

Rewatering Napa's Rivers

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Long-standing California laws offer fish populations strong protection. These laws prohibit many migration barriers, require dam owners to release flows to protect downstream aquatic life, bar unpermitted streambed alterations, obligate fish screens on water diversions, mandate consideration of fisheries in water rights decisions, and even provide constitutional protection for fishing access. In nearly every decade since the state was founded, California's legislature has passed strong and unambiguous laws to protect fisheries, ultimately proclaiming "[t]he protection and conservation of the fish and wildlife resources of this State . . . to be of utmost public interest." 1961 Cal. Stat. 2532. Reading these laws in the abstract, one might think that Californians had found a way to have their cake and eat it, too—a robust water storage and delivery system that supports both a booming agricultural economy and healthy freshwater ecosystems. But no.

Instead, 80 percent of California's native freshwater fish are likely to go extinct in the next 100 years, largely due to the very problems these laws sought to address. Rebecca M. Quiñones & Peter B. Moyle, *California's Freshwater Fishes: Status and Management*, 2015 FISHMED Fishes in Mediterranean Env't 1 (2015). We focus in this article on California's iconic salmonids, mostly salmon and steelhead, which have been particularly impacted by water infrastructure. In the next 50 years, 45% will likely go extinct, and 74% will likely disappear in the next 100 years. Peter B. Moyle et al., *State of the Salmonids: Status of California's Emblematic Fishes 2017*, U.C. Davis Ctr. for Watershed Scis. at 4 (2017).

Past legislative efforts to protect fishes were well-informed, but these laws were seldom enforced and now read as a series of broken legislative promises. Time and again, private interests overwhelmed efforts to protect the public good. This is the structural failure that Professor Joseph Sax sought to address through the modern public trust doctrine. Yet there is hope.

Private litigation built on public trust standing is reinvigorating old laws. By suing to enforce these laws as the legislative expression of the public trust, private attorneys general can require the state to fulfill its promises of healthy fisheries in California. Private litigation by Water Audit California (Water Audit) has breathed new life into California Fish and Game (CF&G) Code § 5937, a statute requiring dam owners to release enough water to keep downstream fish in good condition, and improved environmental conditions in the Napa River watershed. Water Audit is just one player in a broader litigation ecosystem, but its story shows that sound science and focused litigation can reopen historic habitats and increase fish populations.

Collapse of California's Anadromous Fish Populations

California hosts 21 distinct forms of anadromous salmonids, including trout and salmon that are born in freshwater, emigrate to saltwater to mature, and then return to freshwater to breed. Examples range from legendary Chinook (King) salmon to lesser-known species like pink salmon. These fish are exquisitely adapted to life in California's sometimes harsh freshwater environments, with flexible life-history strategies that allow them to reproduce in great numbers in good times and scrape by during bad. When populations are healthy, anadromous salmonids support thriving food webs by bringing huge influxes of needed nutrients to inland ecosystems during their annual breeding migrations. These nutrients even show up in California's wines. Joseph E. Merz & Peter B. Moyle, *Salmon, Wildlife, and Wine: Marine-Derived Nutrients in Human-Dominated Ecosystems of Central California*, 16 Ecological Applications 999 (2006). California's salmon and steelhead are also culturally significant for Californians and of foundational importance to indigenous groups.

Migratory salmonids in California have declined precipitously. A variety of anthropogenic changes explain this decline, but the biggest culprits are impassable dams and their effects, including loss of habitat upstream and downstream of dams, changes in stream flows, and hatcheries established to mitigate dam impacts.

As in most states, there is no exhaustive list of California dams. Federal and state officials track larger dams and dams creating serious risk of catastrophic loss; California has 1,580 larger and/or high-risk dams. No one tracks smaller dams, but extrapolating proportionately from available data, California likely has around 42,000 additional small dams. Peter K. Brewitt & Chelsea L.M. Colwyn, *Little Dams, Big Problems: The Legal and Policy Issues of Non-jurisdictional Dams*, 7 Wiley Interdisc. Revs. Water e1393 (2020). Both categories of dams have significant impacts on salmonid populations.

