Recommendations For An Environmentally Sound Federal Policy on Western Water

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Recommendations For An Environmentally Sound Federal Policy On Western Water

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* The text of this Essay appears in its original form except for minor changes to add clarity and conform to the Stanford Environmental Law Journal style norms. The footnotes were added for journal publication by Reed D. Benson.
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The organizations and individuals who have produced this report have worked for years to promote environmentally sound federal policy and action with respect to water in the American West. The Western Water Policy Review Advisory Commission's (the "Commission") evaluation of these issues presents an excellent opportunity to address long-standing concerns.¹ We

¹ The Western Water Policy Review Advisory Commission was authorized by Congress in Title XXX of the Reclamation Projects Authorization and Adjustment Act of
believe the Commission can help advance federal policy to promote sustainable use, management and protection of western waters.

We begin with a brief look at current water problems in the West from our perspective. We then identify four general priorities for the federal government: taking steps toward restoring more natural conditions, using economic tools to promote environmentally sound water use, maintaining federal involvement as needed to protect national interests, and improving the approach to water resource decisions. Within each of these four areas, we offer a few more specific recommendations.

I. INTRODUCTION

A. Water Problems in the West

1. Water supply and water use.

The great majority of the American West is semiarid to arid. The available supply of water is both naturally limited and highly variable. Many areas routinely experience at least seasonal shortages, which affect both out-of-stream and instream uses and which grow more intense with increasing demands on water resources.

These shortages will be extremely difficult to resolve, largely because existing water uses are firmly established and securely protected by water rights, long-term contracts, and politics. Irrigation is the dominant water use category in every major western basin outside of Alaska, often making over 80 percent of water withdrawals. Public water supply accounts for over 10 percent of withdraw-
als in several western states, and this use will increase as the region grows increasingly urbanized. Hydropower generation is a non-consumptive water use, but hydro dams drastically change the hydrograph of many western rivers. Withdrawals for mining, industrial and thermoelectric use are also significant in many areas.

The federal government typically gives water uses long-term authorization. For example, reclamation project water is generally delivered under repayment contracts which are analogous to mortgages, or under water service contracts which last up to 40 years. Private hydropower facilities receive Federal Energy Regulatory Commission (FERC) licenses good for up to 50 years. And federal law recognizes state water rights, which generally last forever unless abandoned. These rigid long-term commitments constrain government flexibility to change how water resources are managed and used.

As water shortages intensify and decisionmakers seek to stretch finite supplies, existing water uses quite properly will receive increasing scrutiny. Much of the West's current use of water is inefficient in at least one respect. Most obviously, many uses are physically inefficient to the extent that they take more water than needed for a "beneficial use"; this is a particular problem with agricultural uses that exceed crop evapotranspiration requirements. Much of the water diverted is lost to evaporation, seepage, runoff, poor management practices, or faulty equipment. Some, but not all of this "lost" water returns to its original source at some location, but these return flows may significantly alter the quantity, quality and timing of the source's natural flows. Physical inefficiency is a common problem with irrigation systems that deliver surface water by gravity; such systems still serve well over half of the West's irrigated acreage.

Many existing water uses are also economically inefficient, in that they provide far less economic benefit per unit of water than alternative uses. While traditional economic analysis is certainly an imperfect tool for judging the societal value of water uses, it does raise questions about current water allocation in the West. Irrigation of alfalfa and other forage crops is particularly vulnerable to criticism, since these crops have relatively low values and high water demands. Alfalfa and other forage are grown on about 37 percent of acres irrigated with reclamation project water.

3. Id. at 11.
4. BUREAU OF RECLAMATION, U.S. DEP'T OF THE INTERIOR, FINAL ENVIRONMENTAL IM-
irrigated lands in the West, around 30 percent grow alfalfa and other forage, while 40 percent grow cereal grains. Water diverted for these purposes may have much higher economic value in other uses, including instream uses.

Economic inefficiency tends to persist for several reasons, including the following: (1) water is too cheap not to use, that is, the cost of water is too low to justify foregoing marginal diversions or implementing conservation expensive measures; (2) subsidies make water artificially cheap for certain uses, particularly irrigation; and (3) certain cropping patterns provide a "reasonable" return to irrigators even though other water uses would generate greater economic returns. In addition, cheap water lends itself to excessive or undesirable withdrawals because water users, with rare exceptions, pay nothing to address environmental problems associated with their uses. If the cost of water reflected the societal costs of these environmental problems (as well as other impacts such as aquifer drawdowns), inefficient water use would decrease, along with the severity of the problems.

