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SCIENCE

# Toxin Taints Crabs and Kills Sea Mammals, Scientists Warn

By JONAH BROMWICH NOV. 4, 2015

The authorities in California are advising people to avoid consumption of crabs contaminated by a natural toxin that has spread throughout the marine ecosystem off the West Coast, killing sea mammals and poisoning various other species.

Kathi A. Lefebvre, the lead research biologist at the Wildlife Algal Toxin Research and Response Network, said on Wednesday that her organization had examined about 250 animals stranded on the West Coast and had found domoic acid, a toxic chemical produced by a species of algae, in 36 animals of several species.

“We’re seeing much higher contamination in the marine food web this year in this huge geographic expanse than in the past,” Ms. Lefebvre said.

She said that the toxin had never before been found in animals stranded in Washington or Oregon, and that there were most likely greater numbers of contaminated marine mammals not being found by humans.

The California Department of Public Health recently advised people to avoid consumption of certain species of crabs because of potential toxicity. Razor clam fisheries in Washington have been closed throughout the summer for the same reason.

In a statement released on Tuesday, the California department said that “recent test results” indicated dangerous levels of domoic acid in Dungeness and rock crabs caught in California waters between Oregon and Santa Barbara, Calif.

Domoic acid is a naturally occurring toxin that in severe cases can cause excessive bronchial secretions, permanent loss of short-term memory, coma or death in humans, according to the California department’s statement. Milder cases can result in vomiting and diarrhea.

A release from the National Oceanic and Atmospheric Administration Fisheries specified that “commercial seafood remains safe and state public health agencies monitor recreational fisheries for algal toxins.”

Pseudo-nitzschia, the type of algae that produces the acid, is a single-celled organism consumed directly by marine wildlife like anchovies, sardines, krill and razor clams. Those species are then eaten by larger predators, and the acid makes its way up the marine food chain.

The algae’s growth has been exponential recently, largely because of record temperatures in the Pacific Ocean. Warm water causes the toxic algae to divide more rapidly and to outcompete other species in the water. The algae then becomes a more prominent element of local plankton, a kind of marine trail mix made up of tiny particles that various species of aquatic wildlife subsist on.

This summer, the West Coast experienced the largest algal bloom that scientists have on record. Ms. Lefebvre said that though there was not a lot of monitoring for species that had consumed domoic acid in Alaska, it was likely that the blooms reached the Alaskan coast as well.

Michael Parsons, a professor of marine science at Florida Gulf Coast University, said there were several hypotheses for why Pseudo-nitzschia produces acid.

“We’re not sure exactly why they do it,” he said. “Maybe it’s meant to keep things from eating them. It might be a result of stress.”

If acid secretion is meant to deter predators, it is clear that it is a failing strategy on the part of the algae. Ms. Lefebvre expressed concern that the acid poisoning of sea life would continue to spread.

“My concern is that we’re going to see an increase in the number and geographic range of marine mammals being affected,” she said.

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