Nearly all dams lack functional fish passage and block access to upstream habitat. Because salmonids require cold water to survive, the little remaining habitat is generally located immediately below dams where colder reservoir outflows support salmonid populations. This habitat must be maintained in near-perfect condition, requiring optimal human decision-making, which makes salmon survival tenuous. Temperature management failures in 2014 and 2015 at Shasta Dam resulted in near total loss of two seasons' worth of juvenile winter-run Chinook. J.R. Durand et al., *Drought and the Sacramento–San Joaquin Delta, 2012–2016: Environmental Review and Lessons*, 18 S.F. Estuary & Watershed Scis., no. 2, June 2020, art. 2. Historical habitat loss presents serious challenges to salmonid recovery.

Dams also change downstream flow characteristics. L. R. Brown & M. L. Bauer, *Effects of Hydrologic Infrastructure on Flow Regimes of California's Central Valley Rivers: Implications for Fish Populations*, 26 River Rsch. & Applications 751 (2010). Total flows are generally much lower, and changes in flow volumes come with changes in water temperatures. At worst, low, warm flows and reduced flow variability kill salmonids, and even minor changes can increase colonization by nonnative species, which negatively impacts salmonids. Dams and flow changes also alter physical characteristics of downstream rivers and streams, and the reduced flows prevent baby salmon from accessing floodplain habitat they need to grow enough to survive their seaward migration. Flow changes caused by dams make salmon survival difficult.

Central Valley Chinook salmon exemplify these challenges. Dams block about 95% of Central Valley salmonid spawning habitat and 80% of their total habitat. F.L. Reynolds et al., *Restoring Central Valley Streams: A Plan for Action*, Cal. Dep't of Fish & Game (1993); Steve T. Lindley et al., *Population Structure of Threatened and Endangered Chinook Salmon ESUs in California's Central Valley Basin*, NOAA Tech. Memorandum NOAA-TM-NMFS-SWFSC-360 (2004). Remaining below-dam habitat is marginal due to high water temperatures, poor habitat structure, pollution, water diversions, and passage barriers. Historical runs of one to two million wild fish are nearly gone, largely replaced with a few hundred thousand hatchery-produced fish. These hatchery-dependent populations are prone to collapse in the wild and have significant negative impacts on

genetic diversity in remaining wild populations. Paul S. Kibel, *Of Hatcheries and Habitat: Old and New Conservation Assumptions in the Pacific Salmon Treaty*, 10 Wash. J. Env't L. & Pol'y 90 (2020). In recent years, California's salmon season has been intermittently closed largely due to collapse of these stocks. The predicament of Central Valley Chinook typifies California's salmon and steelhead populations. Across the state, many local populations have disappeared, and federal and state regulators currently list 90 percent of salmonids in danger of extinction.

We can protect and revitalize anadromous fish populations by removing barriers or helping fish bypass them, restoring fish-friendly flows that more closely mimic natural conditions (called environmental flows), improving access to good stream habitat, and changing how hatcheries operate. In many cases, adding fish passage and making small changes in dam operations can go a long way toward recovering fish populations.

History of California Fish Protection Laws

To a remarkable extent, long-standing California state laws already address many causes of salmonid population collapse. As noted, state laws prohibit barriers to fish migration, require fish passage around dams, mandate minimum flows, and otherwise seek to protect freshwater ecosystems. Although some dams may have been specifically exempted, and some federal dams may avoid some state laws through preemption, most of the state's thousands of dams violated state laws when built and remain in violation today. Better historical enforcement of these laws would have protected fisheries, and improved enforcement could now move salmonids toward recovery.

