs.

Collectively or individually, these responses involve a tremendous amount of money, and designing arrangements for their financing will be a critical element in planning and implementing activities to improve conditions in the Delta. A number of options are possible, at least in concept. At one time, it appeared that the federal government would contribute a significant portion of the funding for Delta projects. That was an attractive solution, since it would have minimized the political wrangling and financial stress imposed on California. But the federal government is now focusing its fiscal attention on corporate bail-outs and economic stimulus plans, although hopefully, it may yet play a role in the Delta. The state could agree to fund the work, either out of its General Fund or by authorizing new general obligation bonds. But California, too, has fallen on hard times; and it seems unlikely that it will have, at any time in the near future, a ready supply of general fund money to invest in new ventures. General obligation bonds remain a possibility.

Beneficiary financing, or paying for the construction or operation of a project related to improvements in the Delta by charging those who benefit from the project, has been proposed for many years. CALFED recommended beneficiary financing in 2000, and the governor and the legislature have supported the idea as well. Most of the large state and local water developments in California have been financed by their beneficiaries (i.e., those who use the water), including Los Angeles' Owens Valley project, San Francisco's Hetch Hetchy system, East Bay Municipal Utility District's Mokelumne River system, and, to a major extent, the State Water Project. Only those projects built by the federal Bureau of Reclamation and the Corps of Engineers have enjoyed significant taxpayer subsidy.

Beneficiary payments are thought to have certain virtues. For example, if they compel water users to pay something like the true cost of providing water, customers will use the water more carefully. Beneficiary payments also have a kind of innate fairness, since only those who use the water pay for the water, and others do not have to chip in. And projects financed with beneficiary payments leave money in the state's general fund for other worthy projects where self-financing is not practical.

Designing a beneficiary payment system to fund work in the Delta requires finding solutions to a few complications. First, the payments have to satisfy the state's constitutional requirements. Raising state taxes of any kind requires approval by two-thirds of the legislature. However, the state Supreme Court has ruled that the state can implement regulatory fees and benefit assessments, which do not require a two-thirds vote. Regulatory fees can be levied to support a legitimate state regulatory program (presumably a regulatory program to manage fish populations, ecological well-being, and water deliveries from the Delta) and can use the funds to pay for the administrative costs of the regulatory program and for correcting any harm caused by the activities being regulated. However, we have only a few court decisions dealing with the nature and latitude of state fees, and an important case about water fees is now being considered by the state's Supreme Court.

A second complication has to do with the nature of benefits. Although there is broad agreement about the virtues of beneficiary financing, there is great disagreement about the extent of benefits entering into the equation. Water providers tend toward the view that they should pay for the water they receive, period. Environmentalists prefer the view that water providers should also pay to restore fish populations harmed by water deliveries. This difference of opinion has largely stalemated discussions about benefit financing for at least a decade.

Perhaps this disagreement is irresolvable. But several conditions have changed recently that may allow resolution. One is that the courts and regulatory agencies have imposed fish mitigation requirements on the state and federal water projects that would have been unimaginable a few years ago. These requirements can be understood as fees (payable in water) for precisely the kind of mitigation that water providers thought they should not have to finance. There is at least a possibility that these requirements will become more severe if fish populations continue to decline. Another changing condition is that alternative sources of money, such as the state and federal government, are in much worse financial shape than they were a few years ago. As a result, beneficiary financing may now be the most practical option for funding a substantial portion of the Delta work. And finally, there is a new sense of urgency to undertake major work in the Delta and its water delivery systems, fueled by years of drought, a new awareness of the risks of rising sea levels and a major earthquake in or near the Delta, deteriorating levees, and rapid ecological deterioration in the estuary, including a sharp decline in the populations of several species of fish. Some taxpayer support to Delta investments may also be warranted. The initial implementation of the Clean Water Act, which subsidized significant new investments in wastewater treatment in the 1970s and 1980s, may serve as a useful model for garnering political support for a new environmental policy.

# Introduction

The Sacramento–San Joaquin Delta is a major hub of water supply for the Bay Area, urban Southern California, and the farmland in the San Joaquin Valley. Both state and federal projects pump water into their aqueduct systems from the Southern Delta. San Francisco and other urban and agricultural users also divert water from rivers that would otherwise flow into the Delta. The Delta is also a unique and threatened estuary. In addition to supporting native fish that have adapted to its varying mix of fresh and saline water, it serves as a passageway for salmon, trout, and other species that spend some of their time in the ocean but that pass through the Delta to spawn, and for their offspring travelling back to the sea. The Delta has experienced dramatic declines in the populations of several fish species listed under the federal and state Endangered Species Acts. Water supplies are threatened by efforts to save these fish and by other problems as well, including earthquakes, rising sea level, and the fragility of the Delta's 1,100 miles of levees. Levee fragility also threatens the viability of farming on the Delta's islands, many of which lie well below sea level. As state policymakers and a range of stakeholders seek solutions to the Delta's many problems, a key question is how to design mechanisms to pay for what are likely to be unavoidably costly programs.

There is widespread rhetorical agreement that some significant share of the cost of fixing the Delta's many problems should come from those who benefit from the Delta or from its water. There are many reasons for this. One is tradition. Most sizeable water development in California has been funded through beneficiary payments. Beneficiary payments are thought to be economically efficient because they present price signals to water users that should encourage them to use water in ways that reflect its actual costs. To the extent that payments are in proportion to environmental harm done by a project, these payments create an incentive for water users to reduce environmental damage. Beneficiary payments also have a quality of fairness about them, because those individuals or entities that do not use a project's water do not pay for the construction or operation of the project.[1] The following represent several examples of support for a beneficiary payment approach:

- CALFED, organized in 1994, is a coalition of state, federal, and local agencies, and also water-user and environmental groups, seeking to work out ways to reduce the Delta's environmental problems while also continuing its water supply functions. The organization's Record of Decision noted that "A fundamental philosophy of the CALFED Program is that costs should, to the extent possible, be paid by the beneficiaries of the program actions."[2]

- The California Legislature's Supplemental Report to the 2002–03 Budget Act directed CALFED to provide the legislature by February 1, 2003, with: (1) a proposal to generate $35 million annually in user fees to support ecosystem restoration; (2) cost

[1] Although the State Water Project was an undertaking of state government, it delivers water to only part of the state, primarily several San Francisco Bay area communities, some southern Central Valley farming areas, and much of urban Southern California. The project does not serve San Francisco proper, the East Bay, Sacramento, Northern California, or most communities in the Central Valley. The contracting agencies reimburse the state for project costs.
[2] CALFED Bay-Delta Program, 2000.

allocation principles and a draft financing plan for each potential surface storage facility, consistent with CALFED's "beneficiary pays" requirement; and (3) an identification of likely beneficiaries of each potential surface storage facility.[3]

- The governor's May Revision to the 2005-06 budget called for CALFED to develop a ten-year action plan that, among other things, "links future water user payments to specific program actions that improve water supply reliability" and that includes a financing plan that discusses "funding from the state, federal, and local levels consistent with the beneficiaries-pay principle" and "payments from water users to the Ecosystem Restoration Program and other programs in proportion to the direct benefits derived." More immediately, the May Revision sought a "credible budget" for CALFED activities for the coming year, noting that "This budget must reflect contributions from water users. The May Revision requests an increase of up to $30 million in reimbursement authority in the budget for the Department of Fish and Game to accommodate user contributions which may be necessary to further the recovery of at-risk native fish."[4]

Not much resulted from all of this exhortation. Although there are many reasons for the current impasse, the most important is that "beneficiary pays" means nearly opposite things to various participants in the debate over water financing, and the seeming unanimity of intention is largely an illusion. To exaggerate the difference a little, water providers generally think "benefit" is associated with new water supplies for their use, or at least increased reliability or improved quality of the existing supplies they receive. Many environmentalists, and others with a broader sense of "benefit," implicitly define benefit as including the water-supply type of benefit recognized by water providers, but also including payment for the perceived obligation of water providers to mitigate any environmental harm their water acquisitions may have caused, even beyond current legally recognized requirements. In truth, sophisticated participants from each of these groups recognize more nuance in these positions: water providers recognize that they have some obligation to mitigate environmental harm, particularly where mitigation is already legally required, and environmental critics recognize that there are some practical limits on how much mitigation they can expect water providers to fund.

This stalemated debate, nurtured by CALFED with state and federal funding for some years, has been seemingly shattered by recent federal court decisions and the new Biological Opinion from the U.S. Fish and Wildlife Service concerning the delta smelt, the native species in most serious decline in recent years, closely followed by similar decisions concerning endangered salmon runs.[5] Together, these decisions place a large mitigation responsibility squarely on the State Water Project and the federal Central Valley Project, mandating that the projects pump less water through the Delta during certain periods. In the context of the long-running beneficiary payment debate, the courts and the Fish and Wildlife Service imposed a far stronger beneficiary payment obligation to mitigate perceived environmental harm in the Delta

[3] Legislative Analyst's Office, 2002.

[4] Department of Finance, 2005.

[5] Under the federal Endangered Species Act, federal agencies undertaking actions that might affect listed species of fish must get a biological opinion from the relevant federal agency (Fish and Wildlife Service or National Marine Fisheries Service) about whether the proposed action might place the survival of the species in jeopardy.

on the water projects than had been imposed in the past, payable in acre-feet of water. The decline of state and federal funding, which might have helped pay some of the cost of these requirements, has made these obligations all the more painful.

There are a number of ways in which beneficiary payments might work to finance big ticket items for the Delta:

1. **Water Conveyance Facilities.** Both the state administration and water users have been pursuing a Delta solution that involves new facilities to allow export water to move around the Delta through a canal. These new facilities appear relatively easy to finance. The contractors who buy water from the state and federal water projects that currently draw water through the Delta to the pumps have announced their willingness to pay. Their payments could be handled through existing project financing arrangements, or through a new fee levied by a new or existing state agency. Some negotiation would be required with the federal contractors. Significant disagreement might arise if the proposed canal is too small, has operating rules that are too restrictive, has a governing body seen as unfriendly, or if environmental mitigation obligations are too onerous.

2. **Water Storage Reservoirs.** In contrast, water users have not volunteered to pay for new surface reservoirs. Several bills before the legislature propose $3 billion or more in state general obligation bonds to help build new reservoirs. All specify that this money would buy reservoir capacity and water to be used for "public benefit" purposes, such as improving the environment for Delta fish. And all of the bills say that this water could not be used to offset environmental mitigation responsibilities imposed on water users. Since recent court decisions already require the water projects to curtail pumping as needed to protect threatened Delta fish, it is not clear how this public water would actually be used. Despite the intention that it not offset mitigation responsibilities, it may end up doing just that. The scope of allowed public benefit purposes may prove unwisely narrow.

3. **Environmental Mitigation.** Current environmental mitigation requirements place almost all responsibility for protecting endangered Delta fish on the state and federal water projects. Although the projects are almost certainly responsible for considerable environmental harm, other causes are also important, such as upstream diversions, habitat destruction, and ocean changes due to global warming. Mitigation fees levied on those responsible for the Delta's environmental problems would be one way to more fairly apportion the costs of the Delta's environmental recovery. California Supreme Court decisions appear to allow such mitigation fees, but complexities still exist. A public agency would need to determine how responsibility should be assigned; perhaps the State Water Resources Control Board could do this, at least for water users. Better data on water use would be helpful.

4. **Delta Levees.** Delta land, much of it below sea level, is protected by levees with low reliability. They are funded through landowner assessments and state and federal grants. These fiscal mechanisms, as currently understood, appear incapable

of bringing Delta levees to a minimally reasonable level of security. Any realistic approach to financing Delta levee work needs to begin with strategic decisions about which levees and islands are valuable enough to warrant substantial public investment, and which are not. Some islands may need to be purchased, breeched, and converted to habitat.

## An Alternative Rationale for Public Funding: The Clean Water Act

Although the notion of financing Delta work with benefit payments has received a good deal of attention, there may be compelling reasons for the state's general fund to contribute to the effort, either directly or with money borrowed through state general obligation bonds and repaid from the general fund. One precedent of particular interest is the federal Clean Water Act (CWA). This legislation was one of the most important and effective pieces of environmental law in American history. Enacted in 1972, the CWA created a major, substantially new regulatory program to compel cities and industry to do a far better job of treating the wastewater they discharged into rivers, oceans, and other bodies of water. The Act was accompanied by a substantial grant program designed to pay 75 percent of the cost of new public sewage treatment plants and collection systems. By generously subsidizing construction of new and upgraded treatment plants throughout the nation, the grant program removed or at least reduced one of the most potent sources of political opposition to the new regulatory program. The designers of the Act recognized that the CWA represented a large, almost revolutionary change in cultural and environmental values, change that would produce intense opposition in many places in the country relatively untroubled by their polluted water and ardently opposed to the very notion of paying for expensive water treatment plants. Softening the cultural and financial impact of this relatively sudden change in environmental values worked well and reflected a certain wisdom.

