Power Play:
The Sale of PG&E’s Hydropower System and the Future of California’s Rivers

A report prepared by

ENVIROMENTAL DEFENSE
finding the ways that work

and

CHRC
California Hydropower Reform Coalition
This map shows the extent of PG&E's hydropower development in California. The red lines show the miles of streams and rivers diverted or impounded by PG&E's dams and tunnels. Most of PG&E's 174 dams were constructed more than 50 years ago.
THE TRADE-OFFS OF PG&E HYDROPOWER: ELECTRICITY VS. ENVIRONMENTAL INTEGRITY

Throughout California, rivers play a crucial role in sustaining both human and natural life. Rivers provide drinking water, irrigation, electricity, and opportunities for outdoor recreation and solitude. Rivers also support a complex web of life, including salmon and trout, birds and mammals, all of which depend on the natural rhythms and cycles of river flows. However, they are no longer the pristine and healthy ecosystems they once were. Today only about 9 percent of our rivers and streams originating in the Sierra Nevada mountain range continue to flow freely. Many of the remaining rivers have been “developed” by Pacific Gas & Electric Company, one of the nation’s largest electric utilities, for hydropower generation.

For the past century or more, PG&E’s hydroelectric projects – many of them originally built with the plumbing of early hydraulic gold mining operations – have controlled California’s mightiest rivers, diverting billions of gallons of water out of stream channels and into tunnels, canals, and turbines to generate electricity. While this vast system of 174 dams in 16 major watersheds has helped support the state’s economy and growth, these benefits have come at a huge cost to California’s natural heritage. Before World War II, more than 90 percent of California’s electricity came from hydroelectric sources. Today, hydropower from all private and public sources provides just 12 to 15 percent of the state’s power – of which PG&E’s system provides 5 percent. Is there a way to better balance the production of electricity with the protection of our rivers? Californians are currently faced with an unprecedented opportunity to answer this question.

AN UNPRECEDENTED OPPORTUNITY TO ADDRESS AND REPAIR THE DAMAGE

For over a year, Pacific Gas and Electric Company has been seeking to sell off its hydroelectric system, the world’s largest collection of dams under single, private ownership. Any transfer would have to be approved by the California Public Utilities Commission (CPUC). The plants could be auctioned to an unknown number of new owners, or “spun off” to an affiliate of PG&E Corporation.

PG&E’s proposed sale brings into focus the overwhelming extent to which once-pristine rivers have been abused and sacrificed to hydropower development. It also raises questions about the future: what would new ownership – and weaker financial regulation over the dam projects – mean for the health of the rivers and lands affected by PG&E’s hydropower system? Because the CPUC has the authority to review and condition any sale of utility owned powerplants, the State has a unique opportunity to protect the public interest. Governor Gray Davis and the CPUC must take strong steps to ensure that the system’s next owners – including any PG&E affiliates – adopt a balanced approach to the repair and stewardship of the rivers in question before the system gets released from state regulation.
The damming of California’s great rivers for hydropower production, as well as for irrigation, flood risk management, and domestic water supplies, has left these rivers mere remnants of what they once were. Hydropower is often touted as providing “clean and renewable” energy because it does not burn fossil fuels or contribute to air pollution and global warming. Yet the environmental costs are nevertheless severe: though the water is relatively renewable, the damage to rivers and ecosystems endures.

THE DAMAGE DONE

In the most ambitious compilation of research on the Sierra Nevada to date, the U.S. Forest Service’s Sierra Nevada Ecosystem Project Report deemed rivers and riparian ecosystems the “most endangered” habitats in the Sierra, and identified dams and diversions as their number one threat.

A dam alters the natural flow of a river, degrading water quality, raising water temperatures, and burying fish-spawning areas with silt and debris. Many of PG&E’s hydropower facilities divert virtually the entire summertime flow of a river into tunnels and canals. These artificial waterways of concrete and steel parallel the river for miles as they build up “head” before plunging into turbines within powerhouses. In the meantime, hundreds of miles of natural riverbed are severely dewatered.

