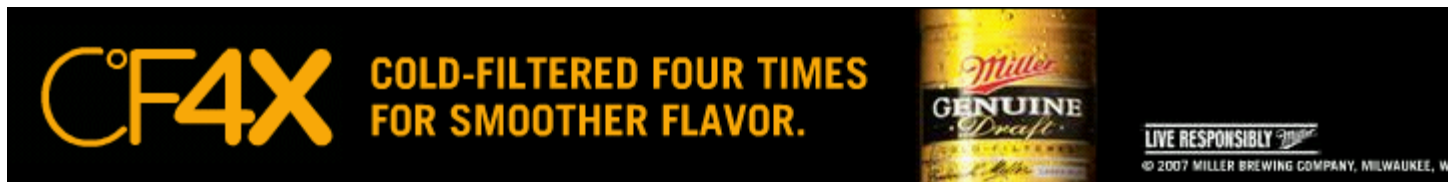


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Chemicals become focus for researcher studying delta's decline

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By Don Thompson

ASSOCIATED PRESS

12:17 a.m. January 3, 2006

DAVIS – If the striped bass in David Ostrach's laboratory are any indication, the fish of the Sacramento-San Joaquin Delta are in deep trouble.

Ostrach is among an array of scientists trying to determine what has led to a crash in the populations of striped bass and three other bellwether fish species in the vast estuary that irrigates the Central Valley and supplies drinking water to two-thirds of Californians.

Among roughly 60 striped bass autopsied by the

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University of California, Davis biologist, all had at least two problems with gastric inflammations, parasitic infestations, infections or liver lesions. That was a signal that they had been exposed to poisons, parasites or disease.

"What the fish are telling me is that there's something wrong," he says. "This juvenile population is not a healthy population."

The findings coincide with his earlier work. He previously found nerve damage and developmental abnormalities among newborn bass, problems he attributes to a chemical stew of pesticides, herbicides and cancer-causing elements in delta water.

His research has intrigued colleagues who have been searching for the causes of a precipitous decline in the delta's key fish species. Chemical contamination is one of the theories scientists will explore in the coming year as they allocate \$3.2 million in research money to scientists studying the delta's environmental woes.

Studying the populations of striped bass, delta smelt, longfin smelt and threadfin shad is important because they are considered indicators of the delta's overall health. Their demise is slowing plans to pump even more water to thirsty cities and crops.

"We've got such a chemical soup out there, and he's doing a great job determining what's in that soup," said Bruce Herbold, a fish biologist with the U.S. Environmental Protection Agency.

Two other leading theories also will be tested this year.

One involves an invasive clam that is native to Asia and has covered Suisun Bay. Its voracious filtering cleanses delta water of the very nutrients fish need to survive.

The clams have become so prevalent in the bay – up to 10,000 per square meter – that they completely filter food from the water once each day.

"Suisun Bay may be getting back to being a bad sort of nursery area," Herbold said. "Young fish may not be finding food where they're located."

Yet the clam problem doesn't explain the decline in threadfin shad, which don't live where the clams are found. Moreover, the clams were at a high level in the 1990s, when the fish seemingly weren't significantly affected.

The other theory involves the giant pumps that send water to farmers and Southern California cities. They are blamed for sucking in large numbers of fish before they can spawn.

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The pumps are killing more fish per volume of water and more fish in proportion to their population compared to previous years. They also are doing so in the winter before the adult fish can spawn.

Winter pumping is up about 30 percent since 2000 in an attempt to lessen water diversions in the spring and summer when spawning fish were thought to need it most.

The additional winter kill may not have been a problem when the fish were abundant, but now the death toll may be feeding on itself by killing off the breeding stock, said Christina Swanson, a scientist with the nonprofit Bay Institute.

Representatives for water exporters challenge the death statistics, and scientists say their data is incomplete.

Nevertheless, the clam population and the number of fish deaths attributed to pumping have risen dramatically in recent years, corresponding to the decrease in the four fish populations.

Most scientists suspect a combination of factors is to blame. Other possible culprits for the fish decline include herbicides, toxic algae, thick growth of water plants and a spiny plankton.

The scientists hope the research that will get under this year will start providing conclusive answers.

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