Recent court rulings and other regulatory actions represent a change in environmental understanding and a somewhat similar dilemma, including the potential for broad social reaction. Using public bond funds to soften these effects might be a prudent and productive approach. A similar case might be made for softening the effects of global warming and sea level rise. This prescription seems to apply most directly to paying for part of the cost of protecting the fish populations in the Delta, perhaps including contributing to reservoir construction for additional water supplies and also reconstruction of the Delta levees.

This report seeks to offer a better understanding of the state of the beneficiary payment debate. It outlines opportunities that may exist for beneficiary financing and how this kind of financing might work (and where it might not work so well, as in the case of reservoir projects). Identifying such opportunities will be important as California struggles to decide on a course of action for its Sacramento–San Joaquin River Delta. The report briefly summarizes the history of water financing in California, reviews the controls the state's Constitution places on financing methods, and describes how beneficiary payments might be used to finance the most important and expensive kinds of work that have been proposed to solve the Delta's many problems, including alternative conveyance via a new canal, surface reservoirs, broader environmental mitigation, and upgrading levees.

# A Brief History of Beneficiary Payments and California Water

Using beneficiary payments to develop water supplies is hardly a new idea in California. Almost all water development in the state has been financed through beneficiary payments in one form or another. The state's early irrigation systems were generally built by water districts that levied benefit assessments on property owners likely to receive water, and by charging for the water delivered once the systems were operational. A few irrigation works were paid for by wealthy landowners (in a sense, private enterprise is the purest form of beneficiary payment arrangement). The state's great urban water systems, including Los Angeles' Owens Valley system and Colorado River aqueducts, San Francisco's Hetch Hetchy system, and the East Bay's Mokelumne River dams and aqueducts, were paid for by their water users. The federal Central Valley Project (CVP) is an impure example of a beneficiary payment arrangement, because it was largely funded by federal tax dollars, but in concept at least, it participated in the rhetorical tradition.[6]

The State Water Project (SWP) is a particularly important and relatively pure case of a large, beneficiary-financed water system. Although the general obligation bonds which financed the initial construction of the project were guaranteed by the taxpayers of California, the debt service that came due each year was paid with charges levied on the water users. The details of how the benefit charges are apportioned are spelled out in the water delivery contracts between the benefiting water districts and the state. In specificity and rationality that only a water engineer can truly appreciate, the contracts apportion the cost of supplying and transporting water to each contractor, based on the amount of water to which each is entitled, the proportional use of canal reaches, and the energy required to deliver the water to the contractor. The core of this benefit apportionment arrangement has enjoyed comparatively peaceful acceptance for many decades.[7]

Although the SWP charges apportion the *cost* of supplying water, the contracting water agencies do not explicitly pay for environmental mitigation of any kind, even though this was called for by legislation passed soon after voters approved the SWP in November 1960. The Davis-Dolwig Act, passed in 1961, legislated the principles that were to apply to benefit charges for fish and wildlife protection. The Act directed the Department of Water Resources (DWR) to include in its water charges an amount "sufficient to repay all costs incurred for the *preservation* of fish and wildlife" as a result of the project. It also noted that DWR should not charge contractors for "costs incurred for the *enhancement* of fish and wildlife or the development of public recreation." In practice, "enhancement" came to mean building campgrounds and access

[6] See Misczynski (2008) for a more detailed history. When originally enacted, the concept was that federal Bureau of Reclamation water developments were to be paid for over time by selling the water to farmers and, a little later, by selling hydroelectricity. But farming did not produce enough income to make farm payments possible for the Bureau's early projects, and Congress added various subsidies. In time, the subsidies amounted to a large share of project costs. This is a long and controversial story. A reasonable conclusion is that the Bureau's financing arrangements are not an admirable model for modern water financing in California.

[7] There has been dispute, negotiation, and litigation about the contract provisions concerning how water delivery shortages should be handled.

roads and trails near waterways associated with the project. The clear intent was that "enhancements" benefited the public and should be paid for by the people of California, while "preservation" of fish and wildlife was the responsibility of the water contractors and should be paid for by them. The Davis-Dolwig Act was accompanied by a state general obligation bond act that funded a first installment on "enhancements."

According to a recent review by the Legislative Analyst's Office (2009), DWR has claimed "enhancement" benefits from its projects with a certain enthusiasm and little oversight. These costs were paid with state funds rather than contractor funds. However, we have found no trace of the obligation to charge for fish and wildlife "preservation" work as required by the Davis-Dolwig Act. The concept is not mentioned in the otherwise detailed contracts specifying how project costs will be apportioned. This interpretive asymmetry may help explain why at least some water providers believe they are responsible only for paying the costs of providing deliverable water, and that the public is responsible for all environmental mitigation. Although that is not what the law says, it is not inconsistent with the way the law has been interpreted.

In the late 1990s, CALFED attempted to develop a more current understanding of what beneficiary payment might mean for the Delta. CALFED's Record of Decision (ROD), adopted in 2000, set forth the principle that Delta program costs should, to the extent possible, be paid by beneficiaries. Although CALFED was supposed to have converted the ROD into an actionable program within two years, there were delays. CALFED was limited to advancing proposals which enjoyed agreement by the various stakeholder groups involved, and there was little agreement about beneficiary fees. In general, environmental interests pushed for water user fees to fund a variety of environmental restoration work, and water providers saw little benefit from this work for which they felt like paying. In its 2004 *Draft 10-Year Finance Plan*, the Bay-Delta Authority (BDA), which by then oversaw CALFED, reported: "The magnitude of the fee, how it would be applied and to whom will require through (sic) discussion with all parties. This issue requires more analysis and discussions among stakeholders. BDA will solicit stakeholder input during October and may be ready to make a proposal in November" (California Bay-Delta Authority, 2004). This report summarized progress after four years of work. Not surprisingly, the November proposal did not appear. This lack of progress was not the result of insufficient effort or failure of imagination on the part of CALFED; the parties simply saw the world differently.

In fact, CALFED established an Environmental Water Account (EWA), an imaginative initiative to explore beneficiary payment possibilities. The idea was that water providers would supply water for environmental mitigation purposes to the degree required by law, mostly by the water flow conditions imposed through water right permits issued by the State Water Resources Control Board (SWRCB). If the environmentalists or the state Department of Fish and Game believed additional flows were needed to protect fish populations, money would have to be found to buy water for those purposes. That water would be tracked by the EWA. The money could be used directly to increase water flows at critical times for fish populations, or to compensate water providers who supplied water for EWA purposes. Money was found for these purposes, primarily through a series of state general obligation bond acts.

CALFED's diplomatic efforts were superseded in 2007 when Judge Wanger ruled that the U.S. Fish and Wildlife Service had incorrectly prepared a Biological Opinion certifying that the operation of the state and federal water projects posed no threat of extinction to the delta smelt, in violation of the federal Endangered Species Act.[8] In his opinion, the operation of these projects did pose such a threat. He ordered far more rigorous flow restrictions than the SWRCB or the contractors or CALFED had ever imagined. These flow restrictions were reinforced and extended by the new Biological Opinion prepared by the Fish and Wildlife Service in response to the judge's court order (Fish and Wildlife Service, 2008). In his decision, Wanger held that the water exporters would be required to restrict their pumping from the Delta to the degree needed to provide reasonable protection for the delta smelt, regardless of whether there was enough money or water in the EWA. The original intent of the EWA was to define and limit the charges that water exporters would be required to pay for environmental mitigation. The judge's decision replaces this concept with a considerably broader understanding of the potential payment obligations.

[8] *Natural Resources Defense Council v. Dirk Kempthorne et al.*, United States District Court for the Eastern District of California, 506 F. Supp. Ed 322, 2007 U.S. Dist LEXIS 42263.

# Legality of State Fees under California's Constitution

Proposed steps to improve conditions in the Delta include building a peripheral canal and new reservoirs, acquiring islands and other lands and converting them to habitat suitable for Delta fish, managing water flows and pumping to minimize the impact on endangered species, reinforcing at least some levees in the Delta, and possibly creating a new governance arrangement. These proposals obviously call for a substantial sum of money, and if the state is to rely on beneficiary payments for at least part of the cost, it will need to levy fees, assessments, taxes, or some other form of payment to obtain the necessary funding—an effort that is likely to prove somewhat complicated under the arcane rules governing these matters in California's Constitution and associated case law. While this is a tedious subject, it provides the ground rules for much of the subsequent discussion in this report. When California's voters enacted Proposition 13 in 1978, they also added a requirement to the state's Constitution that new state taxes must be approved by a two-thirds vote in the legislature. (A popular vote is not required to initiate or increase state taxes or fees, although the legislature may place such matters on the ballot out of fervor for popular democracy or political caution). Another provision imposed a slightly different restriction on local governments: New "special" taxes would require approval by two-thirds of the voters—that is, taxes where the proceeds are earmarked for some particular, identified purpose, such as roads or schools or water. "General" taxes, which can be used for general governmental purposes, require only majority approval by the voters.

Courts subsequently determined that not all levies imposed by the state are taxes. The state can also impose several kinds of fees with the approval of a majority of the legislature. Proposals for beneficiary fees for the Delta generally fall into this category. To be considered fees rather than taxes, levies must meet several conditions whereby the courts make the distinction between the two. These conditions are not altogether clear and may still be evolving. This section summarizes available knowledge about the conditions that a Delta fee would have to meet, drawing on the three appellate court cases concerning state fees.

California's constitutional provisions governing fees and assessments by local governments are far more detailed and restrictive and have been subject to far more litigation than state-levied fees (Freeman, 2008; Hanak, 2009; League of California Cities, 2007; Legislative Analyst's Office, 1996). Local governments, including water and irrigation districts, have their own problems raising funds to pay for their operations under these rules. Since state and local water supply efforts intersect in many ways, these problems may affect state work in the Delta. However, we do not explore these considerations here, as such a discussion would considerably expand the size and complexity of this report.[9]

[9] The possibility of an intersection between the restrictions on local financing and fees for the Delta is worth mentioning. California's Constitution defines "local agency" for purposes of many of these financing rules as cities, counties, special districts, and "any other local or regional agency." In its constitutional context, regional agency presumably means one which is governed by local officials and financed from local sources. However, it is not beyond imagination that a court could find that a state agency (such as the Department of Water Resources) which levied a charge for a particular service to much but not all of the state (the State Water Project, for example) was functioning as a "regional" agency and was subject to local government financing rules. A ruling along these lines

## Regulatory Fees

This first and best known of the three appellate court cases was decided in 1997 (*Sinclair Paint Company v. State Board of Equalization et al.*, 15 Cal. 4th 866, 1997). The California Supreme Court upheld fees levied by the state Department of Health Services on current and past manufacturers of lead-based paint. The proceeds were used to pay for health services for children affected by lead poisoning. The court identified three kinds of levies that would not be considered state taxes under the purview of Proposition 13 (and which therefore did not require a two-thirds vote of approval by the legislature). These are:

1. Benefit assessments levied on people or property that benefit from a public improvement.

2. Developer fees that help offset the burdens placed on a community by a new development project.

3. Regulatory fees levied to pay for or to advance a governmental regulatory program.

The court determined that the fees on lead manufacturers fell into the third category, regulatory fees. It described several characteristics of allowable regulatory fees, which are worth reviewing because fees to pay for Delta projects would presumably need to include these characteristics.

First, the fee in this case was to be levied on manufacturers and anyone else who used lead for commercial purposes, and was to be "based on" (or more or less proportional to) their contribution to lead contamination. Second, individuals or firms were to be given an opportunity to show that they did not add to lead contamination and, if they could show that, were to be exempt from paying the fee. This conceptually inclusive standard was to be applied through regulations adopted by the Department of Health Services. A third characteristic was concerned with the nature of the benefit provided by the program. The manufacturer complained that it received no benefit from the fee; the benefits all went to children harmed by lead. The court conceded that the manufacturer received no benefit from the fee program but held that these were "bona fide regulatory fees" because they required "manufacturers and other persons whose products have exposed children to lead contamination to bear a fair share of the cost of mitigating the adverse health effects their products created in the community. Viewed as a 'mitigating effects' measure, it is comparable in character to similar police power measures imposing fees to defray the actual or anticipated adverse effects of various business operations."

