

TIME



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BLOW OUT: Demolition experts blasted a 100-ft. hole in the Embrey Dam in 2004. Virginia's Rappahannock is now one of the longest free-flowing rivers in the Lower 48

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Is This Worth a Dam?

There's a movement afoot to pull down old or ecologically unsound dams, starting with this one

By J.MADELEINE NASH/HETCH HETCHY

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To some, the O'Shaughnessy Dam is a monument to the skills of the Irish-American engineer who built it. Elegant is the word that Susan Leal, general manager of the San Francisco Public Utilities Commission, uses to describe the curved wedge of rock and concrete that soars 300 ft. above the floor of the Hetch Hetchy Valley. But to others, the dam, constructed nearly a century ago inside the western boundary of Yosemite National Park, is a mocking tombstone to a landscape whose haunting beauty has lain for too long beneath 100 billion gallons of water.

Might the O'Shaughnessy Dam one day be dismantled and that drowned landscape conjured back into being? That is the provocative question posed by an activist group called Restore Hetch Hetchy, which five years ago launched a spirited but seemingly quixotic campaign to convince the public that the time has come to get rid of the unnatural bone lodged in the valley's throat. "This was done by people, and it can be undone by people," says Restore Hetch Hetchy's executive director Ron Good.

Undoing dams that have outlived their usefulness--or whose social and economic utility is overshadowed by the environmental harm they do--is an idea that is catching on. Over the past six years, some 175 dams have been dismantled across the country, and more than 600 over the past century. That's just a drop in the millpond, however, given that there are perhaps 2.5 million dams in the U.S. and that most of those removed to date have been relatively small and insignificant.

The O'Shaughnessy falls into a different category, and not just because it's so big. It's also quite useful: the cool, clear water it impounds flows to some 2.4 million people and 75,000 businesses in the San Francisco Bay Area, and the power generated by that water's downhill rush supplies electricity to such vital operations as San Francisco's schools, municipal-transit system and international airport. If the dam were removed, that water and power would have to be replaced somehow, which is why the Public Utility Commission's Leal considers the idea "just plain goofy."

And yet, buoyed by a series of Pulitzer-prizewinning editorials in the Sacramento Bee, two new books and technical studies commissioned by the Oakland, Calif., office of Environmental Defense, the Restore Hetch Hetchy campaign is stirring up more interest than anyone expected. This week the California Resources Agency is host to a daylong workshop on the Hetch Hetchy question that promises to look broadly at what is known about the costs--and the benefits--of pulling the dam down.

The O'Shaughnessy Dam was stirring controversy even before 1913, when the U.S. Congress, against the impassioned pleas of conservationist John Muir and his Sierra Club, voted through a bill allowing its construction. But though the debate is not new, the context has changed dramatically. On one hand, free-running rivers, unobstructed by dams, have become a rarity, which has increased their aesthetic, ecological and recreational value. On the other hand, with recent experience of protracted drought and soaring energy costs, Western states in particular are more worried than ever about the security of both their water supplies and sources of hydropower.

Which set of concerns should take precedence? That question has been coming up with increasing regularity in both Western and Eastern states. Just last month, for example, the Arizona Public Service Company shut down two aging hydropower plants that no longer produced much electricity and opened the gates of a small diversion dam that for nearly a century had shunted water away from Arizona's Fossil Creek, a spring-fed tributary of the Verde River. As a thin ribbon of water trickled through, Dr. Robin Silver of the Center for Biological Diversity cheered. "In four to five years, the whole face of this stream will change," he predicted. Among other things, Silver expects young cottonwoods

to take root along the banks and native fish like speckled dace, roundtail chubs and Sonoran suckers to thrive and multiply.

