

KEYNOTE ADDRESS:
HISTORY OF WATER SYMPOSIUM

High-rise Urban Shrimp Fishing

Marc Reisner

Author of *Cadillac Desert*,
Overtapped Oasis,
and *Game Wars*

I'd like to start by quoting an item from the *Chronicle* of about a year ago. The byline is "Taipei":

"Danny Lu proudly holds up a net full of squirming shrimp that he caught on the third floor of a Taipei office building. 'Nothing tastes better than shrimp you catch yourself,' said Lu, a motorcycle mechanic. 'I'm going to take them home to my wife.' High-rise, urban shrimp fishing is one of the latest fads to hit Taiwan, for three decades of high-speed economic development have catapulted an agricultural society into the stress, crowds, and pollution of big-city living. The manager of the third-floor Caesar's Shrimp Plaza in central Taipei, who would give his name only as Wang, said he opened his shop to give city dwellers a place to unwind after work. Piped-in disco music and rows of flashing video games put Caesar's on the cutting edge of Taiwan's indoor high-rise shrimp industry. The latest, although unconfirmed, scuttlebutt in the high-rise shrimping community concerns a new breed of establishment: the topless indoor high-rise shrimp fishing palace . . ."

I promise I will relate this to water.

It's nice to be here in the beautiful Owens Valley—what's left of it. This is the first time I've ever spoken here, which is ironic, because the phenomenon that is modern California, the phenomenon that is the modern West, really began right here; and I think, in a totally different sense, the future of the arid West is, in a way, being determined here again. If you go anywhere in America and mention the Owens Valley, nobody knows where the Hell it is, but everybody's heard of it, and everybody knows what it means. Everybody knows about the Owens Valley, which is why everybody in the West is scared to death of California. Everybody feels like an Owens Valley waiting to happen. Even way up in Canada.

What I think this represents to many people, even back East, is the greatest scandal that ever happened in America. It doesn't seem to matter that what Los Angeles did was legal in a strict sense, because what happened here in the Owens Valley represents more than monetary piracy, more than a political kind of gang rape: a region was robbed, legally or not, of most of its water—water, synonymous with its culture, synonymous with its future.

In California, which is the ultimate land of opportunity, such a theft of opportunity seems perhaps the worst crime one can commit.

To me, the Owens Valley episode or tragedy (whatever you want to call it) really represents a collision of incompatible American ideals: one was a vision of a Jeffersonian rural America transplanted to the arid West, where it really didn't fit; and the other was those twin biker-gang ideals: "Manifest Destiny" and "Social Darwinism." The ironic thing is that as far as the West *as a whole* is concerned, agriculture itself didn't really lose at the hands of Owens Valley. In fact, I think it probably gained. For what happened here lent enormous political and precedential weight to the whole idea of appropriation of water.

The doctrine of prior appropriation (which translates, "I was here first, so it's mine forever to use as I please") was fairly well established by 1913, but Los Angeles put a whole new spin on the idea. If you could claim a higher and better use—that is to say, if you could settle more people and make more money on the same amount of water—then you suddenly had a kind of a *moral* right to take that water from whatever its use was, and move it by purchase, as some would have it, or by what perhaps amounted to theft. That is the spurious, pernicious doctrine of the greatest good for the greatest number—which is the ideology of cancer cells.

Agriculture, West-wide, did a marvelous job of applying that Darwinian principle to the appropriators who had been here for millenia but who had never bothered to file for water rights: the salmon, the waterfowl, the landscape itself. In so doing, I think irrigation agriculture ran head-on into another incompatible, but concurrent ideal: that of the pristine, open, and untrammled West. What we ended up with is a landscape of great vistas in which the most vital features of the landscape—rivers and water-dependent natural ecosystems—have largely disappeared. The flow of water in the West has become as man-made, as man-oriented, as man-dominated as the flow of life in New York City. Material culture, as it usually does, has subverted spiritual life. That's changing now, and I think it's changing right here more than anywhere.

Now, there's good agriculture and there's bad agriculture; there's good development and bad development. We have to somehow differentiate between these things if we're ever going to balance the water equation. You can argue, I think persuasively, that more harm has been done to the natural environment of California, as a state, by irrigation agriculture than by Los Angeles—especially to the rivers, especially to the wetlands. Ninety-six percent of the wetlands of the Central Valley are gone. Los Angeles had almost nothing to do with that. The salmon runs—you know the figures: 120,000 winter-run spawners in 1969, a couple of hundred surviving today. You know what we did to the buffalo. We say, "Oh, my God, how could our forebears have done that to the buffalo?" We're doing it to the salmon right now! The main culprit is the San Joaquin Valley, which is mainly irrigation agriculture. Eighty-seven percent of all the water that gets pumped down south from the Delta never

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gets to Los Angeles. It stops in the Valley. So, this isn't to apologize for LA, God forbid, but it is to point out that different kinds of agriculture in different places have much greater impacts than others.