The court further commented that "the police power is broad enough to include mandatory remedial measures to mitigate the *past, present, or future* adverse impact of the fee payer's operations, at least where, as here, the measure requires a causal connection or nexus between the product and its adverse effects" (emphasis added). This endorsement of fees for environmental mitigation is remarkably unrestrained. Given that subsequent appellate courts have not cited this phrase, one wonders if the courts will hedge on this in the future. But for

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would certainly complicate any "state" fee as described in this section. It would also complicate the financing of the SWP. This issue has not been raised in any case of which we are aware.

now, the language is clear and the door for environmental mitigation fees for the Delta seems wide open.

## Fees with Flat Rates

The second appellate case on state fees was decided in 2000 (*California Association of Professional Scientists et al. v. Department of Fish and Game et al.*, 79 Cal. App. 4th 935, 2000). This case concerned fees charged by the Department of Fish and Game for environmental impact report reviews. In this case, the court upheld flat rate fees for certain categories of projects. The plaintiff had argued that the flat rate fee structure was unfair because it ignored the sometimes large differences in time needed to review projects. The court reasoned that the department's environmental review staff worked on many different projects simultaneously, that it would be difficult and time consuming to try to track their "billable hours" for each project, and that the Constitution did not require that degree of precision. The fee needed to be apportioned in a way that was broadly reasonable, but a flat rate fee that, overall, covered the cost of the review program was close enough. Since the data sources likely to be used to apportion fees for the Delta are imprecise at best, this tradition of legal understanding may prove important.

## Fees for Water Rights: A Case Currently Before the Supreme Court

The third case directly concerns water and is now before the California Supreme Court (*California Farm Bureau Federation v. California State Water Resources Control Board*, 146 Cal. App. 4th 1126, 2007).[10] This case involves a challenge to fees levied by the State Water Resources Control Board to pay for its water-rights permitting work, circumstances analogous to Delta financing. Overall, the appellate court felt that the allocation rules failed to meet the test that fees bear a "fair or reasonable relationship to the fee payers' burdens on or benefits from regulatory activity."

The case raised several issues likely to arise for almost any conceivable fee to pay for work in the Delta, such as the closeness of connection required between those who pay the fee and the benefits they receive from the regulatory program or the burdens they place upon it, and how to deal with fees that "should" be apportioned to the United States (but which has sovereign immunity and declines to pay). The Supreme Court's decision, and the underlying reasoning, will be important, of course. But even issues that the court might choose not to call attention to bear careful thought in designing Delta fees. The SWRCB fee was challenged by several large and well-funded groups of water providers and water users, and any significant fees for the Delta are almost certain to face similar challenges.

The conflict in this case started during the legislature's 2003–04 budget deliberations. The legislature directed the SWRCB to raise half of the annual budget of its Water Rights Division by levying fees on water right holders. The division handles processing, revision, and enforcement of water rights in California, although it has direct permit authority only over appropriative water rights established since 1914. Prior to this new policy, the division had been

[10] Although this decision is not citable for legal purposes because it is under review by the Supreme Court, it is nonetheless instructive.

funded entirely from the state's General Fund. The change had been recommended by the Legislative Analyst—and was enthusiastically opposed by the Board. After the proposal was enacted, the Board found itself in the unenviable position of having to establish an entirely new water right fee and to collect $4.4 million to pay half of that year's operating costs for the division. The Board quickly adopted emergency regulations that levied one-time fees on applicants for new or revised water right permits or other Board actions. These fees were set well below the actual cost of processing the permits. The Board feared that with fees set high enough to cover actual costs, many people would forego the review process, undercutting the state's water rights regulatory system. The Board also levied annual fees on existing water right holders of $100 per permit or $.03 per acre foot of water covered by a water right, whichever was larger. The Board excluded large categories of rights holders from fees altogether and charged fees to contractors of the federal CVP on a different schedule.

In addition to the appellate court's finding that the fee failed to meet the "fair or reasonable relationship" test, the court voiced several other specific concerns:

**1)** ***Exclusion of pre-1914 rights holders.*** The Board's annual fee applied only to holders of water rights issued by the Board or its predecessor, which meant only appropriative rights created since 1914. That left out pre-1914 appropriative rights and riparian or pueblo water rights, accounting for an estimated 38 percent of water use.[11] The court observed that these rights holders also benefited from the Board's regulatory work, since the Board protected and enforced their water rights. The court could find no justification for exempting this large class of beneficiaries from bearing part of the burden of the fee, or perhaps could find no justification for compelling the post-1914 appropriators from paying the share of the Division's operating costs that should have been assigned to earlier appropriators.

The Board's reluctance to seek fee revenue from these water right holders stemmed from its view that it held permit jurisdiction only over post-1914 appropriative water rights. The Board's predecessor agency was established in late 1914. Holders of appropriative rights created earlier, as well as riparian and pueblo rights, did not need to seek the Board's permits or blessings. Also, there were sizeable gaps in the existing reporting requirements for these water rights, and their extant reports were of questionable accuracy.

The Board does claim some authority to oversee these earlier kinds of water rights—for example, if there is a complaint that a pre-1914 appropriator or a riparian right holder is using water in a way that violates the state's constitutional prohibition against "waste or unreasonable use" (California Constitution, Article X, Section 2). To satisfy the court's complaint on this matter, the Board would probably have needed a broader and explicit statutory mandate to seek fees from riparian and pre-1914 appropriative water rights holders, and perhaps from

[11] Several forms of water rights are recognized under California law. Pueblo rights are held by a few cities and were inherited from Mexican law. Riparian rights are held by those owning property that includes frontage on rivers or other water bodies. Appropriative rights can be acquired by individuals who use water (not needed by riparian rights holders) on property not directly on waterways. The appropriative rights theory was adopted by miners during California's gold rush. California established a centralized and organized process for gaining appropriative rights through the State Water Resources Control Board and its predecessor agency beginning in 1914. Thus, appropriative rights created after 1914 were issued by the Board, which retains regulatory control over them. Pre-1914 appropriative rights, as well as riparian and other water rights, are subject to some, but less, Board oversight.

pueblo rights holders as well. The Board would also have had to rely on its existing (incomplete and questionably accurate) database to apportion the fees. Perhaps a practical path would be to rely on that database for an interim period, as a rough but available method, and to begin collecting better data for future years. Improved data about water rights and actual water diversions and use would have considerable value for other reasons.[12] However, collecting these data would probably involve controversy.

**2)** ***Discounted federal fees.*** About 22 percent of the water rights in California are held by the federal government. States cannot tax, levy fees on, or otherwise compel payment from the federal government, because of its sovereign immunity. This presented problems for the Board. If it did not levy a fee on the Bureau of Reclamation, it would have another large group of beneficiaries not paying for the benefit it received from the Board's protection of its water rights. But if it levied a fee on the Bureau, the Bureau could be expected to decline payment.

And there were other problems. The Bureau had permit rights to divert 116 million acre feet of water. Much of this was for storage for hydroelectric purposes—i.e., for water that would subsequently be used downstream by others. The Bureau also had rights to deliver 6.6 million acre feet to its contractors in Northern and Central California. Case law suggested that the Board could levy a fee on contractors using the water held under the federal water right (*United States v. County of Fresno,* 429 U.S. 452, 1977*)*.

The Board 's solution was to grant the Bureau a 50 percent discount on the water rights it held for hydroelectric purposes and then to bill nearly the whole amount to the CVP contractors. The contractors were thus asked to pay about $0.37 per acre foot for the water rights for which they held contracts.

The court was unhappy with this arrangement. It found that this apportionment did not meet the "fair or reasonable relationship" test required of fees.

Few good resolutions to this problem come to mind. It is difficult to justify charging the CVP contractors more than an amount proportionate to the water they have contracted to receive. Perhaps the federal government could be persuaded to agree to pay their fair share. (Stranger things have happened.) Federal law does direct the Bureau to "meet all obligations under state and federal law" in meeting the requirements of the Endangered Species Act and other laws, so perhaps the Bureau might meet an obligation to pay a fee.[13] Perhaps a fee could be levied on the sale of hydroelectricity from the federal dams, although this might require the involvement of the California Public Utilities Commission.

What if no workable way can be found to collect a fee for the non-CVP share of federal water rights, so that the water rights fee can be levied only against a portion of the beneficiaries? Is it

[12] Water "diversions" include storing water in a reservoir and then releasing it over time to generate electricity. Although the water is used, in some sense, it is not "used up" except for a small amount of evaporation from the reservoir. It goes back into the stream and can be used by others downstream and by fish and wildlife. Much of the water applied to a farm field is used up by crops, and this is defined as consumptive use.

[13] Section 3406(b) of the Central Valley Project Improvement Act of 1992.

"fair or reasonable" to increase the fees paid by the reachable beneficiaries by enough to make up the difference? Or should the General Fund make up the difference? For local special assessments, Proposition 218 seems to say that the General Fund (of a local government) must make up the difference, but case law on state fees has not yet provided much guidance on this issue.

Federal water rights for hydroelectric generation may not matter much if a fee were levied for environmental mitigation in the Delta, because it could be argued that only water diverted and consumptively used directly affects the Delta, and thus the fee need only apply to water users who did so.[14] Of course, storing upstream water for electricity generation has some effects on the Delta, but the effects are at least qualitatively different from those of consumptive users.

**3)** ***Public benefits.*** When objecting to the legislative proposal that its Water Rights Division be funded through fees, the Board asserted that perhaps a third of the division's work benefitted the general public by protecting the public trust and the environment. The court noted that this further complicated the "fair or reasonable relationship" analysis, because it could be argued that the state's General Fund should be used to pay for this portion of the division's work.

In the context of the earlier state regulatory fee cases, this is almost surely a misunderstanding or perhaps an argument made by a panicked state agency undergoing budget hearing trauma. In the Sinclair Paint case, the point of the regulatory program was to protect the public from harm from lead paint contamination, and to mitigate harm caused to children by using the fees to pay for special health care services. In the Fish and Game case, the fee was to pay for the time that Fish and Game staff were spending on checking environmental documentation for timber harvest plans. The purpose of their review was to see that harm to fish and wildlife caused by timber harvesting was reduced or eliminated. That is, protecting the public's interest in keeping children free of damages from lead paint and in preventing fish and wildlife extinctions, respectively, were the entire purposes for which these fees were levied.

The SWRCB's water rights division has multiple purposes. Among the most important are protecting the property interests of holders of water rights and protecting the public trust and beneficial uses of water. The earlier cases seem to say that it is completely legitimate to levy a regulatory fee to pay for the cost of this public benefit work.

**4)** ***Data Quality.*** The data that the Board used to apportion the fees in this case has only a modest connection with reality and is conceptually inappropriate in several ways. Curiously, of the many complaints made about the Board's fees in the court proceedings, data quality does not appear to have come up.

[14] Storing water in a reservoir for hydroelectric generation leads to some additional evaporation, which is a consumptive use. It is a relatively small portion of the water stored, but significant enough that a fee structure might take it into account.

It is also noteworthy that the appellate court rejected two central objections raised by the Farm Bureau:

> **1)** ***Collection costs.*** The Board's minimum fee of $100 resulted in small rights holders paying much more per acre-foot of water rights than larger owners. The court saw no problem with this, accepting the argument that the $100 minimum was a reasonable way of dealing with the high administrative cost of collecting fees from small rights holders.
>
> **2)** ***Excess fee collection.*** The Board judged that water rights holders would decline to pay the fee in large numbers, at least in the first year, and that it would actually receive only 60 percent of the amount billed. It therefore set rates 40 percent higher than needed to raise the target $4.4 million if everyone paid. To the Board's surprise, it raised $7.4 million.

As noted above, perhaps the first rule of fee versus tax distinctions is that the revenue from a regulatory fee not exceed the cost of the regulatory program. Collecting 70 percent more revenue than the authorized amount placed the Board in an awkward position. The challengers asserted that the overage turned the fee into an unconstitutional tax that had not been approved by the constitutionally required two-thirds legislative vote. The court did not buy it. It noted that the revenue was placed in a special fund, was available only for the costs of the water rights program, and that there was no question of it being siphoned off into the state's General Fund. It also observed that the statute provided a mechanism for adjusting next year's rates so that, over a few years, revenues could be expected to equal program costs.

The issue of whether the state can borrow "excess" cash in a special fund set up for fee revenue for periods of time, perhaps long ones, was not raised in this case. Although the state has a nominal rule that it should not borrow funds needed to run the program for which they are collected, there is considerable room for judgment about what that means in practice.

