

How Saving Salmon Could Help Ease the Next Drought

Fish need more than just water. Ecologist Jacob Katz says if we just make sure imperiled salmon can find enough food to eat, this could take a lot of pressure off California's dwindling water supplies.

IF YOU PAY attention to California water issues at all, it's likely you've heard about the Nigiri Project. The partnership between CalTrout, state agencies and farmers in the Yolo Bypass near Sacramento involved allowing juvenile salmon to access flooded rice fields as part of their annual downstream migration.

The project demonstrated that flooding a rice field boosts the population of aquatic insects, that salmon will gorge on those insects and grow fatter than

if they had stayed in the Sacramento River and that the whole operation presents no impediment to rice farming.

In short, it's an easy way to help the region's imperiled salmon that is totally compatible with existing agricultural practices.

Jacob Katz led that project as Central California director at CalTrout. What you probably don't know is that Katz, who earned a PhD in ecology from the University of California, Davis, has a much bigger

project in mind. Together with colleagues Chris Unkel at American Rivers and Rene Henry at Trout Unlimited, he plans to announce later this year a new "Central Valley Salmon Partnership" to carry out such projects on a much larger scale.

The partnership will be modeled after the Central Valley Joint Venture, the clunky name of a waterfowl restoration effort that began in 1988 and has been wildly successful at boosting the population of ducks, geese and other birds that migrate through California along the Pacific Flyway.

In a conversation with Water Deeply, Katz described the forthcoming partnership, and how helping salmon could also help improve water supplies for all Californians.

Water Deeply: How was your idea for a salmon partnership inspired by waterfowl preservation?

Jacob Katz: If you look at how it got accomplished, you see something really basic: landscape level implementation. The Central Valley Joint Venture was able to bring everybody to the table water suppliers, big agriculture, regulators, funders – and get stuff done on not just 1,000 acres but hundreds of thousands of acres. The fact you could get all those disparate folks around a single table to decide on a comprehensive plan based on science, that is something that couldn't be farther from what happens with fish.

Even though I think fish have a much more direct line to water and the money associated with water politics in California, there's always been overlapping jurisdictions. There's never been a capability for the different groups to really circle their wagons.

No doubt it's a difficult thing to do. But we have one of the best precedents we could possibly have in the joint venture program. The last three years have been all-time highs for waterfowl – [I've] never counted more birds. A huge piece of that is the change in landscape-level agricultural practices resulting in saving and expanding wetlands for birds. That is really a success story born out of the joint venture national programs, of which the Central Valley Joint Venture is one of the marquis regions.

Water Deeply: And where does your proposal stand now?

Jacob Katz: We have the verbal commitment from the regional directors at National Marine Fisheries Service, U.S. Fish and Wildlife Service, Bureau of Reclamation, the state government entities and all of the fish NGOs. All of the folks that are specifically into fish we tried to put around the table first. It's time to circle the fish wagons and come up with a comprehensive plan for what we're going to do.

We're looking to have a fairly major signing ceremony with everyone in August, then reach out to the agriculture and water communities. We felt we needed to have all the fish partners there first to really be able to have the traction with everybody else.

Water Deeply: What are you hoping to accomplish with this new partnership?

Jacob Katz: If you look at the acres of salmon habitat put on the ground it's very, very few acres. What we're hoping to do is look at, in every way we can, the success of a multiagency process that's able to cut through the red tape and actually get conservation done.

The really simple way in which that was done by the Central Valley Joint Venture was by having a common goal that says, "Hey, we need X amount of acres in this area to bring back this species of bird." It was a really straightforward thing where everybody could sort of pin their eyes on the same prize. That's what allowed the incredible leverage that the Central Valley Joint Venture brought. They had that common vision and common goal and could show their team was working together. We're getting everyone together to buy into a common set of objectives, and that common goal for salmon.

Water Deeply: Are you trying to find ways to help fish that may not work, for various reasons, under the rules of the Endangered Species Act (ESA)?

Jacob Katz: That's definitely at the core of what I want to do. All of this floodplain work I've been doing, the whole thing kind of shudders at this glacial pace because of the uncertainty of not knowing exactly what satisfies the mitigation requirements under ESA.

What we need to do is, through the life history of fish, say that we need this much habitat in this place. If we can agree on that, I think it doesn't become so dependent on just having to be mitigation to do these projects. We do definitely see development of the habitat criteria, which then are approved by National Marine Fisheries Service and Fish and Wildlife Service, and that makes it the currency of the realm for mitigation.

It just so happens that we have a focus on the Yolo Bypass and other projects that are paid for by the other water contractors. But there's a whole bunch of other programs and other money out there that also could be brought to bear on good projects if you had a similar logical framework for how you're going to achieve the benefits for fish, and you had the partner buy-in to get it done.



Jacob Katz, Central California director at CalTrout, works to sein fish out of the managed agricultural floodplain at Knaggs Ranch in the Yolo Bypass near Sacramento. The work is part of the Nigiri Project, which has shown that flooded rice fields and juvenile salmon can thrive together. Noah Berger

Water Deeply: The Central Valley Project Improvement Act, passed by Congress in 1992, required doubling populations of all the region's salmon species. This was supposed to happen by 2002, and still hasn't. Why is that?