But, as I said, things are changing. I never thought I'd be this optimistic. Things really began changing right here. The Mono Lake decision opened up a whole new vista of opportunity in law—Public Trust. Nobody knows what "Public Trust" is all about except that it vaguely defines the public's resources as something held in trust and that, in effect, water may be borrowed for beneficial use, reasonable use (whatever you want to call it); but, if it interferes grossly with the Public Trust, it may have to be given back. And that's exactly what's beginning to happen. We've got more water going into Mono Lake now than we had years ago; we even have a little bit of water going back into Owens River. All kinds of people are trying to expand and exploit this doctrine of Public Trust, and the courts seem quite sympathetic.

But the most amazing thing is this: we have seen tremendous urban growth in California—750,000 more people each year during the past decade—and, except for these recent drought years, we've irrigated about the same acreage (just a little bit under ten million acres for the last ten years). What we *haven't* done is build any more dams. We haven't built any more aqueducts. And I don't see anybody talking seriously about doing it. Not just here, but anywhere. Two Forks Dam, which was going to be a billion-dollar project in Colorado, was an absolute shoo-in ten years ago when I began writing *Cadillac Desert*. Now it's a lost cause. The Narrows Dam, which would have drowned a bunch of irrigation farmers so some other, bigger irrigation farmers could have their water, has disappeared without a trace. Plans for dams on the north coast just disappeared, too. I don't think it was only because of the Wild and Scenic Rivers Act.

That we haven't built new dams implies either that environmentalists are unbelievably powerful or that we just lost the political will to do so, and perhaps the economic means. But we've gotten by. That's the amazing thing: we have gotten by without building any new water projects in California, and pretty much throughout the West, since 1978. What amazes me more, as I said, is that you don't find many people talking seriously about building more big water projects. You do have those who say it's *criminal* that all that water *wastes* out to sea from the Columbia River. But not that many of them. This mentality that the only answer to a water shortage is to go out and build a great new dam is very much on the wane, especially in California. On top of that, we have things going on now that will probably not just fail to expand the water supply (the *man-made*, *man-directed*, *man-dominated* water supply), but will actually result in the return of some water to Nature. We're going to take water away from all of us, agriculture and the urban areas, wherever we live, and give it back to Nature because *we want* that to happen. We have, for example, the Endangered Species Act, which is

likely to be applied any day to the Delta Smelt, to the Winterrun Chinook, and to the Springrun Chinook, right behind it, headed to oblivion. That Act demands that we do whatever it takes to preserve those species. It will involve a million or two million acre-feet of additional water—more streamflow to help the fish get up stream and down again—going out to the Delta or at least entering the Delta differently and not being sucked into the southland. Fish screens and other things may help some, but basically what those fish need is *more water*. They need colder water, too, and the way that you keep water colder is to keep more in the reservoir rather than let it all flow down to the growers and the big cities that would rather use it to raise subsidized crops and wash their Mercedes' twice a day. More dramatically than that, we have the Miller and the Bradley bills, which are both pending in Congress. George Miller's bill essentially demands that salmon populations in the Sacramento River (which is by far the most important salmon producer in the State; most people don't know that 70 percent of all the fish caught offshore in California and 30 percent caught off southern Oregon come out of the Sacramento River—not the Klamath or any of those other rivers)—that those fish populations that have declined so drastically should be restored to about what they were thirty or forty years ago. I don't know whether that goal will stay in the Act, but it is a very, very serious effort to restore fish and wildlife.

So agriculture is important (I've never said it isn't). But at the same time we value fish and wildlife more and more and now regret what those crazed forebears of ours did, enthralled with those "biker-gang" ideologies. We want more water to go to fish, not less; we want more wetlands, not fewer wetlands; and we're actually, I think, going to pass laws that insist on that, that will guarantee it.

Bill Bradley, Senator from New Jersey, is trying to reform the Central Valley Project Act by insisting that farmers who have been getting and continue to get subsidized water on a long-term contract basis save 10 to 20 percent of the water they use and that that water be returned to the environment first. He also wants farmers to be permitted to sell some of their Central Valley Project water to Los Angeles. Water marketing, within reason and practiced with extreme caution, is potentially good for the environment, not bad, as many people think.