## So Where Does This Leave Us?

In the Sinclair case, the Supreme Court recognized that the state has remarkably broad authority to fund its regulatory programs by levying fees. The fees can be used to pay the cost of administering the regulatory program or to pay for damages that might have been caused by regulated activities. Since the state regulates water rights and water quality in the Delta and its tributaries, regulates the protection of threatened and endangered fish species in the Delta, has at least limited conceptual regulatory authority over some land uses in the Delta, and has several other interests with regulatory consequences in the region, the legally allowable scope for Delta fees is potentially quite large, limited more by political considerations and practical economics than by legal constraint. On the other hand, the more recent conflict over SWRCB fees reminds us that any fees need to be fundamentally fair and structured with care. It also reminds us that the Supreme Court is not done shaping the law in this area.

# Financing Current Delta Agendas

How does this legal framework apply to activities California might wish to undertake in the Delta? The answer is complex because there are many conflicting agendas for the region. For example, a reasonably comprehensive list of Delta ambitions can be derived from the "Strategic Plan" of the governor's Delta Vision Blue Ribbon Task Force, which includes well over 50 items that will require funding (Governor's Delta Vision Blue Ribbon Task Force, 2008). The following are among the most critical and expensive items:

- Delta water conveyance facilities
- New surface storage reservoirs
- Environmental mitigation
- Delta levee improvements

Other substantial considerations include funding to help the Delta economy and improving San Joaquin River flood control.

Everything on the list harbors controversy. And everything on the list will require significant financial commitment. We assume that California will somehow, someday, decide how to proceed in each of these areas and, given this assumption, we here explore how beneficiary payments might work in each case.

## Delta Water Conveyance Facilities

"Water Conveyance" is relatively new euphemistic jargon that avoids using the politically loaded phrase "peripheral canal." It includes a canal and other methods to improve the way water moves through or around the Delta, particularly from the Sacramento River to the state and federal pumps on the south side of the Delta. Possibilities include a canal around the east and south sides of the central Delta (roughly following the alignment of the peripheral canal proposal rejected by voters in 1982) or a similar canal around the north and west sides of the Delta. Other proposals include strengthening levees and building water control gates to move water through the heart of the Delta in a way that isolates much of the flow from the rest of the Delta's water. The governor's task force recommended both a canal and a continuation of through-Delta pumping (known as the "dual conveyance" option), an option also being considered by the Bay-Delta Conservation Program (BDCP). PPIC's *Comparing Futures for the Sacramento–San Joaquin Delta* (Lund et al., 2008) raised concerns about the potential additional cost of a dual conveyance system and favored the peripheral canal alternative.

These proposals offer the possibility of substantial improvement in the operation of the state and federal water projects. For one thing, the water arriving at the pump intakes is likely to have lower salt and other pollutant levels, a benefit that may prove decisively important if predictions of rapid sea level rise, and a resulting increase of salt water intrusion in the Delta, prove correct. Second, the vulnerability of water exports to salt water inundation and other

serious consequences stemming from a major earthquake with an epicenter near the Delta could be reduced. A canal also offers the possibility of reducing the environmental harm associated with pumping large quantities of water through the Delta, which reverses natural flows in some channels and leads to several other problems, including less natural variability and turbidity. (Turbidity, or the presence of suspended material in the water, is beneficial for delta smelt and other troubled Delta fish populations, including the longfin smelt.) Reducing environmental damage caused by pumping would be helpful to the water projects because existing environmental damage attributed to the pumps is the rationale for current restrictions on pumping.

Paying for improved conveyance appears to be relatively straightforward. The water users who contract for water from both the state and federal project have publicly expressed a willingness to pay for it. One of many examples is an opinion piece written by Jeffrey Kightlinger, General Manager of the Metropolitan Water District of Southern California, and Donn Zea, CEO of the Northern California Water Association, published in the *Sacramento Bee* in March 2009: "As for financing, those who benefit from a new project should pay. The public water agencies that would be supplied by a new Delta canal are on record as prepared to pay for this new conveyance facility out of their pockets, not those of all state taxpayers" (Kightlinger and Zea, 2009). This piece also opines that the legislature should help fund broader ecosystem restoration work in the Delta, a consideration we discuss below.

Other evidence of the willingness of water users to pay for conveyance can be found in their support of a water bond proposed by Governor Schwarzenegger in September, 2007 (SBX23, Cogdill, 2007). The bill, which did not pass, would have directed the Department of Water Resources to build a "delta water conveyance" system and specifically provided that "the costs for the design, construction, operation, and maintenance of any conveyance facility shall be the responsibility of the agencies that benefit from its design, construction, operation, and maintenance, including State Water Project and Central Valley Project Contractors." The bill was supported by an impressive list of water districts (Senate Committee on Natural Resources and Water, 2007).

The reasons for this generosity of spirit seem clear enough. A canal offers significant benefits to water contractors in the form of better water quality, greater delivery reliability, and perhaps even greater quantities than would be otherwise available. These are the kinds of benefits that water contractors value. If the general public were to pay for them, the contractors would presumably not be too proud to accept. But because the canal is controversial, and paying for it with public money would be one more argument against proceeding, the contractors appear willing to let the argument of public participation fade into the background.

However, their offer likely has its limitations. Although they are willing to pay for a canal which they regard as suitable, the contractors might well revise their position if a proposed canal were to offer too little capacity, have too many operational restrictions, a governing board which they considered unfriendly, or requirements for environmental indemnification that they felt were excessive. The possibility that they might be asked to provide compensation or a suitable water alternative to farmers and urban users who currently draw water from parts of the Delta that might become more saline because of a canal might become a sticking point.

So how would contractor financing work administratively and legally? Suppose for a moment that the canal was going to supply water only to the State Water Project. The existing contracts for SWP water delivery include authorization for the Department of Water Resources to build additional facilities for the "transfer of water across the Delta,"[15] which presumably includes through-Delta facilities and arguably includes facilities to transfer water "across the Delta" by moving water around the Delta.[16] The contracts define these facilities as "project conservation facilities" and specify that they be paid for with charges levied in proportion to the annual entitlements to water delivery of each contractor. Since this is a matter at the intersection of water and money, there is clearly room for disagreement and litigation over many remaining details.[17] But at least at a summary level, Delta conveyance facilities fit into the existing financial arrangements for the SWP fairly neatly, or could be made to fit with only modest revision.

Contractors receiving water from the federal Central Valley Project would also enjoy substantial benefits from improved Delta conveyance. If the federal contractors were not required to pay in proportion to those benefits, the financing arrangement would be vulnerable to the kinds of complaints made in the SWRCB case described above (although we have yet to hear how important the California Supreme Court thinks these objections are—we only know that the appellate court found them persuasive). The Bureau of Reclamation could perhaps be persuaded to pay, or to compel its contractors to pay, a fair share amount. But that result would have to be reached by negotiation, since the state cannot compel federal payment. It may be helpful that federal law directs the Bureau to "operate the Central Valley Project to meet all obligations under state and federal law …" (see footnote 13), which arguably includes a fee for Delta conveyance and environmental mitigation in the Delta. DWR has existing authority to contract with the Bureau for construction and financing of works that are part of the Central Valley Project, which might include a new water conveyance facility (California Water Code, Section 11500). So if the Bureau was willing, this wrinkle could perhaps be resolved without additional authorization. Alternatively, the state could levy charges or assessments on the federal contractors based on the deliveries of federal water they receive or on their contractual entitlements to water. However, we know of no existing mechanism to do that. DWR has no authority to levy fees on federal contractors (although it does have authority to cooperate in many ways with the federal project, and cooperation may include mutual financing arrangements), and the SWRCB is not authorized under state law to levy fees for this purpose. So new legislation might be needed, perhaps authorizing DWR to levy assessments on federal contractors in proportion to the benefits each received from new Delta conveyance facilities. Although it is likely that state and federal contractors have sufficient mutuality of interest to reach agreement, conflict and litigation from outside parties would not be surprising.

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[15] The SWP contracts consist of separate contracts with 29 contractors, but all have essentially the same basic financing language.

[16] Whether "across the Delta" includes "around the Delta" is closely related to the question of whether a peripheral canal is already authorized by existing statute and therefore whether DWR can proceed to build a canal without further legislative approval. The precise meaning of the phrase has the potential to be the subject of litigation. If a court were to hold that "across" did not include "around," that would carry the subsidiary implication that existing water delivery contract language does not necessarily authorize DWR to charge contractors for the cost of a canal. DWR would then need to renegotiate the contract language on this point. That would not necessarily be difficult, but it might cause delay and invite further litigation.

[17] For example, contractors who remain convinced that they have no obligation to pay for environmental mitigation may argue that the general public should pay for all the benefits to fish that a canal might provide.

Charges levied under contractual agreements are not necessarily subject to "fair and reasonable" allocation standards. However, fairness is usually a good idea, as well as a sometimes effective conflict-avoidance strategy. An apparent analogy comes from the world of housing development. Developers and cities frequently enter into "development agreements" which give developers some assurance that they can build as described in the agreement, and which also specify that the developer will pay fees and install certain public improvements and perhaps participate in creation of special financing districts. It is generally believed that developers have little ability to challenge these financial commitments in court since, after all, they "voluntarily" agreed to them.

A canal might also provide water to current Delta water users, who would benefit from a potentially considerable reduction in salinity. These users do not currently receive their water from the State Water Project and are not subject to any of its charges. They could conceivably be required to enter into contracts with DWR as a condition for receiving water from the canal, and these contracts could include a schedule of fees as well as details about the amount of water they would be allowed to draw.

An alternative to relying on the existing State Water Project fee structure would be to authorize a new Delta Council (a new governance body, as recommended by the Blue Ribbon Task Force) or an existing governmental agency to levy new regulatory fees on both state and federal contractors. These fees might be sufficient to pay for construction of alternative conveyance facilities, any environmental mitigation required specifically because of these facilities, and perhaps also for other mitigation work to offset environmental harm inflicted by the water project over the years. This "other agency" approach might provide a graceful way to include both state and federal contractors in a seamless fee structure. It might increase the chances that fees would finance environmental mitigation for project damages, a goal which the contractors may not share with full enthusiasm. A later section of this report discusses the possibility of raising funds for environmental mitigation in the Delta by levying regulatory fees on users who divert water upstream of the Delta throughout the watershed. If that possibility were pursued, it may be both convenient and legally desirable to have one agency levy fees both on the contractors and on the upstream diverters.[18]

More generally, charging a regulatory fee might be problematic because a peripheral canal is not usually understood to result from regulatory requirements. It might be that its financing would fit more comfortably in another category of fee recognized by California's Supreme Court—a benefit assessment. Unfortunately, we have no case law concerning the constitutional principles that apply to state-level benefit assessments. It is reasonable to infer that the principal requirement would be that the levy be proportional to the benefit received by each user of water that passes through the canal, which is the same apportionment principle that would be used if the levy were a regulatory fee. Alternatively, a canal could be understood as a requirement of a regulatory program intended to protect fish populations and water quality for some water users.

[18] As discussed above, the yet inconclusive case law suggests that courts will examine regulatory fees to see if the fees are fairly apportioned on all of the parties responsible for the harm being regulated, or at least that no subset of those parties is paying for more than their fair share. That distributional fairness may be more likely to occur if one agency oversees the entire fee structure.

## Surface Storage Reservoirs

Construction of new dams and reservoirs has been proposed by many observers of California's water situation. Proponents have pointed to a number of potential benefits: more plentiful water supply for urban and farm use, improvement in water quality, reduction in the adverse effects on Delta fish, and improvement in the ability to manage the reduction in the water storage function of the Sierra Nevada snowpack anticipated with climate change. New surface storage is also intensely controversial because of the associated flooding of existing riparian habitat, reduction in fish spawning areas, and high costs compared with other water supply alternatives, including storage in underground aquifers.

There have been no public declarations of willingness to pay for water from new surface reservoirs, in contrast to the willingness to pay for a canal around the Delta. For urban users, this reticence could be mere bargaining position, of course, in hopes that state or federal money can be found to lower the tab. But for agricultural users, the costs are likely to be prohibitive without significant taxpayer subsidies. The high cost of water from proposed surface storage reservoirs is likely to make financing these projects considerably more difficult than the financing of the original State Water Project.

CALFED identified five surface storage projects that it considered most cost effective and plausible. All have at least some connection to the Delta, in that they would store water from within the watershed of the Delta and affect the management and well-being of the Delta and its fish and wildlife populations. All of these projects are candidates for a mix of federal, state, and user financing. For example, the Temperance Flat project on the San Joaquin River above Millerton Reservoir would provide water to users of the Friant-Kern and Madera Canals, both federal projects, and to the restoration of the San Joaquin River from the Friant Dam to its confluence with the Merced River.[19] The proposal to raise Shasta Dam would alter an existing federal facility. Some of the water from the proposed Sites Reservoir in Colusa County could be available to both the state and federal export pumps. Although the amount and terms of any federal financial contribution are important, the discussion below focuses primarily on the state and user portion of the cost, using the proposed Sites Reservoir as an example.