2. Environmental problems.

At the recent Aquatic Ecosystems Symposium, the Commission heard from a number of eminent scientists on the troubled state of water-dependent ecosystems in the West. The scientists' report describes and documents the many serious problems facing these vital national resources. Their report also makes a variety of sound recommendations on how the federal government can help restore functioning ecosystems and regain the many public benefits they provide. We strongly urge the Commission to address the full range of issues raised in the Aquatic Ecosystems Symposium scientific report. While that report identifies a wide array of problems afflicting the West's waters, we wish briefly to highlight four specific and interrelated concerns: the effects of dams, inadequate instream flows, poor water quality, and the decline of aquatic species.

5. A drawdown is a continuing decline in an aquifer's water level, resulting from water withdrawals exceeding the rate of replenishment, or "recharge" to the aquifer.

6. Id.

The construction and operation of large dams—many of them federal—have had huge impacts on hydrographs, stream channel and substrate characteristics, fish habitat, water quality, and many other aspects of western rivers. The scientists' report returns again and again to these impacts. A sampling:

Salmon spawning grounds on streams of the Pacific Northwest, for example, were blocked [by some dams], while the operating rules of others prevented maintenance of gravel-bed streams free of fine sediments during the spawning season. The lack of natural floods downstream altered the recreation potential of streams by permitting accumulation of impassable rapids, as well as fostering new, unnatural ecosystems not attuned to large annual floods. Hydropower operations caused rapid fluctuations in river levels downstream, altering fish habitat, and destabilizing riparian ecosystems.9

Natural variations in flow were entirely replaced by patterns dictated by downstream water demands .... Increased sedimentation upstream was reversed below dams, where rivers were sediment-starved since particles were trapped in reservoirs. Channels entrenched as a result, lowering water tables that increased downstream intermittency and desiccation even more. Where surface water persisted, streams formerly passing through braided channels began to flow rapidly through sluiceways over bare gravel and sand, distantly bounded by cutbanks and quickly cooled and heated due to exposure, lower water volumes, and reduced groundwater exchange.10

Native fishes were devastated. As rivers were beheaded by dams and natural variation in flow disappeared, so did the resilient species and biological communities adapted to these inherently transient systems. Streams became inhospitable both above and below high dams. Hydroelectric generators killed fish moving downstream; tailwaters are too cold for warm-adapted species to reproduce. Loss of current or substrate types eliminated those requiring riffles. Reservoirs filled with non-native predators reduced survival of young. Channels directly flooded by reservoirs support few if any native fishes in systems west of the Continental Divide.11

More than anything else, the scientists’ report emphasizes that dams have many severe and continuing impacts on western rivers, and we repeat these quotations to reinforce that point.

Inadequate instream flows are another major problem of many

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8. The hydrograph is the flow pattern of a river or stream.
9. AQUATIC ECOSYSTEMS SYMPOSIUM, supra note 7, at 5.
10. Id. at 65.
11. Id. at 65-66.
western rivers and streams. Several significant rivers of the West are left entirely dry in certain reaches and seasons, while many others are reduced to a trickle. This problem is even more common for smaller tributary streams. Unnaturally low flows deplete and degrade fish and wildlife habitat, impact water quality, reduce recreational opportunities, and impair vital ecological functions. Dam operations are responsible for low flows in many instances; land use practices are another factor. But the most significant factors in serious instream flow problems are surface water diversions and groundwater withdrawals for consumptive uses. Irrigation diversions are a major cause of stream dewatering, since irrigation is by far the West’s biggest user of water, and crop demands are often highest in the summer and early fall months when streamflows naturally run low. The scientists’ report repeatedly stresses the effects of surface and groundwater withdrawals and the need to address their impacts. For example, in listing ongoing practices which continue to degrade aquatic ecosystems, the report names “flow regulation, diversion, and groundwater mining, which distort hydrologic regimes and eliminate, simplify, or fragment habitats; [and] profligate agricultural irrigation, depleting and polluting surface waters,” along with alien species, urbanization, and extractive industry practices.  

The West also faces a variety of water quality problems, many of which are both widespread and serious. Most of these problems do not arise from classic “point sources,” such as municipal and industrial wastewater outfalls, that are regulated under Section 402 of the Clean Water Act. Western water quality problems more typically are caused by “nonpoint sources” of diverse origin. Irrigated agriculture creates many of these problems, particularly sedimentation, fertilizer and pesticide pollution, salinity, and increased temperatures. Agriculture is the leading source of water quality impairment nationwide, and sedimentation is a serious problem in several of the West’s key agricultural areas, including California’s Central Valley, the Willamette and mid-Columbia basins of the Pacific Northwest, and many parts of the Great Plains. Grazing also raises temperatures and sediment loads, as well as intro-

12. *Id.* at 47 (emphasis added).
14. *Id.* at 41.
ducing animal wastes into rivers and streams. Mines, particularly abandoned or inactive sites, contaminate waterways with acid drainage and deposition of heavy metals.\(^6\) Timber harvest, particularly on steep slopes, often increases sediment loads in otherwise high-quality watersheds.\(^7\) Urban runoff fouls rivers and streams with sediments, chemicals and other pollutants. These problems afflict not only rivers, but also estuaries, lakes and other important waters of the West.