So you have all these things: no dams being built, only some elements talking seriously about invading Canada, the Endangered Species Act, Miller's and Bradley's bills, and the dismal state of the economy, which helps keep engineers hamstrung. To those of you who are engineers, I apologize for saying that, but I really don't want you out there building dams, which is what some of you want to do. Take Auburn Dam, for example—\$10,000 to develop one acre-foot of water. The economics of water development really went sour a long, long time ago. Without federal subsidies (not just water, but crop subsidies), I don't think that many, if any, dams (except those built to meet urban demand) would

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have been possible since about the Fifties. But now the government is broke, the State is broke, the cities are broke, and everybody's broke; so faced with \$10,000 per acre-foot development costs, we're just saying no.

We have to ask, though, "Where is this all going to lead?" We have more people coming into this State. We can't stop them. I wish we could, but there just doesn't seem to be any constitutional way in a democracy to keep people out of a state. Goleta has managed to keep people out of Goleta by essentially saying, "We don't have any water, so you can't hook up." And they did the same thing in Marin, but then the people just moved somewhere else. They moved to Santa Rosa instead of Marin; they moved to San Luis Obispo instead of Goleta; or they moved to LA (which is where everyone moves).

So how is the new demand going to be met? What's going to happen? Well, I think there are a couple of answers. The obvious one is "low-value agriculture." Now, one person's low-value agriculture is another person's source of life. And let's admit that here in the Owens Valley irrigated pasture looks damn good compared to irrigated tract houses down in those suburbs of LA that didn't even exist twenty years ago and now have a half million people, like Palmdale. But take the San Joaquin Valley, by contrast, where you had, as recently as 1985, about a million acres of irrigated pasture, using twice as much water as *all* of metropolitan LA (and that includes houses, swimming pools, golf courses, industries, the defense industry, everything). You know, that's an amazing statistic for a crop that's only worth about \$100,000,000 in gross value. When you add on the secondary financial or economic impact, it's somewhat more; but by any definition, it's a low-value crop, and I think we ought to be growing less of it in this State, a lot less. We can always import meat, but we can't grow Pacific salmon anywhere else but on the west coast. And those cows, by diverting all that water (it takes about 50,000 pounds of water to raise one pound of cow on irrigated pasture)—those cows are killing those fish just the same as all those lawns in LA are.

One solution is to move the cows to Beverly Hills! (I don't think those people would mind. We can ask 'em.) But mainly I think we have to reassess our priorities. One way to do that simply is to raise the price of subsidized water. A lot of water, about 35 percent of *all* the water in California, is subsidized by the Bureau of Reclamation, and much of that goes to the San Joaquin Valley, which is the great bottomless hole where half of our water disappears. But you also have to be prudent. You have places where irrigated pasture may make some *social* sense, because if you don't have it there, you lose a green belt and you get endless sprawl. We've had that happen from San Jose (the blob that ate northern California) northward all the way to Santa Rosa, which is going to be next to San Jose. We wanted to leave some of that agriculture down there, and it was high-value agriculture, but the farmers could not withstand that development pressure. Those were prunes and apricots—some of the highest value crops grown in the State.

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We've got to come up with a better system. What do we value? We value agriculture, but to what degree? To the degree that the salmon become extinct? Does that make sense? LA is going to have to find more water for the water they're giving up. Here, they're giving up some of the supply from Mono Basin. They have to get it back from somewhere. They're not going to get it from the Colorado River, because that water is going to be claimed back by Arizona. LA is losing water everywhere and gaining people—that's a terrible predicament. Some of the water—if we're not going to build Auburn Dam and we're not going to dam the north coast rivers, if we're not going to suck the Delta dry—has got to come from agriculture. But I think we have to be very careful how we let the water-marketing industry evolve.

Now, the farmers stand to make out like bandits—that's a good reason for them to support water marketing. But, of course, many Owens Valley farmers made out like bandits, and the whole Valley was brought to its knees. So how much water transfer from a given area is allowed before we say, "Stop!" There is a good bill, I think, being proposed by Assemblyman Richard Katz of Los Angeles. It may be flawed to some degree, but one of the good things about it is that it says 25 percent of all the water from a given region or a water district can be sold, and that's it, no more. And, you know, farmers, given high prices for water, can invest in conservation technology. They can replant their low-value pasture and alfalfa—gluttonous water users—with higher-value crops. They can divest, move into different areas of economic endeavor, and keep the economy rolling while using considerably less water. But you shouldn't just have license to buy out as much water as you possibly can.

