

## SEA LIONS DIED FROM TOXIC ALGAE

*John Woolfolk, January 9, 2000 Contra Costa Times*

Scientists now blame a poisonous plankton bloom for the puzzling deaths of more than 400 California **sea lions** around Monterey Bay in 1998, marking the first time researchers have linked a marine mammal die-off to toxic algae.

The findings, published Wednesday in the latest issue of the journal *Nature*, showed that the **sea lions** were poisoned by **domoic acid**, produced by a species of microscopic marine organism known as a diatom. The same organism has been blamed in recent years for rashes of **sea-bird** deaths.

"While it makes perfect sense that something like this can happen, that's something no one's been able to document in this kind of detail," said Christopher Scholin, a scientist at the Monterey Bay Aquarium Research Institute and the study's lead author.

"It shows that the potential threats from this algae are more insidious than we might have assumed. The toxin can enter the food web a number of ways and impact a number of marine mammals and potentially humans."

**Domoic acid** was first identified in West Coast waters in 1991 when scientists linked it to the deaths of more than 200 brown pelicans off Santa Cruz.

In 1995, researchers at UC-Santa Cruz found that the toxic algae are regular inhabitants of Monterey Bay, with evidence of poisonous blooms in 12 of the previous 17 years. They said **domoic acid** was the likely cause of a bizarre incident in 1961 in which flocks of sick shearwaters reportedly attacked residents in Rio Del Mar, inspiring Alfred Hitchcock's 1963 horror classic "The Birds."

**Domoic acid** is poisonous to people as well as animals. In 1987, four Canadians on Prince Edward Island died and more than 100 others became seriously ill from eating mussels tainted with the toxin.

There have been no other confirmed cases of people being poisoned by **domoic acid**, but that incident alone has put health authorities on alert, said Gregg Langlois, a biologist with the state Department of Health Services.

"From a public health point of view, that's enough evidence of a potential threat," Langlois said. "We certainly don't take it lightly."

Toxic algae blooms are not considered dangerous to swimmers, he added.

"If you ingest enough water for it to be of concern, you'd probably drown first," he said.

Since the 1991 discovery of **domoic acid** in California waters, the state Health Department has established a program in which volunteers up and down the coast routinely test near-shore waters for the deadly diatom, Langlois said.

During the first half of May 1998, testers in Santa Cruz noticed a sharp rise in **domoic-acid**-producing plankton, the study said. The bloom peaked in mid-May and tapered off by June.

Alerted to the bloom, Scholin who had been working to develop a faster genetic test for the **acid**-producing algae and his research collaborators looked to see if anchovies were picking up the poison. As tests confirmed **domoic acid** in local anchovies, the scientists got reports of birds and **sea lions**

washing up sick and dead on beaches, he said.

"We began to make the connection," Scholin said.

From mid-May to mid-June 1998, more than 400 dead **sea lions** were reported between Monterey Bay and Morro Bay. An additional 70 **sea lions** and one northern fur seal were found seriously ill and taken to the Marine Mammal Center in Sausalito for treatment.

"It was quite overwhelming at first," said Susan Andres, the mammal center's spokeswoman. "We weren't able to treat them because we didn't know what was going on. From outward appearances, they were healthy. But they were flat-out unresponsive. And there were these intense seizures."

Only 22 of those animals survived. Necropsies on those that didn't revealed telltale signs of **domoic acid** poisoning, and confirmed that the **sea lions** had eaten the tainted anchovies which, because they are first filleted, do not pose the same threat to humans.

The necropsies not only proved that the **sea lions** died from eating fish that had ingested the algae but also showed how fast such a mass poisoning could occur, Scholin said.

The study said **domoic acid** also could explain earlier **sea lion** die-offs in 1992, 1988, 1986 and 1978. The toxin may even play a role in the rash of recent **sea** otter deaths along the central coast that has been puzzling scientists, Scholin said.

The study also confirmed suspicions that the longstanding state practice of monitoring blue mussels to detect oceanic toxins may not be effective for **domoic acid**. While the scientists were finding high levels of **domoic acid** in the water and in anchovies, little or no trace showed up in the mussels.