Native aquatic species have declined sharply across the West, due largely to the cumulative effects of dams, low flows, water quality problems, and other factors including competition from introduced species. The scientists’ report leaves no doubt of how bad things have become for western fishes:

At least 40 kinds of North American freshwater fishes have suffered extinction in the last century, more than half this total in arid lands west of the Continental Divide, and 16 since 1964. Moreover, at least 100 additional native species now are considered threatened, endangered, or of special concern. Fewer native species have disappeared from better-watered zones east of the Continental Divide and west of the 100th Meridian, but a similar overall pattern exists there. Major changes in aquatic systems are obvious from this record, which reflects precipitous declines in whole habitats and thus whole communities of unique native organisms.\(^8\)

Native fish species of all types are in decline, from species such as the razorback sucker that thrive in relatively warm, silty desert rivers, to pristine coldwater habitat specialists such as the bull trout. We are losing not only obscure fishes such as suckers and minnows, but also prized, economically important ones such as salmon and trout. And not only fish are disappearing from our aquatic ecosystems, as illustrated by the listing of six species of mollusks in Idaho. Flourishing, meanwhile, are many non-native species that are better adapted to current conditions. These changes in aquatic species starkly reflect the drastically altered state of the West’s waters.

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\(^{16}\) AQUATIC ECOSYSTEMS SYMPOSIUM, supra note 7, at 20.


\(^{18}\) AQUATIC ECOSYSTEMS SYMPOSIUM, supra note 7, at 63.
B. Rethinking the Federal Role in Western Water


In 1992, just weeks after Congress authorized the Western Water Policy Review Advisory Commission, the Long's Peak Working Group on National Water Policy produced a report titled America's Waters: A New Era of Sustainability. The Long's Peak Working Group comprised 30 individuals with considerable expertise in water law and policy, primarily academics, environmentalists, and representatives of federal, tribal, regional or state governmental interests. Their report articulated a vision of water policy based on two fundamental notions. First, they concluded that water policy should be sustainable, consistent with social equity, economic efficiency, ecological integrity, and tribal trust responsibility. Second, the Long's Peak Working Group stressed that water policy should be national, involving coordinated efforts at all levels of government—federal, tribal, state and local.

In advocating a national water policy based on sustainability, the report identified basic policy objectives: (a) water use efficiency and conservation—improve efficiency of urban and agricultural water use, and facilitate transfers from lower- to higher-valued uses; (b) ecological integrity and restoration—act at the watershed level, on the best available information, to restore and protect water quality, biological diversity, and the viability of aquatic ecosystems; (c) clean water—restore and protect water quality with particular emphasis on attacking nonpoint source pollution, preventing pollution at the source, and basing actions on the link between water quality and quantity; and (d) equity and participation in decision-making—provide the public with good information, involve all affected interest groups in making decisions, and respect the rights of these groups. To carry out these objectives, the report urged institutional reform to develop the "capacity to apply authority of all levels of government to the solution of water resource problems through participatory institutions at the 'problemshed' level." The group articulated a few general principles underpinning each policy objective and the institutional reform charge. The Long's Peak Report concluded with no less than forty-seven specific recommendations on water policy for the new Administration.


20. Id. at 8-12.
2. **Five years later.**

Federal water policy in the West today looks very much like it did five years ago. True, there have been political and structural changes in federal institutions from the Congress to the Bureau of Reclamation. And management rhetoric has shifted somewhat, with increasing focus on watersheds, ecosystem approaches, and cooperative solutions. But as a practical matter, well-established western water uses, laws, policies, practices and institutions have changed little since 1992.

In preparing its report on western water issues, the Commission should revisit the Long's Peak Report. Its vision of a national water policy based on sustainability is as current today as it was five years ago, and even more urgent. The report's fundamental precepts are still valid, its observations on western water matters still accurate, its policy objectives and supporting principles still sound. In addition, most of its specific recommendations continue to make sense today.

Some of the issues and dynamics of western water have changed, however, and the organizations and individuals whose names appear on this Essay wish to give the Commission a sense of our common concerns and priorities in 1997. We share the belief that these are among the most important actions the federal government could take to address ecological, economic and equity concerns over water in the West.

**II. PRIORITIES AND RECOMMENDATIONS FOR FEDERAL POLICY ON WESTERN WATER**

We believe that sound western water policy for the United States requires the federal government to take four kinds of actions, as follows: (1) take steps toward restoring more natural conditions to western rivers and streams; (2) employ economic tools to promote more environmentally sound water use; (3) continue federal government involvement in western water matters as needed to protect national interests; and (4) improve its approach to water resource decisions. Within each of these areas, we have a few somewhat more specific recommendations.