Jacob Katz: A large portion of why CVPIA has never been able to reach its salmon doubling goal is they have never had the answers on what they needed to do or the buy-in to get it done. They tend to operate in this ad hoc way.

If you're going to get a population-level response, you definitely have to hit every single life stage. A chain is only as strong as its weakest link. You have to trace each life cycle of the fish and the habitat that fish depend on, and make sure the fish has access to that kind of habitat at the right time of year. When you do that, you actually get a really rapid response.

CVPIA never took on the full life-history strategy that would be needed to start to double those populations. If we do that, I think we can expect a fairly rapid response. But that last piece of puzzle – the small fish – kind of feels like it's enduring a jihad in some ways. That reintegration of the aquatic production – the engine that feeds aquatic systems – needs to be brought back in. That's really as simple as slowing water down and spreading it out over those floodplains. It really is that simple.

Fish have to eat. We reduced the food population to the aquatic ecosystem by at least 95 percent over the last century and a half (by eliminating wetlands). Wetlands are really the driver. It's winter wetlands. There are 1,000 times more bugs per square meter in the floodplain than in the river.

This isn't rocket science. The carbon that is the foundation of the food web, that gets made out on the floodplain, not in the river channel. Unless we can start to spread water out so we can get that carbon back into the aquatic food web, you're basically starving your salmon and your smelt populations. That's one aspect of what the Central Valley Salmon Partnership can do is become a venue to get all the necessary entities to agree on the science, and a framework, and put all that science into action.

Water Deeply: What about other projects that have been recognized for decades and never completed? Like a Fremont Weir fish ladder, sealing off canals in the Yolo Bypass to prevent salmon straying and installing fish screens on the Delta pumps?

Jacob Katz: That's the thing. I'm trying to explain how fish passage at Fremont Weir can be the best thing we can do for fish. You could do incredible good for fish in a weekend with an excavator. That's the kind of simple hydrological connection we're talking about. But why doesn't it get done? That's the question that gets asked to me again and again. Ultimately, it comes down, as far as I can understand, to this bureaucratic inertia, this incredibly slow pace of governmental progress.

There's a real hesitance by the regulators to move forward with projects because there could be some harassment or even death of an endangered species – even if that's the most important project to actually bringing back tens of millions of the same species. Ultimately, that's what we're trying to do is to cut through the Gordian knot of interwoven bureaucratic tangles that will allow us to agree on a relatively simple framework that will facilitate real on-the-ground change.

Water Deeply: Will you need money for this?

Jacob Katz: Yeah, we're working on this now. A huge reason for the success of the Central Valley Joint Venture was that there was an international bird treaty between Canada, the U.S. and Mexico, which had congressional designation of money on an annual basis for the joint ventures.

What made the California venture so successful was they leveraged that money almost four-fold. Because they brought everyone to the same table, they could demonstrate what they could get done and that basically makes their own gravity as far as bringing their own money to the table. People always want to fund things that are working.

We definitely need some kind of similar seed money. I think looking for it nationally is probably unrealistic, and the state is probably the best way to go.

Water Deeply: How will your work affect water supplies?

Jacob Katz: Ultimately, it should have a really large impact on water supply in that fish abundance has a direct correlation with water security. If we can start to relieve the regulatory pressures because we actually have functioning ecosystems supporting healthy salmon populations, that's the best. That's what we would love.

But there's just a general perception that endangered species are an inevitable consequence of development. What we're trying to show is, that's not the case at all. They're a direct consequence of an antiquated water infrastructure put in place over a century ago, and hasn't been upgraded with 21st-century ecosystem sciences.

When you put the food back into the ecosystem, you end up with a system that really can support these populations, which currently really limits how water can get from one place to another. That's why Met (Metropolitan Water District of Southern California) and NCWA (Northern California Water Association) are both such vocal supporters of my floodplain work. They understand that fish abundance equals water security.

Water Deeply: Do you think it's possible, with this kind of work, to remove some of these species from the Endangered Species Act?

Jacob Katz: I absolutely do. There's no doubt, pulling them off the list is the ultimate goal. But there's also no doubt that just increasing their numbers really does relieve the pressure. When you're on the edge, it really costs us in water delivery. With more salmon, you wouldn't be triggering the water limits that many in the agricultural water supply community view as draconian.

What's remarkable is that we still have fish, not that they're endangered. There has been very little accord and thought given to how the system could be operated in such a way to actually work for not just fish, but for the actual aquatic ecosystem which supports them. Really, by removing the process which creates the food which supports the ecosystem, it's a foregone conclusion we're going to create endangered species.

But what we've shown is you can still have your agriculture in summer and still produce food for fish in winter. This isn't a compromise. We're not saying you have to give up this much to get that. There really are solutions that allow us to start harvesting that natural wealth that once made the Central Valley one of the great wildlife landscapes on Earth. It's there. We just have to have the will and the foresight to take advantage of it.



Biologist Jacob Katz counts juvenile salmon being trapped as water drains from a flooded rice field near Woodland, Calif. The biologists flooded rice fields this winter to mimic the marshland conditions that once existed across California's Central Valley. (Tracie Cone, AP)

About the Author

Matt Weiser

Matt Weiser is a contributing editor at Water Deeply. Contact him at matt@newsdeeply.org or via Twitter [@matt_weiser](https://twitter.com/matt_weiser).