### *Options for Surface Reservoir Finance: The Sites Example*

Several possibilities present themselves for financing a reservoir such as Sites:

1. The project could be considered a "project conservation facility" (that is, an additional water source) for the State Water Project, and the state share could be funded through water charges paid by the project's contractors using the same apportionment rules as those for Oroville Dam and other SWP water sources.

[19] See http://www.usbr.gov/mp/sccao/storage/docs/pub_mtg_04-13-05.pdf.

2. Project cost could be paid for in whole or in part by the state's taxpayers by authorizing state general obligation bonds, as proposed by several bills before the legislature.

3. The state could enter into contracts with anyone willing to buy the new storage capacity or water supply, not limiting itself to existing contractors.[20]

4. Any combination of the above, with or without federal involvement.

The State Water Project was mostly financed by selling the water it supplied to contractors. Simply replicating that approach appears to be complicated by the increase in construction cost and cost per acre-foot of water produced. Whereas beneficiaries will reasonably pay for water at low prices, they naturally lose enthusiasm at higher prices. The proposed Sites reservoir provides an example. As of 2007, DWR's early estimates put the costs of building the Sites reservoir in the range of $2.3 and $3.2 billion, with an average annual yield of around 470,000 to 640,000 acre-feet of water (Department of Water Resources, 2007a). Including debt service and operating costs and allowing for some margin of error, the resulting water was estimated to cost around $340 per acre foot, and DWR estimates that it will cost an additional $150 per acre foot to ship the water to Southern California, for a total of about $490 per acre foot. SWP water delivered to Southern California today costs about $340 per acre foot (Department of Water Resources, 2007b). A more troubling contrast applies to water delivered to San Joaquin Valley farmers, which costs about $80 per acre foot today and will cost $340 plus a shipping cost if it comes from Sites Reservoir, a more than 425 percent increase. Cost estimates after further project design may be higher or lower, but higher seems to occur more often than lower. The estimated project yield may also need to be revised, probably downward. A recent evaluation of water options for Southern California by the Los Angeles County Economic Development Corporation raised the additional concern that water from the Sites Reservoir would be on the opposite side of the Delta from Southern California, with considerable uncertainty about whether additional water would make it through the Delta (Los Angeles County Economic Development Corporation, 2008).

## *Current Bond Proposals and the Complicated Case of "Public" Water*

Several proposed bond acts to help fund reservoirs and other water investments are before the legislature.[21] The basic structure of each follows the proposal made by Governor Schwarzenegger in September 2007. Although these bills represent positions in an active political struggle that is beyond the reach of this report, they also illustrate several of the conceptual tangles that make financing new reservoirs more complex than financing the original SWP in the 1960s. There are at least two new complications. First, the cost of constructing the proposed reservoirs, relative to the amount of additional water delivered, is quite high. Second, the water from these reservoirs bears an uneasy relationship to the water losses due to pumping restrictions recently imposed to help the delta smelt and Chinook salmon.

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[20] A dam and reservoir technically create the capacity to store water. Entitlement to the stored water depends on who owns the rights to the water.

[21] AB 1187 (Huffman et al.), SB 301 (Florez), SB 371 (Cogdill), SB 456 (Wolk), and SB 735 (Steinberg), all from the 2009-2010 legislative session.

Governor Schwarzenegger's September 2007 proposal for a bond act came only several days after a federal court ordered reduced pumping from the Delta by the state and federal water projects because of the declining population of delta smelt. Judge Wanger's opinion and court order marked a significant practical change in the assignment of mitigation responsibilities in the Delta. Before this court decision, the projects had to comply with environmental restrictions to meet salinity standards and benefit native fish (notably, reducing Delta outflows, especially between February and June). But they were largely able to adjust their pumping schedules to make up for the losses in later months, with the result that average export volumes continued to increase in response to increased water demand. The new restrictions imposed by Wanger's ruling meant that the projects were no longer in a position to make these adjustments and were exposed to potentially significant cuts in total export supplies (Lund et al., 2008). The judge ordered the U.S. Fish and Wildlife Service to prepare a new biological opinion about the condition of the delta smelt, one closer to the judge's conclusion about the risks to its survival. The new biological opinion, released in December 2008, reinforced the judge's ruling and mandated more stringent pumping restrictions, as well as a regime of "adaptive management" under which the degree of pumping restrictions would be reappraised from time to time, based on how smelt populations were responding (Fish and Wildlife Service, 2008).

Rather suddenly, two things had happened. The state and federal projects were on the hook for maintaining and improving delta smelt populations, a very costly responsibility in terms of foregone water exports, and their flow restrictions and perhaps other mitigation requirements had become a dynamic, moving target, with a significant threat of increasing severity. A similar case involving Chinook salmon, and the proposed listing of still more species as threatened and endangered, suggested the possibility of even more severe restrictions. The National Marine Fisheries Service estimates that its new biological opinion for salmon, released in June 2009 (National Marine Fisheries Service, 2009), will lead to additional water export reductions on the order of 5 to 7 percent above and beyond the delta smelt restrictions (DWR expects a 10 percent reduction) (Department of Water Resources, 2009).

These issues are by no means permanently settled. The new biological opinions will be challenged in court, and political resolutions will be sought. The Department of Water Resources and others are preparing a Bay Delta Conservation Plan with the intention of providing a multispecies and multifacility approach to protecting the Delta ecology, which could perhaps shift mitigation obligations. The outcome of these efforts remains speculative.

The surface storage portions of the water bond acts before the legislature in 2009 appear to be well adapted to the state of mitigation law as it existed before these changes. How the various pieces of legislation apply to the current situation is far less clear. The most significant financing notion in all of the current bond proposals is that funds from a new general obligation bond act should be used only to provide water for environmental and other public benefits. These benefits might result if new water could help bring water temperatures into ranges more favorable to fish, if the availability of the new water would allow for reduced pumping at times when fish would be most likely to be harmed, or if new water lowered salinity or otherwise improved water quality.

The notion that the public might want to buy some $3 billion of these benefits ($7 billion in one bill) made considerable sense in early 2007. Populations of delta smelt, Chinook salmon, and other fish appeared to be declining, and there appeared to be no governmental institution capable of doing anything about it. The main conversation on this theme within CALFED was that the public would have to pay for additional water to help the fish, using the mechanism of the Environmental Water Account. Prior bond acts had authorized several hundred million dollars for this purpose. Under these circumstances, paying for half of the costs of a major reservoir to acquire water that could be used to alter the timing of pumping in the Delta or to otherwise help fish made sense. But the rules governing the Delta have changed. The water projects are now responsible for furnishing the water needed to provide a much higher standard of protection for endangered fish species than was enforcedly required before, including water necessary for recovery of the smelt.

The governor's 2007 bond proposal specifically would have allowed bond funds to be used to pay for water for "mitigation of water supply losses resulting from programs to restore or enhance fish or wildlife resources" (in other words, to give water to the contractors to make up for the water they lose as a result of pumping restrictions imposed to protect delta smelt) (SB 3, Cogdill, September 19, 2007, Section 79764(b)(1)). The governor's proposal was not enacted. As of this writing (July 2009), *all* of the bond acts now proposed say that bond proceeds *cannot* be used "to support or pay for the costs of environmental mitigation measures or compliance obligations of any party."[22] If that provision is part of a bond act that is passed and put before voters, then the bond act would be buying several billion dollars worth of additional water for environmental purposes on top of the water provided by the contractors to allow threatened and endangered species to recover. We have not seen an explanation of how that water would be used to support the Delta, or of why so much of the water from a new reservoir would be dedicated to unspecified environmental purposes additional to the water provided by the projects. This is not to say that there is no conceivable environmental use for that water, especially in light of global warming, but simply to note that these matters have not yet been explained.

How the admonition against paying for "environmental mitigation measures or compliance obligations" would work in practice is far from clear. California's interactive water system is complex. Suppose a delta smelt mitigation condition requires the projects to cease pumping for several weeks in the spring but allows them to resume pumping during the summer. Suppose the public benefit water is released during the late summer to support fish migration and lower water temperatures, not because of an Endangered Species Act requirement in effect at that time, but in addition to those requirements. As a consequence, there is more water in the Delta when the pumps are allowed to work. Can they increase pumping to capture the new "public benefit" water, effectively offsetting the water they lost as a result of the springtime pumping restriction? On the one hand, it would be good if the water did double duty—helping fish and increasing the supply of water available for users. But as a matter of financing, the same water has two sets of beneficiaries, and perhaps the water users should be paying an amount for the new reservoir that reflects this additional benefit. The only way to work out a reasonable benefit allocation in this case would be with a complex hydrologic model

[22] For example, see SB 735 (Steinberg, February 27, 2009), Section 79715.

that allowed analysis of potential multiple uses of "public benefit" water (and the argument could be reversed as well, if private use water provided public benefits).

These difficulties are complex enough in a world of fixed environmental restrictions. Additional ambiguity arises if environmental mitigation requirements change over time, as they might under adaptive management. Suppose that, in year one, the pumps are shut down for three weeks in the spring, and that the contractors agree to another two weeks of inactivity if they are compensated with "public benefit" water later in the summer. The public benefit here is that the fish populations are thought to be helped by the extra two weeks of inactivity. Suppose, however, that fish populations continue to decline. In year two, the fish regulatory agency concludes that the pumps should be shut down for eight weeks in the spring. Would they order the contractors to shut down for eight weeks? Or would they order only a mandatory six-week shut down, knowing that the "public benefit" water would cover the additional two weeks? Even if they order the pumps shut for the entire eight weeks, would the managers of the public benefit water continue to provide backup water for two weeks of the eight, on the theory that they made a multiyear commitment to do so when the two weeks were not required as environmental mitigation? Or would the regulatory agency insist that the projects limit pumping for the full eight weeks, on the condition that they would provide compensating water for another two weeks, for a total of ten? One of the water bond bills this year specifies that the limitation on using public benefit water does not apply to environmental mitigation measures "established prior to the enactment of this" bond act.[23]

Interaction between public benefit water and the environmental mitigation responsibilities of Delta water exporters could be much less explicit. For example, suppose that current pumping rules are insufficiently restrictive, or that pumping is only a modest part of the problem the delta smelt and other fish are having. So fish populations continue to decline. The logic of the current regulatory approach suggests that further pumping restrictions would be imposed. If, instead, a half million acre-feet of public benefit water from a new reservoir were released adroitly, perhaps it would help increase fish populations. In that case, the use of the water would not violate the prohibition on paying for environmental mitigation responsibilities, because those responsibilities had not yet been imposed. Instead, they would displace the need for additional environmental mitigation by water exporters. Were it not for the public water, exporters' environmental mitigation requirements would have been more severe.

These considerations suggest that the bond language disallowing taxpayer funding of new water that would help cover mitigation required by water exporters may be ultimately impractical and perhaps misleading. A proposal to spend $3 billion or more of public money deserves fuller explanation.

Another question is whether it makes sense to limit water paid for with bond funds only for "public benefits" of an environmental nature. In the event of an extended drought, where urban areas in California were facing stressful rationing, the spectacle of publicly financed

[23] SB 371 (Cogdill, February 25, 2009) at Section 79742(b). The meaning of "established prior to the enactment of this" bond act is far from clear. In the preceding example, one could reasonably argue that a regime of adaptive management is now established, and that the yearly conditions imposed, even if increasingly severe, are also already "established."

water flowing purely for the well-being of fish would likely elicit complaint from a broader group than those who customarily complain about such things. Under this and perhaps other conceivable circumstances, somewhat greater operational flexibility in the use of the water may be warranted.

There may be opportunity over time to sell part or even all of the publicly funded water in a new reservoir. For example, it might be sold or leased to developers of private projects who need water to create or enhance wetlands as mitigation for their project. Water might also be sold to developers who need to identify a water source for a development project to satisfy existing state requirements.[24] While these kinds of marketing possibilities may offend some, they also offer the prospect of reducing the cost of reservoir projects to California taxpayers and of freeing up state bond capacity for other purposes.

The bond acts would provide funding for reservoir storage, with the idea that the public would be buying storage capacity for water that would be used for "public benefits." The bills say that the bonds cannot pay for more than half of the cost of any reservoir. They also direct DWR to enter into contracts with others who would get water from the project to ensure that they would pay for their share of project benefits.