A. **Take Steps Toward Restoring More Natural Conditions**

A crucial flaw of western water policy is its failure to recognize and emphasize ecological needs. Nearly everywhere in the West,
ecological concerns remain subordinate to the traditional goals of water supply, hydropower generation and flood control. So long as these traditional goals take precedence over all others, degradation of aquatic ecosystems will continue. Western water policy must be reoriented to place priority on those actions needed to restore and maintain ecological function, such as protecting water quality from degradation caused by land and water use practices, restoring more natural hydrographs, and reducing river fragmentation.

The stated objective of the Clean Water Act is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” However, the integrity of the West’s waters has been severely compromised, particularly by dams, pollution from nonpoint sources, misguided flood-management practices, and water withdrawals greater than needed to meet a consumptive “beneficial use.” Federal action is appropriate, and probably necessary, in addressing each of these problems.

1. Review and change the operations of federal water projects.

Federal dams, built primarily for irrigation storage, hydropower and flood control, have drastically altered many western rivers. These dams have produced significant human benefits. But their ecological impacts have been immense, and the economic costs of those impacts, while sometimes difficult to measure, are enormous. These impacts and costs are so great that if the nation could decide today, many of these dams would not exist.

Federal agencies should systematically review their existing projects—and project licenses, in the case of the Federal Energy Regulatory Commission—to determine whether changing the projects’ operations, management and water distribution could help restore damaged ecosystems. In many cases, changes could be made which would provide important environmental benefits without significant impacts on current project purposes. In considering such changes, the agencies obviously must take account of the existing purposes and beneficiaries of the projects, but should not reject changes which would provide important ecological and public benefits simply because they might affect a current project use. While changes in project management and operations must be made on a case-by-case basis, the agencies should establish na-

tional policy and guidance on how such changes are to be considered and implemented.

The agencies should develop national operating protocols that take account of current scientific knowledge about the need for variability in the hydrograph that mimics the natural flow of the river. Most water projects now operate with little to no regard for the need for seasonal flow variability for fishery life cycle needs, flood/sediment flushing flows, channel morphology, riparian vegetation, and floodplain-groundwater interactions. While each project has its own particular hydrology and aquatic species composition, the agencies at the national level should establish general guidance on ecologically sound protocols appropriate for operating plans.

In its aquatic ecosystems report to the Commission, the federal Bureau of Reclamation noted that in some cases it lacks statutory authority to "undertake ecosystem management activities." Congress should remove this constraint by establishing environmental restoration as a primary purpose of all reclamation projects, as it did with the Central Valley Project in 1992.23 To the extent that the U.S. Army Corps of Engineers ("Corps") faces similar legal constraints, Congress should clearly establish the Corps' environmental restoration authority as well.

In addition, the project management and licensing agencies should review existing dams and consider whether some should be removed. Many dams, of course, produce important public benefits that justify their continued existence. But others, such as the hydro dams on Washington's Elwha River, no longer make ecological, societal, or economic sense. Many dams face significant costs for repair, maintenance and fish passage, in addition to a growing recognition of their ecological impacts. There may be a number of projects where dam removal would be the best option, based on a complete review of societal costs and benefits.

2. Improve water use efficiency.

The Long's Peak Report named water use efficiency and con-
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servation as its first national policy objective.\textsuperscript{24} The following statement from that report fairly states both the problem and the promise of water conservation:

Water is used inefficiently all across the United States, whether in agriculture (the largest single user of America's waters), in industry, or in urban areas. Government has played an active role in building water projects but has taken a passive approach toward encouraging water conservation . . . . Changing economic, social, and environmental values and emerging new technology have made water conservation one of the most promising strategies for protecting existing water supplies, maintaining water quality and ecosystems, sustaining instream flows, resolving long-standing water conflicts (including Indian water rights), and establishing a sustainable water program. There is broad public support for achieving efficiency in urban and agricultural water use. Methods include water conservation, water saving technology, pricing reforms, and reallocation from lower to higher priority uses. Although efficient water use produces economic, social and environmental benefits, improved efficiency often is viewed as beyond the traditional responsibilities of water and wastewater agencies.\textsuperscript{25}

Water transfers could improve both the physical and economic efficiency of water use in the West. But transfers also raise concerns such as impacts to the environment and the area of origin.\textsuperscript{26} The federal government should develop clear standards and procedures to address these concerns, and apply them in facilitating transfers of federal project water. A recent GAO study on water transfers identifies the major issues.\textsuperscript{27}

Existing water uses also must become more efficient if the West is to meet growing out-of-stream and instream demands. The initial focus should be on federal projects; the Bureau of Reclamation alone provides a gross water supply of about 40 million acre-feet per year,\textsuperscript{28} and small percentage increases in efficiency could mean significant water savings in many areas. While the Reclamation Re-

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\textsuperscript{24} Long's Peak Working Group, supra note 19, at 4.