It would be nice if we could limit transfers to low-value crops, because you get much more bang for your buck. You get much more employment from orchards and nuts and things like that than you do from cows. It would be great if we could target the really lousy land. There is beautiful land near the Delta around Brentwood that's growing high-value crops: some of the best orchards, some of the best truck farms in the State. That land is probably going to be eaten up in the next ten years, which will be a crime. On the other hand, you have land down in the San Joaquin Valley that's contaminated by salts, that's contaminated by selenium, that's owned by big farmers like Boswell, and that land is likely to stay in production as long as possible, for political reasons. The point is, an interagency report came out that said there are 80 to 100 thousand acres of land down here that contribute 80 percent of the salts and selenium that are messing up the Bay and Boswell's neighbors down river and down slope. The land was brought into production through subsidized water. There are illegally big landholdings there. Some of the crops they grow are *surplus* crops. *So let's get rid of it.* (It didn't say it quite like that, but it said, in essence, that.) And you know what? That lousy land is still raising crops, while beautiful Brentwood land is inexorably being eaten up by development.

LA is losing water everywhere and gaining people—that's a terrible predicament.

So, we have some tough choices. The way this State is going—and this is how I link in topless, urban, high-rise shrimp farming—that’s how we will be fishing: instead of shrimp, they’ll be salmon, but we’ll be catching them with poles in a skyscraper. Or, if you have any fish left, they’re all going to be hatchery fish—which are genetically enfeebled, wimp fish. (We have to have wild strains. We have too many hatchery fish already. We should kill wimp fish off and bring some wild fish back.) But if we’re going to avoid that kind of future, as I say, we have to make some really, really tough choices: do we want crops; do we want wetlands? If we want more wetlands, where’s the water going to come from? Do we want big lawns, or do we want salmon? (Every time I water my lawn, I take a little bit of water away from some salmon in the Sacramento River, or the watershed, and so does everybody who lives in the Bay area.) Are we just going to let market economics rule, or are we going to try to temper market economics (because water marketing is coming, no question about it) by trying to “greenline” some of the best agricultural lands that we have left?

One idea, and I’ll close with this, is to try to come up with different ways of controlling and storing water; to me, that holds a great deal of promise. There is a little project I have going with the rice-growing community that would create simple, sort of two-and-a-half-thousand-year-old, Chinese-style reservoir storage on the rice fields, for \$250 per acre-foot as opposed to \$10,000 per acre-foot, simply by reburming the levees and skimming off some high flood flows. This is where I think some of you engineers who want to build things can actually go back to work. One thing to do is build very small dams on some of the tributaries (especially in the Sierra Nevada foothills) that flood infrequently but often enough so that you could use these small dams for flood control. These little dams up here in the Sierra Nevada don’t really bother me much (like the one at the head of Bishop Creek), as long as they leave some water in the Creek. You could then free up more capacity in the big reservoirs for meeting the needs of wildlife and fisheries, because those reservoirs begin spilling when they start getting too full in the winter in anticipation that there is going to be some horrible flood, which usually doesn’t come. If you had flood control capacity elsewhere in small dams, perhaps even on intermittent tributaries, you wouldn’t have to do that so much. The idea that the Nature Conservancy and I are working on could actually work both ways: for “environmentally sound” water storage *and* flood control. The Sacramento River in February of 1986—in about ten days—spilled 10,000,000 acre-feet of water under the Golden Gate Bridge. They tasted brackish water all the way out to the Farallon Islands! It rained 55 inches in the Feather River watershed in ten days! Now, when you have a flood like that, you don’t really have to have all that water going into San Francisco Bay all at once, and our idea is to divert it and store it by reburming the rice field levees. (The fields are so impermeable that you don’t really lose much water to percolation.) You then get an

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immediate growth of waterfowl food—much higher-quality food than you would if those fields were dry. Plus, you've offered downstreamers some flood protection. Later, you release the water in a surge to help the salmon get down the river, and ultimately some of the water can go to LA.

So the scheme of priority, I think, is finally right: ducks get it, then the fish get it, and then they drink it in Beverly Hills. If we can start working things out that way, with great sensitivity and force (we need to combine the two), I think this State is going to remain the kind of state that we want to live in. But we'd better hurry up, because we don't have a lot of time.