This formulation allows room for several financing scenarios perhaps not intended by the bills' authors. One is that the bills don't specify any relationship between the public benefits and project costs. Bond fund administrators might quite reasonably conclude that the value (in dollars per acre-foot) of benefits from water used to restore fish on the verge of extinction far exceeded the benefits from water provided for irrigation of relatively low value crops. Suppose they concluded that the public benefits were worth $5000 per acre foot of water from a new reservoir providing half a million acre feet of water in an average year and costing $3 billion (the size and cost of which roughly correspond to DWR's description of Sites Reservoir). A high number is not implausible, since the water might save perhaps several species of fish from extinction, a benefit the public presumably values highly. The 50 percent of the project costs that the bills allow for public benefits would buy capacity for about 20,000 acre feet of water, leaving about 480,000 acre feet available for other users. These users would need to pay about $200 per acre foot for the remaining water (which would raise enough money to pay debt service on the remaining cost of the project), a considerable savings over their share of project cost. The numbers used in this example may be a bit extreme, and ignore annual operating costs for simplicity, but the potential range for judgment in assigning value to public benefits seems clear.

Some defined public benefits may not be all that public. For example, the bills define "public benefit" to include "water quality improvements … that clean up or restore groundwater resources." One rationale for nearly all water development in the Central Valley for many decades has been to restore groundwater resources by supplying additional surface water to farmers presently using groundwater (or who might use groundwater more in the future).

[24] Legislation passed in 2001 (SB 221 and SB 610) require developers to demonstrate availability of at least 20 years of water supply for new developments with at least 500 new residential dwellings or their equivalent or that would increase water demand by at least 10 percent.

Under the bills' definitions, this would apparently be a public benefit use of water for which bond proceeds could be used. This might be a surprising result for some of the bill's sponsors.

Although this discussion of the relationship between the proposed bond acts and the funding of new reservoir storage is somewhat tedious, it is important because $3 billion is a lot of money and because the reasons for investing in a large amount of water for "public benefit" purposes at the moment remains mysterious. Perhaps the case can be made, but to date, the rationale has been neither explained nor supported.

## Environmental Mitigation and Delta Governance

A considerable amount of environmental mitigation has been undertaken in the Delta over the past several decades. The SWRCB has imposed flow requirements and salinity standards. There are requirements for fish screens on at least some diversion intakes. Sewage treatment plant operators are required to clean up their waste discharges to a considerable degree, although not completely. And fishing has been restricted in some years.

Although the federal court decisions and new biological opinions focus on the mitigation responsibilities of the CVP and SWP, the water project operations are almost certainly not the only reason for the demise of the delta smelt and other fish. The state of scientific knowledge about cause and effect in this case is surprisingly limited, but most experts would probably agree that the following factors are somewhat important, although most would decline to assign precise weights to each:

- Reductions in water flows and damage to fish caused by diversions upstream as well as within the Delta.
- Reductions of breeding and other habitat caused by dams, levees, draining of marshlands, and other water management decisions.
- Foreign species consuming the food supply needed by indigenous fish.
- Ammonia from Sacramento and other upstream and in-Delta sewage treatment plants.
- The introduction of game fish that eat indigenous species or compete for the same food sources.
- Changes in the temperatures and acidity of the ocean and freshwater bodies and changes in ocean currents and nutrient and species distribution patterns caused by human activity and by natural processes.

In a rational, just, and apolitical world, it is likely we would move expeditiously to devise a mechanism for allocating perfect responsibilities for mitigating fish problems in the Delta. Since doing so would be difficult at many levels, it may not happen. It seems more likely that the water projects will be left to fight it out alone in the courts, and other efforts will focus on negating or minimizing the effects of the court decisions by gaining an exemption from the

federal and state Endangered Species Acts. Perhaps more promising is the effort by DWR and others to create a multispecies, multifacility plan for restoring the environmental functioning of the Delta while also improving its capacity to deliver water to the state and federal projects and other users. It would not be surprising if this effort determined that environmental restoration work beyond the pumping restrictions and other requirements already imposed by courts and regulatory agencies would be helpful. This additional work could reasonably be funded in part by fees levied on a broader set of Delta water users than just the state and federal project contractors.

Conducting environmental mitigation by fee has, potentially, considerable simplicity compared to conditioning water rights. Water rights have a complex and nuanced priority structure. Riparian rights must be balanced against each other. All come before appropriative rights, which follow a first-in-time rule. However, later appropriations in an "area of origin" may have priority over more senior appropriations for water used outside of the origin area. It is unclear how these various priorities apply to environmental mitigation responsibilities. Must all mitigation come from the most junior appropriators? Or is mitigation a responsibility that applies to all water users, regardless of their priority in rights?[25] These are questions capable of fueling extended legal dispute.[26] A fee may arguably avoid such questions, since these priorities do not necessarily apply to fees. However, if a court were to conclude that a fee must be apportioned based on the legal "responsibility" of a water user to mitigate as determined under water rights laws, then all of the same perplexity could arise. The fee cases discussed above have not yet come close to demanding this degree of precision.

The governor's Blue Ribbon Task Force proposed that overall management of water exports, operation of a possible peripheral canal, and environmental mitigation and restoration should be conducted under the authority of a new Delta Council. Even if some other governance structure is chosen, the management of water and environmental restoration is unavoidably linked to the success or failure of both the environmental and the water delivery functions of the Delta. At least some of the costs of a Delta Council or other governmental apparatus are also a plausible candidate for funding by regulatory fees.

However ambitious the aim, any environmental mitigation fee for the Delta would need to include satisfactory arrangements for dealing with the distinctions and requirements the courts have determined and are continuing to determine.

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[25] Judge Racanelli identified at least limited circumstances when courts could deviate from established water rights priorities to achieve water quality goals. For example, the state and federal projects could jointly share responsibility for meeting certain Delta salinity conditions, even though the federal project's water rights are senior to the state project's rights. See *United States of America v. State Water Resources Control Board et al.* 182 Cal. App. 3d 82 (1986).

[26] For example, see *El Dorado Irrigation District v. State Water Resources Control Board et al*, 142 Cal. App. 4th 937. The SWRCB imposed a water-quality-related limit on the irrigation district's water diversions. The court held the limit unlawful because it was not also applied to perhaps hundreds of other water users with appropriative rights junior to El Dorado's. But this does not answer the question of whether all of the junior appropriator water should be used for mitigation, advancing up the senior ladder until enough water has been secured. Even in this comparatively simple case, there are interesting dissenting opinions.

## *Fees Levied on SWP Contractors*

Mitigation fees that might be levied on SWP contractors are a special case. As noted above, California's Davis-Dolwig Act, approved in 1961, directed DWR to levy fees on water contractors to pay for work needed for the "preservation" of fish populations from harm resulting from project operations (California Water Code Section 11912). It also instructed DWR not to ask contractors to pay for any work needed for the "enhancement" of fish and wildlife resources, because that work would benefit the general public and should be paid for from the General Fund. Measures to prevent the extinction of delta smelt would seem to fall into the "preservation" category. Awkwardly, the contracts between DWR and the contractors do not include any language about payments for preservation. Nevertheless, they were drafted and signed when the preservation directive was valid law in California (as it still is), and DWR may still have authority to include fish preservation costs in the amounts it charges the contractors for water.

## *Rationale for Regulatory Fees*

More generally, a fee to pay for environmental work and related governance in the Delta is likely to fall into the category described by the California Supreme Court as a "regulatory fee" (*Sinclair Paint Company v. State Board of Equalization*, 15 Cal. 4th 866, 1997). Such a fee would fund the administrative structures of a regulatory system or the costs of mitigating damages caused by the regulated activities. Any statute establishing a fee should describe the regulatory goals and program in at least modest detail, rather than relying on a court to guess correctly.

The regulatory program might be as described in the Final Report of the governor's Blue Ribbon Task Force—to manage the water and other resources of the Delta to achieve "coequal goals: restore the Delta ecosystem and create a more reliable water supply for California" (Governor's Delta Vision Blue Ribbon Task Force, 2008). The report includes abundant detail that could be incorporated or cited to justify a fee (or perhaps a few related fees) to finance:

- Environmental mitigation in the Delta and its watershed, including paying for new or existing water if necessary for salinity control, temperature management, maintaining correct flow direction, or other purposes, as well as for habitat creation or reconstruction or other environmental works.

- The costs of a Delta Council, as described in the report, or another administrative mechanism with the charge of overseeing efforts to achieve the "coequal goals." For example, a fee might help fund work by the SWRCB if it were given (or adopted on its own) a more ambitious Delta environmental management agenda.

- The costs of collecting data on water diversions and of other activities needed to properly apportion the fees, manage the environmental and water supply functions of the Delta, or conduct scientific assessment of the functioning of the Delta.

An alternative rationale lies in the California Supreme Court's Mono Lake decision, which held that the public has a "public trust" interest in all water rights in California. This

public trust includes authority to protect fish and wildlife. The court envisioned a regulatory approach to protecting these public interests, which may well have been the only practical option in the case of Mono Lake. But the same concept, applied to harm done to Delta fish by upstream diversions and other water uses, could lead to a system of fees on water users and people who discharge waste into water with the net effect of harming Delta fish. The fee would be proportional to the harm done to Delta public trust interests by each water user.

## *Fee Apportionment: Methods and Data Challenges*

A fee is usually conceived of as a way to raise money to perform some specific regulatory or other function, but it could also serve the slightly different purpose of apportioning the burden of a regulatory system more fairly than some existing arrangement. In the Delta, responsibility for mitigating fish declines and salinity problems is assigned to the two big water export projects. Until the recent restrictions on Delta pumping, the SWP and CVP exported, on average, about 6 million acre-feet of water annually from the Delta, while other users divert around 11.4 million acre-feet upstream of the Delta (Lund et al., 2007).[27] While the action of the pumps appears to be particularly damaging because of its effects on direction of flow, fish entrainment, water turbidity, and other things, it seems reasonable to expect that the upstream diversion of 11.4 million acre feet also contributes to the problem.

Our current understanding of why fish populations are declining in the Delta is surprisingly limited. Most experts identify a number of factors, yet decline to assign percentages of responsibility to each. Most observers would probably agree that the SWP and CVP do not deserve all of the blame. So how do we deal with this range of uncertainty in a practical way?

A close, if imperfect, analogy to this fee apportionment task can be seen in the SWRCB's approach to Delta water rights regulation. First, the Board adopts a plan for Delta water quality, based on an analysis of its water quality and other problems. Then, in a separate and subsequent proceeding, it determines whose rights should be conditioned or modified, drawing on an analysis of how different rights holders affect the system. At least conceptually, the Board's work is supposed to work this way; the practice is perhaps less refined. In any case, the SWRCB has more closely analogous experience to this assignment task than any other state agency. The Board could perhaps be charged in statute with undertaking a broader and more ambitious program of Delta mitigation and assignment of relative responsibilities (to include pre-1914 appropriators and riparian rights holders). A major court decision already directs the Board to undertake this broader and more ambitious work, but with limited effect so far (*United States of America v. State Water Resources Control Board*, et al., 182 Cal. App. 3d 82, 1986—also known as the Racanelli Decision).

An alternative approach might be to declare in statute that the fee should be based on the amount of water each right holder or each of several classes of right holders is permitted to divert or consumptively use within the Delta's watershed (most of northern and central California). The statute might offer right holders an opportunity to present evidence that their diversions do not affect the Delta, or that they affect it less proportionately than believed. A

[27] Delta farmers divert around 0.8 million acre-feet, on average.

presentation of this sort might be made to the new Delta Council (as proposed by the Blue Ribbon Task Force) if it is established, or to the SWRCB. (DWR would not be an appropriate arbiter, given its management role for the SWP).

A problem with either approach is that data on water rights and water diversions are of poor quality and incomplete. The SWRCB knows the nominal or "face value" of diversion authority for holders of post-1914 appropriative rights holders that it or its predecessor agency granted. But there are complications. In some cases, multiple permits have been issued covering the same water uses. In some cases, the amount of authorized diversion exceeds the amount of water likely to actually exist. Some diversions are for enough water to completely fill an empty reservoir, an amount of water that is unlikely to be diverted again. Many water rights have conditions that prohibit diversion of the "face value" amount of water during dry years or during certain months or for other reasons.

The SWRCB does not maintain records on pre-1914 appropriators or riparian right holders, and so does not have information about their "face value" water rights. The Board does ask nearly all water rights holders to file annual reports on the amounts of water they divert and use, so the Board at least has the data from those who provide reports. Unfortunately, there are several statutory exemptions from this reporting requirement. Many rights holders do not report their water use or diversion as required, and there is no penalty or enforcement mechanism. Some categories of rights holders are not required to report, so there are significant gaps in coverage. And finally, it is likely that holders of multiple permits over-report their water use. In sum, the use and diversion data are unreliable and unverified.