As a consequence of these diversions, dam projects also alter water temperatures and thwart fish migrations both upstream and downstream. Fish and other aquatic wildlife cannot survive warm and stagnant water. Dams have pushed salmon populations to the brink of extinction by blocking access to spawning habitat and destroying young salmon and other species by the thousands when they are drawn into diversion tunnels and turbines. PG&E’s Potter Valley project, for example, diverts more than 90 percent of the upper Eel River’s summertime flow into the Russian River, often dewatering the mighty Eel and pushing chinook and coho salmon, and steelhead trout populations to the brink of extinction. In many Sierra rivers blocked and dewatered by PG&E dams, native fish cannot survive. On the North Fork Feather River, a famed blue-ribbon trout fishery until PG&E constructed 8 dams along its entire 60-mile stretch, native trout now suffer an over 80 percent mortality rate. Project by project and dam by dam, PG&E’s system has sacrificed the health of rivers and opportunities for other uses in order to produce electricity.

Is this the way Californians want their rivers to be managed?
UTILITY DEREGULATION:
A REVOLUTION IN CALIFORNIA’S ELECTRICITY MARKET WITH UNKNOWN CONSEQUENCES FOR OUR RIVERS

California is currently undergoing a revolution in the regulation of its electricity market. For the first time since the early 1900s, private corporations are competing in the open market to sell electricity. As 80-year-old regulated monopolies move to a structure reliant on competition and market-based pricing, the future of the state’s hydropower assets will depend on critical decisions now being debated before the CPUC and in Sacramento.

The State has ordered PG&E and other regulated utilities to establish the “market value” of their power plants – including hydroelectric projects – by December, 2001. Currently, the CPUC is conducting a proceeding (including more than 50 interested groups) to evaluate PG&E’s proposal for an auction of its system. Other alternatives, including transfer to public ownership, retention by PG&E under CPUC regulation, and a spin-off to an unregulated PG&E subsidiary, may also be evaluated in the proceeding, singly or in combination with one another.

THE GOVERNOR AND THE PUBLIC UTILITIES COMMISSION MUST PROTECT THE PUBLIC INTEREST IN CALIFORNIA’S RIVERS...

...AND THAT INTEREST INCLUDES MORE THAN POWER GENERATION

The State of California is faced with a decision that will have long-lasting implications for the state’s water and electricity supplies, its rivers, fish, and wildlife, and the people who need and desire all of these. The basic questions are clear: What action must the State take to ensure that future owners of PG&E’s hydroelectric system are more accountable to the public interest? What outcome will best protect and restore these natural resources while preserving valid economic interests, local water supplies, and electricity needs of all Californians?

The CPUC is obligated to develop a record of the environmental impacts of the dam projects – as required by the California Environmental Quality Act – before it makes any decision. Once it has that record, the CPUC must decide under what set of conditions any sale or transfer will serve the public interest.
WEAK FEDERAL OVERSIGHT LEAVES CALIFORNIA’S RIVERS AT RISK

While one of the Federal Energy Regulatory Commission’s (FERC) charges is to regulate hydropower projects, it has largely fallen short of adequately protecting natural resources due to the outdated and piecemeal “relicensing” process it oversees. Relicensing of hydropower projects cannot substitute for a full and public evaluation of PG&E’s projects by the State of California.

Since the passage of the Federal Power Act in 1920, FERC has licensed hundreds of hydroelectric projects throughout the country, granting 30-50 year licenses that specify terms and conditions under which the projects must operate. In California, roughly 50 licenses involving 150 dams will expire by 2015. Fourteen of PG&E’s hydropower licenses are already up for renewal or will expire in the next decade, representing more than half of its generating capacity.

When it works, FERC’s licensing process presents important restoration opportunities, and has resulted in the restoration of more natural flows, fish passage, and recreation uses on dozens of rivers across the country. This is because new license terms, by law, must strike a fair balance among competing uses of the river resource, giving equal consideration to power and non-power values such as fisheries and recreation. But too often, relicensing proceedings become mired in delays and controversy – particularly in California. One PG&E project – Project 137 on the Mokelumne River – has taken nearly 30 years to wind through the process – a national record of dubious distinction!

FERC and its relicensing process cannot and will not address the particular threats presented by PG&E’s hydro divestiture. Relicensing schedules are dictated by the dam projects’ FERC license terms, which vary widely across PG&E’s system - many projects expired years ago, while other licenses are just coming up for renewal this decade. Relicensing addresses individual projects, one at a time, but PG&E’s entire system is poised to undergo monumental change - in ownership, in regulation, in operating incentives - all at once.