This article focuses on CF&G Code § 5937 and its flow requirements. In 1914, the CF&G Commission called on the state legislature to pass a law protecting minimum flows below dams, noting despairingly that many rivers had begun to run dry in summer and early fall. The legislature responded with section 5937, which required dam owners to release enough water "to keep in good condition any fish that may be planted or exist below said dam or obstruction." 1915 Cal. Stat. 820. "Fish" includes wild fish, mollusks, crustaceans, invertebrates, and amphibians. CF&G Code § 45.

Like many state laws protecting fisheries, section 5937 rapidly sank into obscurity. Karrigan Bork et al., *The Rebirth of Cal. Fish & Game Code 5937: Water for Fish*, 45 U.C. Davis L. Rev. 809 (2012). Reasons build, in large part, from "the tendency of the legislature and of administrative agencies to subordinate diffuse public advantages to pressing private interests." Joseph L. Sax, *The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention*, 68 Mich. L. Rev. 471 (1970). This tendency played out in several ways: No single agency was charged with implementation; the CF&G Commission had little power and few resources, especially compared to the nascent California State Water Resources Control Board (Water Board), an entity that summarily approved most water rights applications; and disorganized and poorly funded advocacy for fisheries simply could not stand against powerful private interests seeking more and more water.

It is tempting to think that this kind of regulatory failure is an isolated, historical example, but such failures continue

and are the norm, not the exception. For example, since 1982, the California Department of Fish and Wildlife (CDFW) has been required to set minimum stream flow requirements for fish and wildlife protection. As of 2019, CDFW had begun developing flow recommendations for 12 streams, drafted recommendations for two streams, and completed only one final recommendation. CDFW Water Branch, *CDFW Instream Flow Studies*, CDFW (2021). Similarly, in 2005, the California legislature required CDFW and the California Director of Transportation to address barriers to fish passage caused by new or existing transportation projects. Caltrans, *2019 Fish Passage Annual Legislative Report* 38 (2020). Remediation of barriers is proceeding at a pace of roughly 3.5 barriers per year; well over 7,000 barriers remain on state highways alone. At this rate, remediation of existing barriers on state highways would be complete in 1,750 years. Even doubling or tripling this rate would be far too slow to save California's migratory fish.

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The modern environmental era offers possibilities for increased enforcement. At a state level, broad citizen suit powers born of the public trust doctrine are high among the reasons for hope of increased enforcement. Since the 1971 California Supreme Court's decision in *Marks v. Whitney*, 491 P.2d 374, 380 (Cal. 1971), private citizens have standing to protect public environmental interests in the state. Courts have recognized section 5937 as a legislative expression of the public trust, thus creating private standing for lawsuits seeking to enforce California's environmental laws. Karrigan Bork, *Targeting Public Trust Suits*, 29 Env't L. News 3 (2020). This state standing is broader and more reliable than federal standing for environmental enforcement, and, in California, private suits built on it have begun to rehabilitate state laws like section 5937. Similar approaches may be available in other states as well.

Building a Science-Driven Litigation Campaign

Like many states, California law supports private attorney general suits by allowing award of attorney fees to successful litigants "in any action which has resulted in the enforcement of an important right affecting the public interest." Cal. Civ. Proc. Code § 1021.5. California courts can also award attorney fees to unsuccessful litigants who catalyze change in the public interest. In both cases, plaintiffs must reasonably endeavor

to enforce the public right at issue without litigation, but public interest plaintiffs complying with this requirement are generally able to recover some or all of their fees. *Id.* Fee recovery and broad public trust standing together create significant opportunities for lawyers representing private litigants to improve California's aquatic ecosystem conditions.

In 2009, *pro per* litigant Grant Reynolds filed a section 5937 suit against the City of Calistoga for its management of Kimball Dam. Calistoga had not historically released environmental flows despite miles of potential salmonid habitat immediately downstream. The superior court initially dismissed the case on standing grounds. Reynolds sought counsel. Attorney William McKinnon represented him and moved for reconsideration, convincing the Water Board and CDFW to file joint amicus briefs. The court granted reconsideration. Ruling on Submitted Mot. for Recons. at 4, *Reynolds v. City of Calistoga*, No. 26-46826 (Cal. Super. Ct. Mar. 25, 2010). Parties then negotiated and litigated bypass flows and, subsequently, legal fees. Calistoga developed an interim bypass plan, concluding that any reduction in its Kimball reservoir water supplies could be offset through other available supplies. Enforcement of the plan remains a challenge.