In addition, the face value diversion amounts do not account for the different effects that different kinds of diversions may have on the Delta's environment. For example, a permit may authorize diversion of water for hydro-electrical generation. The diversion will alter the timing and intensity of the flow of water, as well as its temperature, sediment load, and so on, but at least the water will eventually continue down the river and flow through the Delta. Some flow changes may actually be beneficial for the Delta and its fish. However, the dam itself represents a more complex problem. The degree to which it may block access to fish spawning habitat is only roughly related to the occurrence of water diversion and the amount of water flowing into the Delta. Likewise, the effects of a permit that authorizes diversion of water for farming far upstream will depend on the effectiveness of fish screens at the diversion intake point, on the timing of diversion, and perhaps on the salinity and other characteristics of any drainage water that returns to the river. The impact of pumping water from the Delta itself for export has been the subject of extensive study and continuing controversy.

In spite of this wide variability of data, the SWRCB used these data to apportion the fees it levied to support its Water Rights Division. The appellate court that reviewed these fees raised no objections to the quality or completeness of the data. And so this approach appears to be acceptable as a methodology for apportioning regulatory fees.

Still, an allocation based on more accurate data would be fairer and perhaps more defensible. Two approaches come to mind.

The first would be to create legal incentives leading to more complete and accurate self-reported data. Statute could allow the Board to levy a non-trivial fine for failure to submit an annual water diversion and use report and to make intentional misreporting subject to a further fine. Alternatively, or additionally, statute could create a rebuttable presumption about the amounts reported. For example, it could say that the Board could rely on the reported use numbers as an upper limit in the event that the water right in question was subject to challenge or other adjudicatory action. Although the self-reporter might then have reason to exaggerate water use upward, this might be offset if the mitigation fee was based on the amount of water reported and involved a significant amount of money.

A second possible approach would be to create a statute requiring the Board to institute a more precise and technologically sophisticated water use measurement system. Large diverters and some smaller ones as well might be required to install cost-effective water measurement and estimating technologies and to maintain records of the resulting water use data. Other users might be required to keep track of simple data that could be used to estimate actual water use with reasonable precision, such as animal-unit days for livestock operations or acres planted by crop and irrigation type for farming. In light of the likely technical issues and complications involved in this approach, the Board or DWR might be required to report to the legislature on the best way to develop a relatively accurate system of water measurement and estimation.

Many water users will probably object to being required to collect and report these kinds of data. Nevertheless, water is a public resource and it is not unreasonable for the public to want to know where and how it is being used. In addition, it seems probable that competition and conflict over water rights and use will increase in California over coming decades because of increasing population and global warming. A credible data base of recent historical use amounts might have great value in equitably and speedily resolving disputes.

## *Activities Fee Revenue Might Fund*

Revenue raised through a regulatory fee must be used to pay for the cost of administration of a regulatory program, to provide benefits to those subject to regulation (for example, by helping provide stable and predictable water rights), or to mitigate harm caused by regulated activity (such as health damage caused by lead paint). At least, these are the types of uses recognized as legitimate by California's courts so far.

How would these standards apply to a regulatory fee levied on those who use Delta water? This is a question subject to alternative judgments and perhaps eventual litigation, but a plausible interpretation of the standards would suggest the following possibilities.

1) **Mitigation for fish and wildlife problems**. Mitigation of problems in the Delta or on waterways in its drainage area that are reasonably related to water use would seem to represent a justifiable use of fee revenue. This may not extend to mitigation for endangered reptiles or plant losses related to development or farming practices rather than water conditions. However, a separate regulatory fee with its own rationale could probably be devised for this purpose.

The potential scope for allowable mitigation activities is broad, and probably more limited by application of common sense and political practicality than by legal restriction. Allowable mitigation might include paying for habitat improvements, paying part of the cost of new storage reservoirs to provide additional mitigation water, and even compensating SWP and CVP contractors for water losses due to pumping restrictions if it is determined that they have been assigned more than their fair share of mitigation responsibility. It might also include buying water for mitigation purposes from willing sellers, following the model of the Environmental Water Account.

However, it would not be appropriate to use fee revenues paid by water users to cover the costs of damage caused by others. Whereas fees might also be levied on some of these parties—for instance wastewater dischargers—it may be impractical to levy them on others. A case in point is Delta farmers. The destruction of natural habitat in the Delta resulted primarily from early reclamation, levee construction, and farming operations in the late 19th and early 20th centuries. The responsible parties have long since departed. The financial capacity of current Delta farmers for this kind of mitigation appears limited, not to mention their indignation at the idea of turning farmland into wildlife habitat. It may be more practical to consider this kind of mitigation as an environmental "stranded cost" without identifiable responsible parties, making it an appropriate area for state general obligation bond funding.

2) **The cost of Delta governance.** The portion of governance costs that relates to water management, environmental restoration, and fish preservation, including planning for these purposes, is probably an allowable use of regulatory fees paid by water users. For example, if a Delta Council were created and charged with managing Delta water systems and land use, a water fee could be used to pay its administrative costs reasonably apportioned to water management, but probably not to land use control.

3) **Delta levee improvements.** Water fees could be used to support maintenance or more ambitious work on Delta levees only in the proportion that the benefits to the water system bear to the total benefits produced by the levee work. It is generally believed that catastrophic levee collapse—such as that caused by an earthquake—would lead to a massive influx of salt water in the Delta, making it much too salty for use in the SWP or CVP, the urban areas that draw water from the Delta through local projects, or Delta farming. Recent analysis suggests that the five western islands are far more important for water exports than more easterly Delta islands (Lund et al., 2008), and that levee upgrades, while expensive, offer only small improvements in overall system reliability (Suddeth, Mount, and Lund, 2008).

4) **Invasive species control.** Whether water fees should be used to support invasive species removal is a complicated question. Presumably, the introduction of these species occurred through shipping and accidental or intentional transplanting. However, the operation of the water system to facilitate export pumping has likely contributed to the expansion of invasive species harmful to the Delta's native fish populations, limiting the waters' natural variability in salinity levels and turbidity (Lund et al., 2007 and 2008; Moyle and Bennett, 2008**.** Whatever the cause, reducing at least some of the invasive species in the Delta might

help support threatened native fish by reducing competition for food supplies. If such were the case, then paying for the removal of invasive species might be a cheaper way than reductions in pumping to reach an acceptable level of fish populations. In either case, it may be that export projects and other in-Delta pumpers rather than all watershed diverters would be appropriate candidates for the relevant fees.

## *Protecting the Funds*

One of the first things courts look at in determining if a levy is a fee or a tax is whether the revenue is set aside to be used only for the particular regulatory or mitigation program for which it was raised, or if it can be siphoned off for general governmental purposes. If any of the revenue is used for general governmental purposes, the levy is considered a tax and, in the case of a state levy, must be approved by a two-thirds legislative vote or is otherwise deemed unconstitutional and presumably uncollectable.

A statute authorizing a Delta environmental mitigation fee would have to mandate that the revenue be deposited in a separate account and be available only for the purposes of the Delta regulatory and mitigation program—and actual practice would have to follow this directive.

However, some ambiguities remain. For example, suppose a substantial balance accumulated in the Delta Regulation and Mitigation Fund.[28] The state's practice has been to borrow money from special funds such as this to help meet its cash flow needs. Usually the money is used to bridge periods before major tax payments are due and is paid back within a year. However, in times of budgetary crisis, borrowing may extend over longer periods. The state professes to follow the rule that only special fund amounts not needed in the short term can be borrowed, and also that borrowed funds will be repaid with interest at the rate earned by the state's Pooled Money Investment Fund. It is conceivable that Delta program administrators could be directed to slow down their work so more "borrowable" funds remain in the account. Since the state has recently experienced an acute shortage of "borrowable" funds, this possibility seems more than conjectural. For example, a "slow down" might reduce the rate of habitat restoration or delay the construction of a reservoir, the acquisition of a right of way, or work on a peripheral canal.

The possibility of raids on payments made by contractors was a serious concern when the State Water Project was initially approved. The bond act which provided initial funding for the project declared that project revenues were to be treated as a trust fund and pledged to pay the bondholders and operate the project and "shall not be used for any other purpose" (California Water Code Section 12937(b)). If any attempt had been made to use contractor money for other purposes, a bondholder would have been able to sue to enforce these provisions. If Delta fees were to be used to pay off a bond issue for Delta restoration, perhaps a similar approach could be used. Alternatively (or perhaps additionally), a Delta fee statute could explicitly limit the use of funds to defined projects and prescribe findings that the administering agency would have to make before funds could be borrowed by the state. These

[28] A substantial balance would raise questions about whether the fee was raising just enough to cover the cost of the regulatory program, or perhaps illegally collecting more. However, the courts may be tolerant of a plan in which program costs are just covered over a period of some years.

findings would be something to the effect that the Delta restoration work was going full speed ahead and that the additional money in the Delta fund was really not needed at the moment (and perhaps specifying a time when it would be needed, and when the state would be required to repay the borrowed money). The statute might also specify that repayment would have to be made within the fiscal year, or within some other time period. Finally, individuals or organizations paying fees into this program, or individuals or agencies with a stake in the restoration work, could be specifically allowed to challenge the validity of the findings. Since a statute enacted later could assert that, notwithstanding these requirements, the state was going to proceed to borrow the money, the provisions would need to be reinforced by inclusion as pledges in bond contracts or perhaps other contractual commitments by the agency managing and administering the Delta program. It would be helpful if state law specifically authorized the agency to make pledges of this sort and also authorized the other parties to the contract to sue the state to enforce them.

### *And in Conclusion ...*

Using regulatory fees to fund a significant portion of the cost of restoring the fish populations and the environmental infrastructure of the Delta, and perhaps of creating a new governance structure to oversee the work, would entail the most ambitious use of fees described in this report. It would require a creative and dedicated effort to apportion fees in a fair and reasonable way in the face of limited data and considerable scientific uncertainty. Done well, the judicious use of regulatory fees has the potential to be more fair than placing essentially all responsibility for environmental mitigation on the state and federal water projects, and less complex than trying to achieve similar results by restricting water rights through the SWRCB. To be sure, it would still be controversial, because paying for any public activity in California is controversial right now. And it would no doubt be contested in court—but it would have a good chance of being upheld.

## Delta Levee Improvements

Much of the Delta sits at or below sea level, protected by about 1,100 miles of levees. Most were built in the 1800s and early 1900s. Most have insubstantial foundations of sand and organic matter susceptible to seepage and erosion, and to liquefaction during an earthquake. And most provide only superficial protection, in many cases considered inadequate even for agricultural land.

The levees offer protection to several small towns, as well as agricultural development. They also protect valuable state, regional, and private investments in highways, water aqueducts, gas pipelines, electrical transmission lines, and navigation channels. Finally, they provide a relatively stable —if risky—hydrologic context for the intakes of the state and federal water projects. The collapse of multiple levees during periods of low river flow would lead to a surge of salt water into the Delta, making the water unusable both for water exporters and for farmers who draw water directly from the Delta. The scale and duration of salt water intrusion would depend on the number and size of the islands that flooded, the timing of the collapse, the speed with which breeches were plugged, and the degree to which upstream reservoir water would be available for flushing. Recent modeling suggests levee collapses could cause export

pumps to be shut down long enough to reduce water exports by two to eight million acre feet (Department of Water Resources, 2008).

Most of the levees were built by landowners anxious to turn swampland into valuable farmland. More than 700 miles of these levees are now maintained by local special districts, including reclamation, levee, flood control, and drainage districts. About 385 miles of Delta levees are part of the Sacramento River Flood Control Project overseen by the Army Corps of Engineers and are eligible for financial assistance from the Corps. The state has provided grants to help the local agencies maintain and improve their levees since 1973,[29] and recent state general obligation bonds acts have substantially increased the money available in the past few years (Propositions 84 and 1E in 2006). However, the amount of money available remains modest relative to "need," and many local levee maintenance agencies have a difficult time (or simply cannot) come up with the local matching funds required by the propositions.

As discussed above, it may be possible to secure additional funding for Delta levees through fees levied upon the state and federal water projects (or their contractors), since under the current export management regime, the water providers and contractors obviously benefit from more secure levees, particularly those on the west side of the Delta and nearest the project intakes. However, one thing is clear—the existing financing structure, even with the possible addition of funding from the water projects, is inadequate. It has no hope of being sufficient to bring Delta levees up to even a minimally reasonable standard of protection for the water projects, towns, public infrastructure, agriculture, or even fish and wildlife habitat. The probability of rising sea levels and of a major earthquake in or near the Delta further escalates the danger and the costs. The problem is compounded by the apparent fact that in many cases the cost of levee improvements substantially exceeds the value of the land and assets protected (Lund et al., 2008). This latter situation makes it unlikely that landowners can be induced to pay most of the costs of levee repair and raises considerable doubt about whether the work is economically justified, no matter who picks up the tab. (This does not prevent the landowners from objecting strongly to proposals to make any changes in the way the islands are used.)