That many good things can happen when dams are removed is well documented. In 1999, for example, when a deconstruction crew took a wrecking ball to the Edwards Dam on Maine's Kennebec River, the results stunned even those who had lobbied for the dam's removal. Important fish species that used to swim from the ocean to spawn upstream--Atlantic salmon, alewives, sturgeon and shad--didn't just come back, marvels Pete Didisheim, advocacy director of the Natural Resources Council of Maine, "they surged back." The next year, almost a million alewives were massing in the river. Fish are also rebounding in Virginia's Rappahannock River after the U.S. Army Corps of Engineers blasted a gaping hole in the Embrey Dam last year.

The Edwards and Embrey dams (each hundreds of feet long and more than 20 ft. high) are among the most imposing structures that America's dam busters have tackled to date. But while a handful of large dams are scheduled to come down soon, those involved in their demolition are proceeding with caution, wary of what hazards they might unleash. As University of Utah political scientist Daniel McCool puts it, "We don't know how to remove big dams yet. We're still learning."

Shaping up as an important milestone is the demolition of two large dams in Washington State's Elwha River, which flows from the mountains of Olympic National Park into the Juan de Fuca Strait. Their removal, scheduled to begin in 2008, would occur in stages, and if it goes as planned, the Pacific Northwest will lose only a tiny amount of hydropower and regain a legendary salmon fishery. But there could be problems. Behind the Elwha dams are some 18 million cubic yards of accumulated sediment, enough to fill four superdomes, and if a lot of that sediment starts to move downstream at once, the ecological consequences could be severe.

What about even bigger, more significant dams? Well, no one has seriously suggested demolishing the Grand Coulee Dam on the Columbia, but a coalition of environmental groups has taken aim at four dams on the lower Snake River--and stirred up a storm of controversy. The damage those dams have done is clear. Since they were built in eastern Washington State from 1955 to 1975, the salmon population in the Snake has gone into free fall. But the benefits the dams provide are also clear: inexpensive barge transport for wheat farmers, irrigation water for fruit growers and a small but still useful amount of hydropower.

And then there's the Glen Canyon Dam on the Colorado, which after its completion in 1963 not only robbed the Grand Canyon of sediment needed to rebuild sandbars and beaches but also drowned a spectacular landscape far bigger than the Hetch Hetchy Valley. Thanks to a multiyear drought that has only recently eased, the landscape has begun to re-emerge, energizing an effort by the Glen Canyon Institute to correct what conservationist David Brower called "America's most regretted environmental mistake." It's bound to be an uphill battle. The Glen Canyon Dam is part of the seven-state Colorado River water-storage and delivery system, with a large, powerful constituency that depends on it.

But what if the benefits provided by such dams could be replaced? Would that make their removal politically palatable? In a thick report on Hetch Hetchy released last fall, Environmental Defense argued that there are alternative ways to provide both the water and the power currently supplied by the O'Shaughnessy Dam. In one scenario, for example, the San Francisco Public Utilities Commission would shift its water storage over to the Don Pedro Reservoir, lower down on the Tuolumne River, which feeds the Hetch Hetchy System. But that could be tricky. Don Pedro belongs to the Turlock and Modesto Irrigation Districts, and those districts (whose rights to water from the Tuolumne River predate San Francisco's) are not eager to allow a large urban area to stick a big straw into the same precious pot.

The cost of retrofitting the Hetch Hetchy system, and who would pay for it, are other sticky issues. The total price tag for replacing the water and power that the O'Shaughnessy Dam provides, according to Environmental Defense, ranges from \$500 million to \$1.5 billion. The San Francisco Public Utilities Commission believes that the cost will be far higher, however--at least \$8 billion if removal of the dam is included. Either way, it's a big chunk of change. By contrast, the cost of removing the Edwards Dam was just \$3 million; it is estimated that taking out the Elwha dams will cost about \$180 million, including a \$30 million federal buyout of the dams' private owners.

As the debate over the O'Shaughnessy Dam continues, politicians and water managers throughout the Western states will be watching. This is a debate that has the potential to broaden into a long-overdue discussion of just how the rapidly growing population of this arid, drought-prone region plans to meet its water needs without sucking dry every river and aquifer. The future of development in the West may rest on what happens to this elegant dam and the valley it flooded so long ago.