Thereafter, in 2016, Reynolds formed Water Audit, a public-benefit corporation that has since pursued a litigation campaign focused on restoring below-dam flows. Water Audit benefited from a burgeoning interest in section 5937. In particular, earlier research and litigation concerning Putah Creek water flows brought U.C. Davis Professor Peter Moyle into the fray, who established the science needed to implement environmental flows in compliance with section 5937. His peer-reviewed research on the good condition requirement of section 5937 has informed both judicial and Water Board interpretations of the statute. *See, e.g.,* Peter B. Moyle et al., *Fish Health and Diversity: Justifying Flows for a California Stream*, 23 Fisheries, no. 7, July 1998, at 6. Professor Moyle and scientist Theodore Grantham also developed a systematic approach to evaluating dam compliance with the statute. T.E. Grantham & P.B. Moyle, *Assessing Flows for Fish Below Dams: A Systematic Approach to Evaluate Compliance of California's Dams with Fish and Game Code Section 5937*, Ctr. for Watershed Scis. Tech. Rep. CWS-2014-01, U.C. Davis (2014). The Calistoga case showed that sound science must underpin section 5937 litigation, and Water Audit capitalized on existing expertise by creating a technical advisory committee that included both Moyle and Grantham.

Both negotiations and litigation often focus on the section 5937 "sufficient" and "good condition" requirements; this is technical litigation. The advisory committee provides expertise (and expert witnesses) to assess whether required conditions are being met and to review remedial flow plans prior to litigation settlement. The technical advisory committee also informs Water Audit's choice of where to file public trust suits in California's target-rich litigation environment.

Choosing litigation targets depends on several considerations, beginning with the probability of winning environmental water flows and the potential benefits of those additional flows. Just as easy wins in places that won't make a difference for fish populations accomplish little, river systems ripe for improvement suffer greatly from a lost suit. Water

Audit weighs state and federal venues, precedential value, dam ownership (with a preference for publicly owned dams), potential rehabilitation benefits, potential for release of waters while minimizing impacts to human uses, local political conditions, potential for success in trial court or on appeal, and potential for dam owners' actions to redress flow issues.

Working with the technical advisory committee, Water Audit followed up its initial success with ongoing efforts to improve the Napa River watershed. In 2016, Water Audit asked the City of St. Helena to begin releasing environmental flows from Bell Canyon Dam into Bell Canyon Creek, a Napa River tributary located on the east side of Napa Valley. City representatives were aware of Calistoga's recent court loss and so quickly signed a settlement agreement to increase flows and assess hydrologic, geomorphic, and habitat quality concerns. Before adoption, the plan was reviewed and approved by Water Audit technical advisors. As with the Kimball Dam litigation, the City found it could bypass flows with minimal to no impacts on municipal water supply, as most of the water was already spilling, albeit at the wrong time to benefit fish. Environmental flows have improved Bell Canyon Creek habitat and augmented the mainstem Napa River.

Other successes have followed. A 2016 lawsuit against the California Department of Veterans Affairs (DVA) over its Rector Dam persuaded DVA to begin bypass flows; conduct remedial planning, monitoring, and reporting; and adaptively manage flows. As a consequence, potential fish habitats downstream of Rector Dam have received environmental flows for the first time since the dam was built. A 2021 settlement agreement over Lake Marie Dam, on tiny Cayetano Creek in the southeastern Napa River watershed, will rewater a short four-mile stream section but have an outsized benefit. A habitat assessment completed as part of the settlement agreement estimates that planned early summer environmental flows will boost nursery conditions and increase adolescent fish survival, yielding 600 to 1,200 adult steelhead.