These circumstances constitute not so much a financing problem as a basic conundrum of what to do about the Delta's levees and islands. The problems surely do not have a simple or uniform answer but require individual decisions, island by island and levee by levee. Even in the medium term, the state has only a few options:

1. It can continue to fund a low level of levee maintenance and reconstruction. It would then await disaster in the form of a major Delta earthquake that liquefies many levees below water level, or in the form of slower sea level rise and increasing flooding. Sudden collapse of multiple levees following an earthquake, particularly of several western islands simultaneously, would shut down the export pumps for months, cut off water availability for municipalities and farmers that rely on Delta intakes, submerge highways and other infrastructure, make Delta landowners indignant, and provoke many lawsuits. Lacking an earthquake, islands are likely to fail progressively over time and often not be repaired, as in the case of Franks Tract

[29] See http://www.water.ca.gov/floodmgmt/dsmo/bdlb/sp/.

(flooded permanently since 1938), Mildred Island (1983), Liberty Island (1995), and the most recent (repaired) levee failure, on Jones Tract in 2004.

2. The state could authorize general obligation bonds to upgrade strategic Delta levees to a modest level of safety. Since general obligation bonds cannot be issued without limit and have substantial costs, and since the state has many other infrastructure financing needs, it is questionable whether this would be a wise course. Its chief advantages are that it might buy some time and might help protect valuable public and private infrastructure investments.

3. The state could buy selected islands, breech their levees in a controlled way, and manage their conversion to wildlife habitat.[30] This could perhaps be combined with a more ambitious version of the option discussed in the preceding bullet. Levees essential for protection of water supply, infrastructure, and Delta communities could be reconstructed to give them a reasonable chance of surviving a significant earthquake and rising sea level, although this would be quite expensive. Once these kinds of decisions are made, financial arrangements would probably follow in a fairly straight-forward way. Financing from local districts, mostly in the form of assessments on landowners, would presumably continue much as before. Perhaps assessments or other payments from any further urban development within the Delta should be substantially higher, enough to pay the full cost of secure levee construction and future maintenance. Efforts could be made to negotiate additional federal financial assistance. Water exporters might be required (or even volunteer) to pay some of the costs in proportion to their expected benefits. The state would probably need to authorize a substantial amount of general obligation bonds for these purposes, unless the condition of its General Fund takes an unexpected turn for the better.

[30] These steps fit awkwardly with current water quality laws and, in the case of project levies, with Corps of Engineers requirements; and some resolution of these conflicts would need to be worked out (see Lund et al., 2008, chapter 7).

# Conclusion

Paying for anything in California right now is difficult. Nevertheless, there is also a growing sense of urgency about California's need to improve its water supply system and, in particular, to fix at least some of the many demanding problems in the Sacramento–San Joaquin Delta. Solutions, however, even partial ones, will require spending substantial sums of money.

It may be that the least politically difficult approach to financing this work will be to rely on the state's General Fund, either directly or, more likely, by proposing state general obligation bonds to be paid off with future General Fund revenues. This has the seeming virtue of avoiding asking anyone to pay (directly) for any additional work in the Delta.

An alternative would be to ask those who will benefit from Delta improvements, or who are responsible for some of the problems, to pay for the work. A beneficiary payment approach has attracted at least rhetorical support in recent years from CALFED, the legislature, and the governor. It has the considerable advantage of not drawing on the General Fund, which shows some signs of being already oversubscribed for existing state programs. It has the economic virtue of asking water users to pay something closer to the real cost of providing water, which should encourage efficiency. And it has the historical legitimacy of being the way California's major urban water systems and the State Water Project have been funded.

California's Constitution includes many provisions to protect Californians from paying excessive taxes and fees. Nevertheless, the California Supreme Court has allowed the state to levy fees to support its regulatory programs, including presumably regulation of the Delta. This authority could make financing Delta work with beneficiary fees relatively easy, at least from a legal point of view.

We conclude with a discussion of various ways in which beneficiary payments might be used to pay for proposed projects relating to the Delta.

## Alternative Water Conveyance

"Alternative conveyance" is the fashionable term for a peripheral canal or closely related facility. At a broad conceptual level, a canal would be easy to finance. Those individuals or organizations who contract to receive water from the state and federal water projects would pay for it, and they are on record in many places as saying they are willing to do so. The reasons for their seeming generosity are clear enough—a canal would give them a more reliable, higher quality water supply. It might also help threatened fish species recover, and thus would remove or reduce restrictions on pumping by water projects.

A canal could be financed using fees incorporated into the contracts and other financing arrangements that already exist for the State Water Project, and through negotiation of analogous arrangements with federal project contractors. Basically, contractors would pay in proportion to the amount of water for which they have contractual "entitlements" each year.

Alternatively, a canal might be financed through fees levied by a governmental agency, such as a new Delta Council as proposed by the governor's Blue Ribbon Task Force. The fees would probably be apportioned in the same way—in proportion to contractual "entitlements" to project water.

However, there are some potential complications. The contractors may be less willing to pay if a proposed canal is too small, its operation has too many restrictions or is governed by agencies the contractors do not trust, or if environmental mitigation conditions are too rigorous. There might also be complications in finding a suitable legal structure for levying fees on the federal contractors. Nonetheless, if agreement were reached on building a canal, it is likely that these minor financing issues could be readily resolved.

## Surface Storage Reservoirs

New reservoirs have been proposed to increase the state's water supply for urban and agricultural use. However, in contrast to a canal, no one has offered to buy water from new reservoirs at a price that will pay for their construction or operation. New reservoirs would be expensive to build and operate, and the water would cost considerably more than water from existing state and federal project facilities.

Several legislators have proposed bills to authorize state general obligation bonds to pay part of the cost of new reservoirs (each bill also proposes bond money for other water programs not directly related to reservoirs). But these bills do not propose to solve the problem that water from new reservoirs may be too expensive to attract buyers. Each says that bond money can only fund half the cost of each new dam or reservoir, implying that half the resulting water supply will be available only for "public benefit" purposes. Each bill says the public benefit water cannot be used to satisfy any private user's environmental mitigation responsibilities. However, despite these provisions, it is not hard to imagine that the public benefit water will end up doing just that, at least with respect to mitigation responsibilities likely to be imposed in the not too distant future.

The half-public-benefit-water proposal contained in all of these bills made considerable sense two years ago. At the time, Delta fish populations were declining rapidly, and there seemed no way to do anything about it except to buy "public benefit" water and use it to compensate the water projects for reducing pumping when it was especially damaging to fish. But this rationale changed substantially when a federal judge ruled that the projects were jeopardizing delta smelt and, later, Chinook salmon contrary to the federal Endangered Species Act. As a consequence, the projects are required to curtail pumping during times when fish are especially affected, and they have potentially broader responsibility for helping the fish recover. Under these circumstances, it is not so clear why the public should be investing in substantial amounts of water for "public benefit" or environmental purposes. At least the bills need a better explanation.

## Environmental Mitigation

The governor's Blue Ribbon Task Force and other studies have proposed various actions to restore the environment of the Delta, at least to some degree. They include steps to avert the demise of several fish species and to hopefully foster their recovery to reliably stable population levels, and also proposals to restore marshland and other habitat along the sloughs in the Delta and perhaps within what are now islands.

Important existing efforts to improve the Delta's environment have come from the State Water Resources Control Board, which has imposed conditions on the water rights permits of the state and federal water projects, requiring flow levels to maintain salinity levels. A federal court more recently imposed pumping restrictions on the projects to help protect the threatened delta smelt and Chinook salmon, and federal regulatory agencies have followed the court's directive to develop further requirements. These measures have focused almost entirely on the two big water projects and have been imposed through restrictions that directly affect the amount of water available to the projects.

One shortcoming in the current state of affairs is that almost no serious observer believes that the state and federal water projects are the sole cause of the demise of the Delta's fish or its other environmental problems. They are important contributors, but not the only ones. One goal of arrangements for financing environmental work in the Delta might be to assign responsibility more broadly and more fairly. Other water users divert over 11 million acre feet of water annually from the rivers that run into the Delta, compared to the roughly 6 million acre feet exported by the projects. It is likely that these upstream diversions have done some harm to populations of fish that live in or pass through the Delta, and it thus seems reasonable that they shoulder some of the cost of restoring the Delta environment.

California's Supreme Court has identified a financing structure that might be adapted to paying for the Delta's restoration. Since the Delta is subject to a number of overlapping governmental regulatory requirements for endangered species, water quality, navigation, flood control, and so on, the state could arguably levy a regulatory fee on water users and perhaps others. The proceeds could be used to pay for the regulation of the Delta, including some of the cost of a new Delta Council if one were created. Fee revenue could also be used to help pay for the restoration of fish populations and other efforts seeking to offset at least some of the harm done to the Delta environment by water exports and upstream diversions. Creation of a restoration fee, however, would require overcoming a number of difficulties:

- A public agency would need to determine how to allocate fee-paying responsibility so that it would be roughly proportional to the environmental harm inflicted by water users and others over the years. This would not be easy. While scientists feel comfortable identifying many factors that have contributed to the Delta's problems, few believe they can precisely assign weights to each.

- It is likely that any fee would be based, at least in part, on the amount of water diverted by each water right holder within the watershed of the Delta. But we lack

good data on the amounts of water diverted. We would need to devise ways to improve the quality of these data.

- The state's Constitution requires that fee revenue be used only for the purposes for which it was collected, and not diverted into the state's General Fund. In some long-term sense, Delta funds should be "safe." But the state has long felt free to "borrow" money from special funds for "cash management" purposes. Traditionally, these funds have been repaid within a fairly short time period, usually months. However, California's deteriorating fiscal condition has led to longer term borrowing with vague payback scheduling. Delta restoration funds would need some protection from this practice for reasons of both fiscal credibility and constitutional compliance.

## Delta Levees

Many of the Delta levees are poorly constructed and unable to provide flood protection at a level considered adequate even for agricultural operations. The collapse of even a few key levees would increase salinity levels within the Delta to such a degree that its water would be unusable or certainly less usable for state and federal water projects and for Delta farmers and communities. The levees are maintained by landowner assessments and some subsidies from the state and federal government. The existing financing structure has no hope of being sufficient to bring Delta levees to minimally reasonable standards of protection, and costs of reasonable protection will almost certainly increase with the expectations of rising sea level and could rise spectacularly should a large earthquake, which has long been predicted, occur in or near the Delta. Bringing all or most Delta levees to a high level of protection would be unthinkably expensive, given California's many other priorities.

Before developing a financing plan for Delta levees, the state must decide about the physical future of the Delta islands.

- The state can continue its current funding levels and await disaster from earthquake, rising sea level, or a slow accretion of breaks year by year.
- It could fund improvement among a modest number of strategically important levees, protecting towns, major infrastructure, and the water project intakes.
- It could supplement the second option by buying suitable islands, breeching their levees in a controlled way, and converting them to marshland habitat.

All options but the first will involve wrenching decisions that will alter the character and lifestyle of the Delta. Of course, the first option will also alter the character and lifestyle of the Delta, perhaps more catastrophically, but without a conscious decision.

Once these decisions are made, financing should be relatively straightforward. Some funding will continue to come from local levee districts, and some will come from state general obligation bonds and perhaps from federal funding. Perhaps a Delta environmental fee could be augmented to fund some levee work in proportion to the benefit the state and federal projects receive in protection from potential salinity surges caused by levee failure. And

development occurring in the Delta could be required to pay substantially higher charges to pay for a high level of flood protection.

## Funding the Projects

Funding work in and for the Delta through payments from those who benefit or are responsible for its problems has considerable attraction. It has strong historical precedent, economic rationality, and legal defensibility on its side. At a time when California has a long-term structural pattern of spending more than its General Fund income, it seems reasonable to follow historical precedent and finance water development by charging for the water.

There is at least one important argument for another possibility. The federal Clean Water Act, enacted in the early 1970s, imposed tough new restrictions on discharge of polluted water into rivers and other bodies of water. It required cities throughout America to invest in new or upgraded sewage treatment works. The financial burden alone should have made this law immensely unpopular. But it came with a well-funded grant program, which provided funding for 75 percent of the cost of constructing new sewage treatment facilities. It demonstrated the wisdom of softening the transition to a heightened state of environmental standards with a gentle application of public funding. California's Delta is arguably experiencing a roughly analogous increase in the actual enforcement of environmental requirements, to a degree surprising and shocking to many water users, and with substantial economic impact. Perhaps an application of the wisdom of the CWA would be appropriate.

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