\textsuperscript{25} Id.

\textsuperscript{26} The area of origin is the place from which water would be transferred, that is, where the water has been used. Transfers may affect the area of origin economically, particularly by removing irrigation water from farm land, and ecologically, such as by drying up lakes and wetlands.

\textsuperscript{27} U.S. General Accounting Office, Water Transfers: More Efficient Water Use Possible, If Problems are Addressed (1994).

\textsuperscript{28} Bureau of Reclamation, Final Environmental Impact Statement, supra note 4, at 3-53.
form Act states a clear national policy of water conservation, the Bureau recently retreated from proposals for improved rules, opting instead for mostly voluntary measures that fall far short of what is needed. The federal government needs a stronger program to increase efficiency of federal project water use, employing measures such as conservation pricing, clear standards and goals for efficiency gains, more open and comprehensive planning, and meaningful incentives for water users.

Federal efforts to increase water use efficiency, particularly financial assistance and other incentives, should focus on areas where conservation would produce the greatest and surest environmental benefits. Such benefits may include reducing drainage-related water quality problems or increasing instream flows, particularly in those states that allow salvaged water to be legally converted to instream use. But such benefits are not automatic, and conservation measures may actually deplete streamflows if salvaged water is used to increase irrigated acreage. The Bureau of Reclamation should take steps to ensure that conserved water from federal projects is not used on additional or unauthorized lands (a practice sometimes called "water spreading").

3. **Control nonpoint source pollution.**

On balance, the Clean Water Act has been a national success. Many parts of the Act work modestly to remarkably well. A glaring exception is the nonpoint source program of Section 319. Today, the West's most pervasive and serious water quality problems are caused by nonpoint sources.

Many nonpoint source pollution problems originate on federal lands, resulting from past and present activities such as mining, logging, grazing and road building. The federal land management agencies should first address the impacts of ongoing activities, ensuring that these activities are at sustainable levels and are not creating or exacerbating nonpoint source pollution problems. Decisions on a discrete activity should not focus solely on the impacts of that activity, but also with full consideration of cumulative impacts of other activities throughout the watershed. The agencies also should inventory problems resulting from past practices (such as abandoned mines), develop plans for addressing them on a wa-

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tershed basis, and implement those plans within a reasonable timeframe.

Private lands also contribute significantly to nonpoint source pollution problems. On the whole, current efforts have proved inadequate to resolve these problems. The Clean Water Act provides a means of assigning responsibility for control of nonpoint source pollution through the Total Maximum Daily Load (TMDL) process. Unfortunately, the state and federal governments have done next to nothing to establish and implement TMDLs, only moving forward where prodded by citizen lawsuits. The federal government must move forward under the Clean Water Act, working with the states to ensure that TMDLs are developed. The TMDL process also may provide one of the best vehicles for working closely with local interests such as watershed councils.

4. Change the approach to flood management and floodplain restoration.

Recent flooding in the western states has renewed debate on federal policies relating to floods and floodplains. We believe a new federal approach could produce significant ecological benefits and reduce economic and human losses from flooding.

Several California conservation groups have developed a set of flood management and floodplain restoration principles. The central theme of these principles is more intelligent use of the floodplain, through such measures as setting back levees, increasing wetlands and forested areas within the floodplain, and reducing human development on the floodplain to the extent possible. Other recommendations include improving certain structures to reduce flood damage, protecting the watershed to reduce floods and flood impacts, and placing greater financial responsibility on floodplain landowners, states and local governments. We support these principles in their entirety, and we believe they apply to the entire West as well as to California.

Federal subsidies for flood management projects pose a further problem. The federal government currently pays at least 65 percent of project costs, and in some cases the federal share is 75 percent or higher. These subsidies create bad incentives for risky

floodplain development, and they perpetuate an approach that relies too heavily on structures and too little on proper floodplain use. Thus, we believe the current cost-share formula is both economically and environmentally unsound, and we urge the federal government to pay no more than 50 percent of the cost of any future flood-management projects.

B. Use Economic Tools to Promote More Environmentally Sound Water Use

1. Phase out water use subsidies.

Federal project water is delivered to users with enormous subsidies, especially for irrigation. A recent GAO study\footnote{U.S. General Accounting Office, Bureau of Reclamation: Information on Allocation and Repayment of Costs of Constructing Water Projects (1996).} provides a detailed breakdown of the types and amounts of these subsidies for reclamation projects across the West. These subsidies not only cost taxpayers millions of dollars, but they tend to perpetuate inefficient water uses and many resulting environmental problems.