These cases demonstrate that insufficient monitoring, minimal or absent flows, and clear violations of long-standing state law can be overcome by coupling sound science with aggressive protection of the public trust. Water Audit litigation has resulted in significant changes to dam operations throughout the Napa River watershed, improving conditions for fish and resulting in no adverse impacts to municipal water supplies.

Insights

Since the public trust doctrine granted standing, several organizations have pursued almost a dozen actions to enforce section 5937, in the courts and before the Water Board. *See, e.g., Natural Res. Def. Council v. Patterson*, 791 F. Supp. 1425 (E.D. Cal. 1992). The state seems content to let private parties pursue this litigation, although, as noted, it sometimes files amicus briefs in support and provides other informal support through consultation. A focus on rewatering rivers and its string of successful suits dedicated to the Napa River watershed's complete rehabilitation set Water Audit apart in this litigation arena. Its efforts offer four key insights into creating successful litigation campaigns elsewhere.

First, focusing work in one watershed has resulted in more comprehensive environmental restoration and stronger community relationships. These lawsuits established Water Audit as a well-known, technically proficient organization willing to enforce the public trust, resulting in faster resolutions in subsequent suits. Their place-based campaign also engaged community members who provided invaluable insights into local conditions and helped Water Audit build momentum for restoration in the region.

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Second, private litigation increases motivation and enables cooperation. To break the pattern of conflict-based litigation, Water Audit partnered with local organizations to host a science-based forum on water management. Interest was overwhelming, attracting a standing-room-only crowd of over 150 people. Shifting away from the familiar rhetoric of competing interests, the forum emphasized monitoring and science-driven approaches to restoration. The forum spawned the Refugia Project, a field research effort that evaluated fish passage barriers in Napa streams and prioritized them for further action. This information and collaboration should, in time, significantly improve reconciliation of the needs of fish and people, but it is only possible due to the litigation that preceded it.

Third, restoring fish populations is a multifaceted problem, requiring multifaceted solutions. Below-dam flows provide major benefits, but barriers to fish passage, water diversions, toxic discharges, and groundwater withdrawals counteract those benefits, so Water Audit has begun to address these issues as well. For example, an earthen dam built across York Creek in the 1870s, unused since 1930, blocked fish passage and released hazardous mud flows. Regulatory agencies advocated for its removal for almost 30 years, experts long ago developed a dam removal plan, and funding has been available since 2012. But in spite of a \$70 daily fine accruing for over eight years, the dam stood until Water Audit threatened suit, which spurred dam removal in summer 2020. Other efforts include addressing groundwater withdrawals where those withdrawals impact public trust resources. For instance, a February 2021 settlement agreement with St. Helena requires monitoring of surface and groundwater use and consideration of the public trust in groundwater permitting. The settlement agreement also shows

that private lawsuits can sometimes convince permitting entities to start fulfilling their own public trust obligations.

Fourth, and finally, this work demonstrates the vital importance of private litigation in public trust protection. Litigation is a language that government speaks. It can drive funding and action in a way otherwise difficult to achieve. Litigation can also clarify dam owners' and other actors' roles, allocating clear rights and responsibilities that create fertile ground for collaboration. Public enforcement offers advantages over private litigation, and private litigation cannot replace robust public enforcement. Nevertheless, diffuse responsibility, ever-shifting politics, and inconsistent funding streams tend to destabilize even legislatively mandated efforts to protect public trust resources. Private litigation has a crucial role in bringing attention, funding, and judicial enforcement to public trust problems.

Through careful, scientifically sound litigation, Water Audit and other organizations are fulfilling California's longstanding legislative promises of sound ecosystems reconciled with human needs. This story demonstrates Professor Sax's public trust thesis in action: Litigation can correct the inherent failures of the administrative state. Private litigation thus remains vital to successful environmental protection. ♻️

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