

Salmon RIP?

By Alastair Bland

Last winter and spring, thousands of adult Chinook salmon nosed upstream past Richmond, through the Carquinez Straits and into the Sacramento-San Joaquin River Delta, on their way to spawn in the Sacramento River. At about the same time, officials at Shasta Lake, a few miles north of Redding, did something that critics say was stupid, negligent, and illegal: They opened the spigot on the reservoir's outflow pipes in order to send extra water downstream for farmers — and they didn't save enough for the fish.

Shasta Lake's levels dropped so low, and the summer grew so hot, that even the deepest, darkest, coldest corner of the lake — the pocket of water abutting the base of the dam — grew steadily warmer. By the time the salmon had reached their summer spawning grounds, the water exiting Shasta Lake and flowing past the fish was almost 60 degrees Fahrenheit — dangerously warm for temperature-sensitive fertilized Chinook eggs. For the second summer in a row, environmentalists and fishermen say, an entire year class of the endangered winter-run Chinook was mostly annihilated.

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Just how this happened, and whether it could have been avoided, has been the source of finger pointing, excuse making, and legal wrangling. Officials with the US Bureau of Reclamation, the federal agency that operates Shasta Dam, have blamed the drought for the mass salmon die off and say there simply wasn't enough water to go around. Louis Moore, spokesperson for the bureau, said in an interview that his agency worked with all stakeholders to insure that water was released from reservoirs at the most optimum time, considering the needs of farmers as well as fish and wildlife.

But environmentalists and fishermen note that by the end of summer 2015, many farmers in the Central Valley had received 75 percent of their water contract allotments, while at least 95 percent of the endangered winter-run Chinook's fertilized eggs and newborn fish had been killed. Impacts to the fall-run Chinook — the run that supports the coastal fishery — are still being assessed.

Environmentalists say the Bureau of Reclamation had the power to protect the fish but opted to prioritize the state's agricultural industry instead. "The way this keeps getting told is that drought killed the winter-run Chinook salmon," said Jon Rosenfield, a conservation biologist at The Bay Institute. "But the agencies just chose not to protect the endangered winter run, the spring run, steelhead, and the fall run — which is commercially valuable."

Indeed, there's likely never been a worse time to be a salmon in California than right now. Dams and levees have made most of the state's major rivers incapable of supporting wild salmon, and increasing human demand for water threatens what habitat remains. Governor Jerry Brown insists he has a plan to save the delta and its salmon, but critics warn that his vision of diverting the Sacramento River underground through two giant tunnels and into the San Joaquin Valley will destroy the delta ecosystem.

Global warming will also have its impacts on salmon. Long-term forecasts call for reduced precipitation and warmer winters, meaning less snowpack and cold water — exactly what salmon need during their inland life stages.

Salmon are known to be a resilient species. If their habitat remains intact, they can bounce back from population drops in just a generation or two, thanks to short life spans and female fish that carry thousands of eggs. That means if plenty of rain falls this winter and the next, the numbers of salmon in California could rise back toward the one-million-adult mark.

"But they're only resilient to a point," noted Doug Killam, a biologist with the California Department of Fish and Wildlife who studies the spawning fish each year near Redding. "The run is on the edge now. The bottom line is: Fish need water, and if it doesn't rain soon, they're going to be in real trouble."

And so is California's fishing industry.

If the state's reservoirs don't refill this winter, extinction of the winter-run Chinook will become an imminent threat. Fishery managers will probably curtail the ocean fishery in 2016, and may even close it to protect the winter run from decimation. If that were to happen, it could throw the coastal fishing economy — already reeling from the closure of the Dungeness crab season — into turmoil.

Last January, officials with the National Marine Fisheries Service (NMFS) sent a letter to California water officials warning them that their temperature modeling system wasn't working. "[T]hroughout much of the summer of 2014, actual water temperatures ... were upwards of 4 [degrees Fahrenheit] higher than Sacramento River temperature modeling results," the letter stated.

NMFS regional administrators Maria Rea and William Stelle advised David Murillo, regional director of the Bureau of Reclamation, to recalibrate his agency's temperature modeling system in order to avoid a repeat of 2014, when the bureau released warm water from Shasta Lake onto millions of winter-run salmon eggs and newborn fish, destroying nearly all of them.

The Natural Resources Defense Council (NRDC) and The Bay Institute sent water authorities a similar warning notice in May.

But in the end, almost the exact same thing happened in 2015 as the year before. "We classify this as a 'year class failure,'" said Rea, referring to 2015, in an interview. "We think of the Chinook as a three-year fish, so losing two years in a row is serious."