In an era of shrinking federal budgets, growing fiscal conservatism, and increasing free-market orientation—even in agriculture, as reflected in the 1996 Farm Bill\footnote{Federal Agriculture Improvement and Reform Act of 1996, Pub. L. No. 104-127, 110 Stat. 888 (1996).}—we can see no sound policy reason to continue subsidies for federal project water. These subsidies should be phased out and replaced with a payment system that makes sense in today’s America and the West. The phaseout of subsidies must take account of water users’ equity and economic concerns while giving taxpayers and aquatic ecosystems their due. The federal government should use all means available under existing law to begin phasing out subsidies; where subsidies are immovably rooted in federal law, Congress should consider changing the law.

As an interim step toward the elimination of water subsidies, the federal government should establish an environmental remediation charge as part of the operations and maintenance cost of water delivery from federal projects. Such a charge would reduce subsidies by incorporating some of the ecological/economic costs of water use into the price of water. It would increase incentives for water conservation. And it could generate significant funds that could be dedicated to environmental restoration work of various kinds. The Central Valley Project Restoration Fund, es-
tablished by Congress in 1992,\textsuperscript{35} provides a useful model.

2. \textit{Implement conservation pricing:}

Even if federal taxpayers do not receive higher returns on project water, the federal government can employ effective market-based approaches to promote conservation. Conservation pricing, or tiered pricing, is a key tool. It encourages efficient water use by charging more per unit as water use increases. Many municipalities and some irrigation districts use it, and it works.\textsuperscript{36}

The Bureau of Reclamation proposed in 1995 to require conservation pricing as an element of all water conservation plans under the Reclamation Reform Act.\textsuperscript{37} Thus, all major uses of federal project water would have moved toward conservation pricing, which would have been a significant improvement in national water policy. But the Bureau backed away in 1996,\textsuperscript{38} leaving conservation pricing as merely an option for those who receive subsidized water from federal projects, and that was a major mistake. Of all measures the federal government could take to promote more efficient use of project water, conservation pricing probably makes the most sense, and it should be required of every major user.

3. \textit{Recognize the economic benefits of healthy aquatic ecosystems.}

Natural resource decisionmakers increasingly acknowledge that protecting the environment is vital to sustaining a strong economy. Most people recognize that natural amenities can be an important factor in attracting people and jobs to a community, state or region. But beyond these general "quality of life" notions, there is growing recognition that healthy aquatic ecosystems deliver major economic benefits by providing recreational opportunities (such as fishing and boating) and a variety of ecological services: pure drinking water, natural flood moderation, and pollution processing, to name a few.

Recreation and ecological services have real and substantial


\textsuperscript{36} See, e.g., Dennis Wichelsus & David Cone, Tiered Pricing Motivates Californians to Conserve Water, 47 J. SOIL & WATER CONSERVATION 139 (1992) (describing the effects of tiered pricing in the Broadview Water District).


\textsuperscript{38} Bureau of Reclamation, Final Environmental Impact Statement, supra note 4, at 2-40 to 2-42.
economic value, but that value is generally difficult to quantify. Certainly, it is much easier to attach dollar figures to the economic returns from resource extraction—for example, irrigation withdrawals, timber harvest or hardrock mining—than to the long-term economic benefits of resource protection and restoration, such as clean water, recreational fishing and boating, and tourism. Partly because of this disparity, resource extraction is viewed as an economic boon, while resource protection is seen as an economic drag. However, we believe that this perception conflicts with reality in many cases, and that a full and accurate cost-benefit review would show that federal resources receive the greatest economic return if they are invested in protecting healthy aquatic ecosystems.

Federal agencies must do a better job of recognizing and quantifying the economic benefits of recreational opportunities and ecological services. Current valuation techniques are the subject of some debate, and we encourage the refinement of these techniques and the development of new ones to provide greater accuracy. But while this work goes forward, the agencies should begin immediately to recognize the true economic value of resource protection and restoration, and to give these values the same weight in decisionmaking as the apparent benefits of extraction and development. The federal government must bring better economic information and balance to its management of natural resources in order to sustain the West's long-term economic and ecological health.

C. Maintain Federal Involvement As Needed to Protect National Interests

The current political and fiscal climate has prompted a spirited debate on the appropriate role of the federal government regarding the waters of the West. Many voices in this debate say essentially that the federal government should provide funding, services and expertise when called for, but should otherwise leave the management of natural resources to state and local interests. The federal government, for its part, seems increasingly willing to carry out this philosophy. But there are strong national interests in protecting the West's waters, as reflected in existing federal law—interests such as protecting clean water and wetlands, preserving and restoring ecological health on federal lands, obtaining a fair taxpayer return for the private use of federal resources, meeting the trust obligation to Native American tribes, conserving species listed
under the Endangered Species Act, and protecting river reaches designated under the Wild and Scenic Rivers Act.