More importantly, FERC does not view a change in project ownership or in state regulation as occasion to change project operations. The FERC licenses that govern PG&E project operations will remain intact regardless of future ownership. But considerable discretion exists within these licenses which could be exploited by new owners to the detriment of the environment. If state oversight and rate regulation provided by the Public Utilities Commission changes, the system may be subject to dramatically new operating incentives, risks, and rewards. This unprecedented combination, namely, federal inaction paired with fundamental change in state regulation, requires a robust policy response by the state in order to protect the California public’s interest in a fair balance between power production and healthy rivers.
WHAT THE STATE CAN DO

ENVIRONMENTAL DEFENSE AND CALIFORNIA HYDROPOWER REFORM COALITION RECOMMENDATIONS

Environmental Defense and the California Hydropower Reform Coalition recommend the following actions by the State of California before any irrevocable decisions are made on PG&E’s proposals to divest its hydropower system:

1) **Document environmental impacts of PG&E’s hydropower projects:**
   The State should ensure that the California Public Utilities Commission (CPUC) takes the time to complete its ongoing environmental review under the California Environmental Quality Act. A full review is required to document cumulative damages and potential impacts of ownership transfer and to provide a basis to identify necessary mitigation measures.

2) **Enforce existing water quality standards and laws:**
   According to State resource agencies, almost none of PG&E’s dam projects meet basic water quality standards, and therefore violate both state and federal clean water law. The CPUC should require, as a condition of transfer or sale, that all new owners, including any PG&E affiliate, bring projects into compliance with the Clean Water Act and the State Water Resources Control Board’s water quality standards and associated river basin plans. These standards were developed to protect a broad array of public uses – from drinking water supplies, to habitat for fish and wildlife, to river recreation opportunities. They should be applied to PG&E’s hydro projects.

3) **Create a fund to restore past ecological damages:**
   Before any sale or “deregulation” of PG&E’s hydropower projects, the State should establish funding to restore and maintain environmental quality in the rivers affected by PG&E’s hydropower projects. Environmental Defense and the CHRC have estimated, conservatively, that the fund should contain at least $400 million, primarily to “buy” water back from the hydropower projects, in order to increase the amount of water that stays in the rivers.

4) **Establish a governing structure that provides for public involvement and public access to information:**
   The State should establish a governing structure that provides for meaningful public and State agency involvement in managing our rivers, and for ongoing monitoring and disbursement of public information about the status of affected fisheries, water quality, and other resources.

5) **Ensure better environmental stewardship by new owners:**
   The State must ensure that any new owners, including PG&E’s subsidiary, agree to comply with environmental standards and policies identified by the State as a condition of any sale or transfer. Incentives must be structured to ensure that new owners are also motivated to bring ongoing and upcoming relicensing proceedings to timely closure.
Each and every PG&E hydropower project has a story to tell, and each project carries with it unique impacts and implications on public and environmental benefits. These four case studies highlight the need for a thorough, and publicly available, evaluation of how PG&E’s projects currently affect the public interest in clean water, flood protection, healthy populations of native species, and recreational opportunities.

THE MOKELUMNE RIVER CASE STUDY:

The Public Interest in a Clean and Reliable Water Supply

The Mokelumne River – the major source of drinking water for the East Bay – provides an example of how PG&E’s projects affect water supplies. PG&E has benefited from prolonging the relicensing of the highly profitable Mokelumne River Project for nearly three decades.
PG&E’s Mokelumne River Project is located upstream, in the Sierra Nevada, from one of the largest water supply reservoirs in the state, the East Bay Municipal Utility District’s (EBMUD’s) Pardee Reservoir. PG&E’s Mokelumne project has the dubious distinction of being the subject of the longest running relicensing proceeding in U.S. history: its original 50-year operating license expired in 1975. Since then, it has been operating on “annual licenses” as PG&E, state and federal agencies, and other parties battle to determine what conditions the project should operate under in order to restore the river. Except for winter floods and spring run-off, less than 5 percent of the Mokelumne River and its tributary flows remain in the river. The remainder is diverted into over 30 miles of canals and tunnels to produce power. What is left of the upper river is a small creek in a large streambed, where flows are punctuated by heavy water surges determined by power production. The upper Mokelumne River is all but lost to other public uses beyond electricity production.

