

Marine deaths linked to toxin

Algae bloom that sickens birds and mammals is 'especially virulent' this spring.

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A particularly virulent outbreak of naturally occurring toxin off the California coast has been linked to the deaths of hundreds of marine mammals and birds in recent weeks, researchers said Thursday.

"I have been doing this work for 35 years and I have never seen anything like this as far as the number of species affected, other than an oil spill," said Jay Holcomb, director of the International Bird Rescue Research Center in San Pedro. Local beaches have been littered with sick and dead pelicans, sea lions and dolphins.

"We have very serious concerns about what is happening to seabirds and how it may affect populations, especially California brown pelicans, who are heading into breeding season," he said.

The toxin, domoic acid, is produced by microscopic algae and has become increasingly prevalent in recent years. Scientists suspect the upsurge has been caused by such things as overfishing, destruction of wetlands and pollution, all of which have harmed fisheries and allowed algae to flourish.

Although the toxin has not been definitively linked to all the recent deaths, many of the dead animals -- including five species of birds -- tested positive for domoic acid poisoning, said scientists at the rescue center and the Caron Laboratory at USC.

Domoic acid, which accumulates in shellfish and fish and is then passed on to the birds and animals that eat them, has occurred each spring over the past decade as ocean water warms and algae bloom. But this year's algae are "especially virulent," according to the rescue center.

The center is working closely with the Caron Laboratory, which is conducting analysis of sick birds found on beaches.

"In five years of study I have not seen a bloom this large at this particular time of year," said Professor Dave A. Caron, the lab's director and a biological oceanographer. "It's having an extraordinary impact on pelicans and many other species."

Dead birds began littering Southland beaches in March. Staffers with the bird rescue center walking the beaches reported seeing "dead birds everywhere," including grebes, gulls, cormorants, American avocets and loons.

Scientists are particularly concerned about the toxin's effect on brown pelicans, which declined precipitously in

California after DDT entered their food chain and caused the large seabirds to lay eggs with shells too fragile to support their weight. The birds remain on the endangered species list, although they have made considerable gains in recent years.

In the past several weeks, dozens of sea lions, dolphins and even whales have also washed ashore dead or dying from Venice to San Luis Obispo. Earlier this month in Ventura, an 8-foot juvenile minke whale washed up dead near the end of San Pedro Street at San Buenaventura State Beach. Lifeguards buried it in the sand.

In Santa Barbara, a 29-foot sperm whale washed ashore April 9 near Isla Vista. In both instances involving whales, investigators collected tissue samples from the carcasses in an effort to pinpoint the cause of death, but the carcass of the sperm whale may have been too decomposed to yield a final answer.

The Marine Mammal Center near Sausalito in Northern California said it has been overwhelmed with sick sea lions who eat the same fish as pelicans: anchovies and sardines.

Whether an animal lives or dies can depend on how much of the poison it ingests.

Widespread outbreaks of domoic acid poisoning are known by scientists to strike sea lions as well as dolphins. These mammals pick up the acid by eating anchovies and sardines that have fed on toxic algae.

Although the algae have been around for eons, they have bloomed with extraordinary intensity along the Pacific Coast in recent years.

That explosion of harmful algae, in turn, has caused toxins to move through the food chain and concentrate in the dietary staples of marine mammals, causing poisoning that scrambles the brains of the animals and leads them to wash ashore.

In humans, domoic acid poisoning can cause vomiting, nausea, diarrhea, abdominal cramps, headache, dizziness, confusion, disorientation, loss of short-term memory, weakness, seizures, cardiac arrhythmias, coma and possibly death, according to the bird rescue center. Humans can be affected after eating contaminated shellfish, but cannot be poisoned simply by swimming in the ocean.

"In my opinion, domoic acid is the new DDT," Holcomb said. "If the effects of DA poisoning are cumulative in the brain, and we don't know that yet, it could have serious consequences on the population of California brown pelicans."