We describe these interests as national rather than federal for good reasons. First, they have broad public support. These interests must be protected because people expect and demand it, not simply because federal law requires it. As the West continues to change in the upcoming years, we expect public support for these interests to keep growing. Second, responsibility for meeting these interests is certainly not exclusive to the federal government. As federal laws establish national standards, federal agencies must ensure that these standards are met, but the federal government need not, and should not, be the only one working in support of these standards. As the Long's Peak Report stated, "implementation of a truly national, not 'federal,' water policy requires the federal government to facilitate, support, and help coordinate efforts to optimize the effectiveness of all levels of government—federal, state, tribal, and local."

The federal government developed hundreds of water projects in the West, and it has a particularly strong role in operating these projects and managing the use of project water. Federal money built these projects, which provide subsidized water to a variety of users. Given this public investment and subsidy, the U.S. government can and should ensure that the projects provide public benefits. While the U.S. Supreme Court has said that federal project water is primarily owned by water users rather than the government, the Court has also recognized federal authority to restrict the use of project water: "It is hardly lack of due process for the Government to regulate that which it subsidizes."

In general, we believe the federal government must continue its involvement in western water matters in order to support national interests. While existing federal laws could be significantly improved, it is important at least to preserve current federal authority in most areas. Similarly, while we are often unhappy with federal agencies' performance in carrying out the laws, we are more inclined to examine ways the agencies could do a better job than to advocate that their responsibilities be taken away. Certainly, a federal command-and-control approach is not always the best solution.

41. Long's Peak Working Group, supra note 19, at 3.
to a natural resource problem, but federal action is typically the catalyst for cooperative solutions involving states and local entities.

1. Protect national interests in working with states.

Federal law gives states significant authority over water in many respects, including water allocation (as under the McCarran Amendment and Section 8 of the 1902 Reclamation Act) and water quality protection (as under Sections 401 and 402 of the Clean Water Act). But while federal law generally leaves water allocation to the states, the federal government retains significant authority over water from federally-built projects. Even *California v. United States*, typically cited for establishing state supremacy over federal water projects, clearly recognizes that states cannot interfere with congressional directives and defines an intergovernmental relationship of "cooperative federalism."

If the federal and state governments are doing business on the basis of cooperative federalism, the states understandably will seek to further their own interests, and thus the U.S. government must protect national interests. As a practical matter, the federal government must actively work in support of national interests for at least two reasons. First, when conflicts arise, states have strongly tended to favor their own water users over interests protected by federal law, such as tribes and listed species. Similarly, states have protected their own water users at the expense of those in other states, causing interstate disputes. Second, "cooperative" multilateral approaches to western water issues have generally been launched only in response to action, or the threat of action, under federal laws. Two of the better known examples of cooperation-through-federal-regulation are the "CalFed" effort in the San Francisco Bay-Delta area of California, and the endangered fish recovery project on the Upper Colorado River; there are countless others.

We want to emphasize clearly that we are neither pro-federal nor anti-state. (Indeed, the environmental community sided with

46. 438 U.S. 645 (1978). In *California v. United States*, the U.S. Supreme Court upheld California's authority to impose restrictive conditions in a water right for a proposed federal dam project, so long as those conditions did not conflict with Congressional directives.
the state in *California v. United States.*\(^{48}\) All levels of government have their own important roles to play in protecting natural resources. But at present and for the foreseeable future, active federal involvement will continue to be necessary to protect national interests in the West's waters.

2. **Protect national interests in working with local groups.**

Voluntary, locally-based efforts to restore and protect the health of watersheds are gaining popularity in the West. Such efforts are promising in some respects, particularly in addressing the impacts of activities conducted on private lands. Most of these efforts are quite new, however, and in most cases it is too soon to tell how well they might work. Moreover, generalizations are largely meaningless because these groups vary greatly in composition, mission and approach.

Within the environmental community, a wide range of opinions exists on these voluntary local efforts. We can agree, however, on a few general points. First, as noted above, many of the most promising "cooperative" efforts began in response to regulatory action under federal law. In many cases, continued application of federal laws seems necessary to focus and motivate these local efforts. Second, while many of these efforts have shown progress in bringing people together, they have not yet demonstrated much success in actually restoring and protecting watershed health. The federal government should be cautious in devoting its scarce resources to these efforts, at least until they show that they can effectively protect national (not just local) interests. Third, the federal government must ensure that national interests are protected even if voluntary local efforts do not succeed. There must be a clear course of action if these efforts fail to reach consensus or to meet resource protection goals.