The operation of the Mokelumne Project directly affects the quality of water that flows downstream to EBMUD’s reservoir. Year-long accumulations of sediment and debris flushed out from behind PG&E’s dams during storm events not only silt up EBMUD’s project, but introduce large quantities of organic matter that feed algal growths and introduce potentially harmful bacteria that can threaten water supplies. The Lodi Decree, a series of court decisions from the 1940’s and 50’s, regulates the average monthly outflows and storage levels, but does nothing to control the day-to-day operations of the PG&E project.

With either the sale or transfer of the Mokelumne Project out from under CPUC regulation, the future is uncertain for the health of the Mokelumne River generally and for EBMUD’s water supplies specifically. The State must address this type of potential impact for the Mokelumne project – and all projects in the PG&E system – before it makes any decision on PG&E’s proposals. The implications for drinking water and the health of millions of California residents are profound.
The Potter Valley Project illustrates the risk of allowing hydroelectric projects to be sold before complex and long-standing ecological controversies are resolved. The Project also illustrates the inadequacy of current federal regulatory oversight to protect endangered species.

The Potter Valley Project is located in the North Coast Range on the Eel River in Mendocino and Lake Counties. Since the dam’s construction in 1908, water from the upper Eel River has been diverted to Potter Valley – where it drops 450 feet to generate a small amount (9 megawatts) of hydroelectric power – and then gets “abandoned” near the headwaters of the Russian River. The Potter Valley Project diverts half of the water produced in the Eel River annually and about 98 percent of the upper Eel’s natural summer and autumn flow. This provides significantly increased flows in the Russian River basin while the Eel River is often left high and dry.

The Potter Valley Project is not profitable as a stand-alone hydropower project, but the value of the transferred water to downstream agriculture and residents in the Russian River drainage is considerable. Indeed, these water users have become dependent on the continued operation of the Potter Valley Project to meet present and future water supply demands.

On the other hand, the project’s diversions have contributed to the depletion of the Eel River’s historically abundant salmon and steelhead stocks. All three affected species (coho, chinook, and steelhead) are listed as “threatened” or “candidate” species under the Federal Endangered Species Act. Restoring this spawning and rearing habitat – primarily through returning flows to the Eel – is crucial to the survival of these anadromous fish runs. FERC, PG&E, Humboldt and Sonoma Counties, environmental groups and others are engaged in negotiations to determine what environmental measures are necessary to help the salmon and steelhead, restore flows to the Eel River, and protect the water supplies of the southern counties. Parties are worried that the sale of the Potter Valley Project to a new owner would upset years of work and progress, and that a new owner may resist accountability for past environmental damages.

The Federal Energy Regulatory Commission (FERC), the agency that issues and regulates hydropower licenses, recently ruled against the National Marine Fisheries Service and the US Forest Service regarding the amount of water they deemed necessary to protect salmon and steelhead in the Eel River. FERC ignored repeated pleas from these agencies, Humboldt County, and environmental groups, and chose to favor water supply deliveries and the project’s minimal electricity benefits over fisheries restoration.
CASE STUDIES

THE NORTH FORK FEATHER RIVER EXAMPLE:
The Public Interest in Recreation and the Health of an Entire Watershed

PG&E’s “Staircase of Power” along the North Fork Feather River shows how PG&E’s projects can dominate and sacrifice entire rivers for electricity production.

The Feather River is one of California’s great rivers. Due to hydropower development and the threat of divestiture, it is also listed by American Rivers as one of America’s most endangered rivers. Its watershed is the largest in the Sierra Nevada, and the river historically carried among the highest volumes of water in the region. In the first half of the 20th century, the rich aquatic habitat of its main branch – the North Fork – made a superb fishing destination. But the North Fork’s high flows and steep descent also made it a prime candidate for hydropower development, and today the North Fork is almost entirely removed from its own river bed to flow through a continuous series of diversion tunnels and turbines that PG&E refers to as its “Staircase of Power.”

