

As Delta Smelt Nears Extinction, New Concerns Emerge Over Dredging



A Delta smelt caught during an annual fish survey. Biologists warn the fish is close to extinction. (Lauren Sommer/KQED)

Hated by many, loved by few, the tiny Delta smelt has long been the symbol for California's water wars and the struggle between the state's environmentalists and farmers.

Now, as the state struggles through its fourth year of historic drought, the fish is dangerously close to extinction after years of decline, biologists warn. And that's igniting new scrutiny over the impacts that could drive the species over the brink, including one that isn't well-known – the annual dredging of shipping channels in the San Francisco Bay-Delta Estuary.

On Wednesday, regulators with the San Francisco Bay Regional Water Quality Control Board will vote on whether dredgers [must use different equipment](#) in some channels to avoid killing threatened fish.

Maritime Highways

San Francisco Bay's cargo ship traffic goes far beyond the Port of Oakland, extending all the way to Sacramento and Stockton, where ports disperse California's fresh produce and agricultural goods. The only way ships can safely make their way inland is through deep-water channels that are cut through the sediment.

"Most of San Francisco Bay is shallow enough for a person to stand in or touch the bottom," said Jessica Burton Evans, Navigation Program Manager with the Army Corps of Engineers in San Francisco. "So we really need to maintain those deep channels so that the ships can move safely and not run aground."

The Corps is responsible for dredging and maintaining the shipping lanes, which involves clearing millions of cubic

yards of mud, sand and silt every year. It's often done with a hydraulic dredge or "hopper dredge," which works like a giant, underwater vacuum cleaner that sucks in sediment and water.

'These fish are in dire and extreme danger of extinction.' — *Jon Rosenfield, Bay Institute biologist*

"A hopper dredge is a relatively large piece of equipment compared to those fish," said Burton Evans. "If they get too close, they just aren't able to swim fast enough."

According to an analysis done in 2013 by the Corps, the dredging could be killing thousands of Delta smelt a year. In 2011, the impact was estimated at between 3 and 29 percent of the population. That was based on looking for fish in a small amount of dredge material, and state biologists say a larger sample is needed to validate the findings.

The longfin smelt, another fish that's listed as threatened under the California Endangered Species Act, is also harmed. Dredging can also create loud, underwater noise and sediment plumes that can stress smelt or hurt their ability to feed, scientists say.

If the higher estimates of harm are true, "that is just an exceptional amount of impact and something that is surprising," said Jon Rosenfield, biologist with the Bay Institute, an environmental group based in San Francisco.

Population Crash

Delta smelt populations have been in freefall for several years, due to a variety of reasons, according to biologists. Its fate has been at the center of the state's water wars long before the drought began.

The Delta smelt lives in the same estuary that supplies water to 25 million Californians and irrigates millions of acres of farmland. Huge pumps at the southern edge of the Delta near Tracy pull water into canals that go from Silicon Valley to San Diego. In some years, more than 50 percent of the fresh water that would normally be flowing out to San Francisco Bay is diverted away from the Delta. In the process, the pumping kills Delta smelt and shrinks its habitat.

As a result, federal biologists have ordered water pumping be slowed down during times when smelt are vulnerable, which reduces water deliveries to farms and cities. Some farmers blame the smelt for the current water shortages, although the last time water pumping was slowed to protect the smelt was in 2013.

With the extreme drought conditions this year, an annual survey for Delta smelt run by state biologists caught the lowest numbers of fish ever recorded — just one fish this spring. In other years, they've found hundreds.



The U.S. Army Corps of Engineers supervises dredging in the Delta to allow passage of ocean-going ships like the Maria Theo, pictured on the San Joaquin River near Antioch. (Dan Brekke/KQED)

Rosenfield believes the water pumping is still the largest impact on the Delta smelt by far, but because its numbers have dropped so low, no threats to the fish should be overlooked.

“We haven’t taken care of these populations prior to this year well enough,” said Rosenfield. “We haven’t allowed them to thrive when conditions are good or even average because we take so much water out of this estuary.”

“So once we get into a drought and populations begin to crash, well, then everybody has to go through exceptional measures to stop having an impact because there just aren’t that many fish to spare,” he said.

Delta smelt are also harmed by dredging done farther east into the Delta, past the Suisun Bay channel, in the deep water ship channels that extend to Sacramento and Stockton. That dredging is handled in a separate permitting process at the water board. The Army Corps of Engineers and the U.S. Fish and Wildlife Service declined to release data or comment about the numbers of fish that are killed in those projects.

Proposed Dredging Rules

In order to protect both the Delta smelt and longfin smelt, the San Francisco Bay Regional Water Quality Control Board is considering changes to the way the Corps conducts its dredging.

Instead of the large, hydraulic dredges, the Corps would have to use smaller clamshell dredges, which remove material bucket-by-bucket and are thought to be less harmful to fish.

The order would require a clamshell dredge be used in the Suisun Bay shipping channel near Pittsburg. The Corps would have the option to use a hopper dredge in either the Richmond Outer Harbor and Pinole Shoal channels, but if a hopper dredge is used, the Corps must monitor for killing fish and must make up for the impact through habitat restoration.

“Our duty is to protect water quality, protect the fish and ensure the potential impacts to dredging are lessened,” said

Naomi Feger, Planning Division Chief at the water board.

“The order before the board does balance,” she said. “It allows for navigational dredging to continue in the bay but we’ve lessened those significant impacts where it’s feasible. We think it’s feasible to use clamshell dredge.”

The Army Corps of Engineers says having the flexibility to use different equipment in each year is key for its operations.

“The dredges are not always available for us, so it’s important to consider when we can get equipment here to do the work for us,” said Burton Evans.

The Corps estimates the change will cost an added \$3-10 million a year and projects that take weeks today could take as much as three times as long. Burton Evans says the Corps is already using new measures to protect the smelt species, including keeping the dredge’s mouth close to the bottom so it pulls in fewer fish. Dredging is already limited to the second half of the year to prevent harm to threatened fish.

“We are watching it very closely and it’s important that we’re balancing the economy and the environment,” she said.

If California’s drought drags on, state and federal wildlife agencies may have to reexamine any project that harms the Delta smelt.

“These fish are in dire and extreme danger of extinction,” said Rosenfield. “In a year like this, impacts really need to be avoided.”

Related

[Why California’s Largest Estuary No Longer Works for Wildlife](#)

[California's Sacramento-San Joaquin Delta](#)

[A Last-Ditch Drought Strategy for the Delta: Rock Barriers](#)

[Bay Area: Do You Know Where Your Water Comes From?](#)

[As Water Prices Soar, Some Profit From California’s Drought](#)

[California Drought One More Setback for River That Runs Dry](#)



Powered by

KQED

PUBLIC MEDIA FOR
NORTHERN CALIFORNIA

Copyright © 2015 KQED Inc. All Rights Reserved. |

[Terms of Service](#) | [Privacy Policy](#) | [Contact Us](#)





the largest source of wa

stem 

n Delta 

ndwater or 