With those caveats, we do urge federal agencies to work with voluntary local groups as resources and laws permit. The agencies can help by identifying both the requirements and points of flexibility in applicable federal law, improving coordination, supplying data and technical expertise, and providing other assistance.

3. **Protect national interests in any transfer of federal assets.**

In recent years there have been many proposals to transfer the

assets of federal water projects, both minor and major, to project beneficiaries. We are quite concerned that these proposals, if carried out without proper safeguards, could enrich a select few at the expense of taxpayers, hydropower consumers, tribes, recreationists and the environment.

We stress asset transfers because they will be a key test of federal water policy over the next few years. We expect to see numerous proposals to transfer federal projects in the West, including some of the largest and most important ones. These proposals unavoidably will raise many of the issues presented in this Essay, and it is crucial that Congress and federal agencies address these issues satisfactorily.

In August 1996, eight national and regional conservation groups adopted a “Statement of Principles for the transfer of federal water and power facilities and related assets to non-federal interests.” 49 These principles state that some federal water and power facilities simply should not be transferred. If transfers of other facilities occur, it should be done only on the basis of a fair price to the taxpayer, compliance with environmental laws, facility-specific transfer plans, competitive bidding, and other requirements. We support this Statement of Principles in its entirety.

D. Improve the Approach to Water Resource Decisions

Decisions involving the use, protection and management of water are increasingly complex, and in the West they are increasingly controversial. Fortunately, the federal government no longer makes these decisions with a single-minded focus on development. The Federal agencies now take a somewhat more balanced view of water resource issues, and generally they do the best they can given limited dollars, data, tools and discretion. While there has been some progress, too many important decisions affecting western water are still made without adequate information, public involvement, or consideration of alternatives. A second problem is that rigid long-term commitments often limit the agencies’ ability to make necessary changes based on new information or changed circumstances.

1. **Base decisions on integrated resource planning and management.**

In our experience, the process for water resource decisionmaking in the West commonly suffers from several major problems. These problems include a failure to involve all interested stakeholders, a dearth of powerful planning tools such as computer models, a narrow focus that ignores viable alternatives and restricts creative solutions, and a conspicuous lack of public participation. As a result, the same few interests perpetually tangle over the same issues, repeating the same arguments and disagreeing on the same options. We recognize that this phenomenon is not unique, but it seems particularly pronounced in the field of western water resources.

We concur with the Long's Peak Report in urging the federal government to make greater use of integrated resource planning and management to meet water needs. The report explains that this approach "attempts to find ways to meet water needs at the least cost—including economic costs and environmental and other costs and values, whether quantifiable or not—through consideration of all demand-reducing and supply-enhancing measures in a process that provides full opportunity for participation by members of the public."\(^5^0\) We realize that integrated resource planning and management will not magically produce better decisions, but it may help bring more people, more tools and more alternatives to the table.

2. **Retain flexibility and employ adaptive management.**

It is difficult enough to make official decisions on water matters that are right for the West today; it is next to impossible to make such decisions that make sense forever, or even for fifty years. Often there is too much uncertainty about existing conditions and needs, let alone those of the future. Knowledge will evolve with greater understanding of, for example, ecological dynamics and the effects of human activities. The nation and the West will continue to grow, with changes in demographics, economies and attitudes. Conditions will change in ways that are difficult to plan for, or even to foresee: will climatic changes alter precipitation patterns, land uses and species distribution in tomorrow's West? How

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50. **LONG'S PEAK WORKING GROUP, supra note 19, at 7.**
will changes in the technology and law of electricity generation and transmission affect the demand for hydropower?

One thing is certain: water supplies, demands (both instream and out-of-stream), and values will continue to change in the coming years. In making water decisions today, the federal government should reserve the flexibility to address those changes in a timely and responsive way. In the past and even today, the federal government has often locked itself into rigid long-term commitments that cannot be changed without great difficulty. These commitments give their beneficiaries a more certain future, but they also make it certain that the United States will be unable to respond adequately to inevitable future changes.

Flexibility is particularly important as agencies attempt to restore aquatic ecosystems. There is much uncertainty about the effectiveness of many measures. In pursuing ecosystem restoration the agencies should proceed to the extent possible with adaptive management, taking actions today based on the best available information, and making changes in future years as dictated by experience and evolving science.

III. Conclusion

We are pleased that the federal government is rethinking its role and activities with respect to western water, and we hope the Commission can effectively address a number of important but long-neglected issues. In doing so, we hope the Commission will bear in mind our general priorities for the federal government: taking steps toward restoring more natural conditions, using economic tools to promote environmentally sound water use, maintaining federal involvement as needed to protect national interests, and improving the approach to water resource decisions. We have also made more specific recommendations in each of these areas, and we urge the Commission to consider seriously these recommendations for adoption in its final report.
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