A river rerouted. PG&E diverts much of the North Fork Feather River’s natural flow into a parallel series of pipes and tunnels. During the summer of 1997, a wet year, about 90% of the river’s natural flow was diverted by PG&E over its sixty mile length. In some summers PG&E diverts more than 95%.
At the head of the staircase is Canyon Dam, constructed in 1914, creating Lake Almanor. The largest reservoir in PG&E’s system, Lake Almanor has a storage capacity of 1.14 million acre-feet. It is operated primarily for hydroelectric generation and for reservoir-based recreation. PG&E coordinates the operation of Lake Almanor with its other North Fork Feather River facilities to maximize overall power production. While the average, pre-project flow of the North Fork Feather River at Canyon Dam was 2,000 cubic feet per second (cfs), under its FERC license PG&E is only required to release 35 cfs year-round. PG&E’s extensive storage in Lake Almanor allows the utility to dramatically manipulate the annual cycle of flows in the river.

Downstream of Lake Almanor, PG&E’s Rock Creek/Cresta project is in the midst of a prolonged relicensing battle due to the destructive impact it has had on the North Fork’s fisheries. The North Fork flows some 60 miles downstream to Lake Oroville, formed by Oroville Dam in 1968. In this stretch, the North Fork has been almost entirely rerouted through over 30 miles of tunnels and penstocks that feed eight PG&E powerhouses.

Since the construction of the North Fork projects, the California Department of Fish and Game has documented severe declines in native fish populations due to greatly reduced river flows, higher water temperatures, destroyed spawning grounds, and disrupted sediment movement. From 1950 to the present, the flows from the Rock Creek reach have been less than one-fifth of the natural flows recorded in the first half of the century. The current battles over relicensing of the North Fork projects pit environmentalists, Plumas County representatives, recreation users, and fisheries interests against PG&E. State agencies and environmentalists are urging that all the projects on the North Fork be considered as a whole, to see what can be done to restore the historic cold-water fishery and water quality.
CASE STUDIES

THE BATTLE CREEK EXAMPLE:
The Public Interest in Endangered Species Protection and River Restoration

Backed by ratepayer compensation, PG&E "stepped up to the plate" and took a major step toward restoring Battle Creek’s threatened ecosystem. The Battle Creek Restoration Project has been highlighted as a model for balancing restoration and hydropower generation. In addition, PG&E has provided greater assurance for future regulatory compliance and very likely increased the value of the project by addressing potentially serious environmental liabilities. In the current debates over the future ownership of PG&E’s projects, the CPUC should encourage and facilitate agreements like the Battle Creek deal throughout the system.

Battle Creek is a cold, spring-fed stream that slips down the volcanic slopes of Northern California’s Mount Lassen in Shasta and Tehama Counties. Its many cold pools are a vital refuge for salmon through the summer months. Scientists and fisheries biologists have long recognized Battle Creek as one of the most valuable salmon spawning habitats remaining on the Sacramento River system. It is one of only two remaining habitats for endangered winter-run chinook in California.

PG&E’s Battle Creek Project consists of five powerhouses and associated dams, diversions, and conveyances. It accounts for only 2 percent of PG&E’s annual hydropower production, but has significant negative impacts on one of the rarest populations of fish in the West. These facilities are spread throughout the Battle Creek drainage, with two powerhouses situated on North Fork Battle Creek, two more on the South Fork and the fifth at the base of the drainage below the two forks’ convergence. The Battle Creek facilities pose many of the familiar threats to migration and successful reproduction of salmon and steelhead. A further impediment to migration is the diversion of water from Battle Creek’s North Fork to the generating facilities in the South Fork. This mixing of water from different spawning areas can confuse a salmon’s remarkable ability to return to its home stream.

In 1999, the federal and state agencies of the CalFed Bay-Delta Restoration Program signed a $50 million agreement with PG&E to restore Battle Creek’s threatened river ecosystem. One consequence of this agreement will be the elimination of mixing of waters from Battle Creek’s North and South Forks. The agreement also calls for increased river flows to revitalize salmon and steelhead habitat, the placement of fish screens and ladders, as well as the removal of up to five small dams that now impede salmon and steelhead migration. PG&E ratepayers, public taxpayers, and a private foundation are helping to foot the bill, but the public benefits will be shared by all Californians.

Removing dams on Battle Creek will restore access to some of the most promising salmon and steelhead spawning habitat in the
upper Sacramento River drainage. And this move, surprisingly, may actually increase the value of the Battle Creek project. By cooperatively addressing the project’s adverse effects on an endangered species, PG&E has reduced its future regulatory burden and uncertainty. If the Restoration Program is fully implemented, it should reduce the need for future costly environmental requirements to repair damage caused by the hydro facilities.

New owners of PG&E’s hydroelectric facilities, including PG&E’s own unregulated affiliate, may be less willing to undertake such voluntary restoration projects. Under existing cost of service rate-making, PG&E was able to pass its share of the restoration project’s costs along to ratepayers - who have been the primary beneficiaries of inexpensive hydropower. A new owner could balk at such costs when they come directly from shareholders’ pockets and might place the facility at a competitive disadvantage.

**CHRONOLOGY**

**WHAT'S NEXT, PG&E?**

*For close to two years, PG&E’s ever-changing tactics and proposals concerning the ownership of its hydropower dams have kept people guessing. What remains constant is the threat of increased environmental damages, and fears that once the dam projects are no longer under CPUC regulation, the public will have even less say over how our rivers are governed.*

**May 1, 1998:** PG&E announces in a filing to the CPUC its intention to either divest or “spin off” its system, and that it would provide a more detailed proposal by “late summer.”

**December 11, 1998:** PG&E files an application with the CPUC, proposing to hire an appraiser to assign a value to the system, thus allowing PG&E to hand-off all the assets to its unregulated affiliate. That approach is heavily criticized by ratepayer groups, rural county representatives, water agency advocates, and energy companies.

**April - August, 1999:** By April, the forum for resolving ownership disputes over the hydropower system moves from the CPUC to the Legislature. PG&E makes an expensive and controversial effort to negotiate a series of private deals. Ultimately, PG&E attempts to push through the Legislature its plan to transfer its system to its own unregulated affiliate PG&E Generating, putting a dollar value of $3.2 billion on the assets. The plan includes a set of conditions negotiated by PG&E and some environmental groups. Despite intensive lobbying by PG&E, the entire deal dies at the end of the legislative session.

**September, 1999 – June, 2000:** PG&E files an application to auction off the system, claiming that it is fully committed to selling off the assets, and that it no longer has any interest in owning the system.

**June, 2000:** After 9 months of proceedings, testimony, and evidentiary hearings that have cost ratepayers and participating parties millions of dollars, PG&E recently was reported to be promoting still another alternative: a variation of its original plan to transfer the system to its unregulated affiliate.
WHAT YOU CAN DO

THE SIERRA’S RIVERS NEED ACTION NOW...

For two years, the future ownership of PG&E’s hydropower system, and by extension, the future health of Sierra Nevada rivers, have been in limbo. The time to act is now, to urge the State to step up to the plate and assert the citizens' will that PG&E, and any future owners of PG&E’s dams and powerhouses, take better care of our rivers. Please act now, before the hydropower system is sold to an unknown future.

...WHAT YOU CAN DO

• Contact Governor Gray Davis and tell him the Sierra’s rivers need his attention now!

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Write or call and urge the Governor to take an active role in the California Public Utilities Commission proceedings, case A.99-09-053, to ensure that that any change of ownership is accompanied by conditions of environmental protection that will help restore California’s rivers and prevent further degradation from future hydropower operations.

• Join the Environmental Defense Action Network by visiting the website at: http://www.actionnetwork.org/

• Contact Steve Wald with the California Hydropower Reform Coalition at (510) 644-2900 x105 or swald@callrc.org to learn more about hydropower relicensing and how you can get involved.
SOURCES

Assembly Bill 1890 Reprint, September 24, 1996.
Environmental Defense’s work focuses on four critical goals essential to protecting the environment: preserving biological diversity; stabilizing the Earth’s climate; safeguarding oceans; and protecting human health. To that end, Environmental Defense employs scientists, attorneys, economists, computer modelers, and other environmental professionals who work on a broad range of environmental issues. With offices in seven states, Environmental Defense applies its expertise to solve some of the nation’s and globe’s most pressing ecological problems.

The California Hydropower Reform Coalition (CHRC) was formed by conservation, sportfishing, and river recreation organizations in 1997 to develop a coordinated and systematic approach to FERC relicensing in California. Its members seek to restore and enhance California rivers adversely affected by hydropower through collaboration, technical, scientific, and legal expertise, and the promotion of public involvement. The CHRC Steering Committee consists of American Whitewater, California Outdoors, California Sportfishing Protection Alliance, California Trout, Foothill Conservancy, Friends of the River, Natural Heritage Institute and Trout Unlimited.
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