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Algae Bloom Kills Sea Birds, Other Sea Life In Southern California In Record Numbers

It's happened with predictable regularity, every spring since International Bird Rescue Research Center (IBRRC) opened its center in San Pedro in 2001. The staff at the center, which specializes in seabirds, and especially California brown pelicans, calls it DA; short for Domoic Acid. The staff braces for the dead and dying birds they know will come, every spring.

The dead bird is a California Brown Pelican, an endangered species. (Credit: Copyright Rebecca Dmytryk Titus)

This spring is different. It's much worse, affecting more species of birds, pinepeds and possibly even whales. Beaches are littered with dead birds, seals, dolphins, otters, and in Santa Barbara a 29 foot sperm whale washed ashore. The reasons for the deaths are not entirely certain, however, many of the animals tested were positive for domoic acid poisoning.

Jay Holcomb, IBRRC's director has many questions, but not enough answers. "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," Holcomb said. "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. The loss of breeding adults at this time may impact the next generation as well," Holcomb said. (California brown pelicans are still on the Endangered Species List, but have been petitioned for de-listing).

Pelicans with domoic acid poisoning, which affects the brain, can have seizures while flying, causing them to literally fall from the sky. Some have crashed into car windshields or ended up in places they shouldn't be, like airport runways and freeways. Holcomb believes many seabirds having seizures out at sea drown, making it virtually impossible to count the bodies.

Although domoic acid is a naturally occurring toxin produced by microscopic algae, something is making recent blooms of the algae especially virulent. IBRRC is working closely with the Caron Laboratory at USC, providing body fluids from suspect birds for analysis. Professor Dave Caron and Assistant Research Professor Astrid Schnetzer test the waters off Southern California and alert the center when domoic acid is present. The staff then braces and prepares the ICU. The only way to save the birds is to flush the toxins out of their systems, a labor intensive process.

This spring dead birds began littering beaches in March. IBRRC rescue personnel walking the beaches reported "dead birds everywhere." Species included grebes, gulls, cormorants, American avocets and loons. Not all test positive for DA. But other neurotoxins such as saxitoxin which can cause paralytic shellfish poisoning in humans, are also being examined by Dave Caron and Astrid Schnetzer. They are studying the birds with the help of IBRRC staff who provide fresh blood and body fluids of all sick birds. Long-time volunteer, Susan Kaveggia, orchestrates the sampling and has been instrumental in forging the relationship with USC.

The Marine Mammal Care Center, which is next door to IBRRC in Fort MacArthur, has been overwhelmed with sick seals and sea lions who eat the same fish as pelicans; anchovies and sardines. The fish eat the affected algae, which don't kill them, but the animals that eat the fish get concentrated amounts, depending on how many affected fish they eat. Whether they live or die depends how much of the poison they ingest. Many of these sick animals have been tested by Caron and Schnetzer. More than half of those tested have been positive for DA over the past few days.

Humans have died from eating contaminated mussels. Many times people don't know what made them sick so they don't report it to health authorities. In humans, domoic acid poisoning can cause vomiting, nausea, diarrhea, abdominal cramps, headache, dizziness, confusion, disorientation, loss of short-term memory, motor weakness, seizures, cardiac arrhythmias, coma and possibly death. Short term memory loss is permanent, thus the name Amnesic Shellfish Poisoning. Birds and pinepeds exhibit similar symptoms. Because the toxin affects the brain, the long term effects of DA poisoning aren't known, something that concerns Holcomb.

"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. As of this point, we just don't know."

Note: This story has been adapted from a news release issued by International Bird Rescue Research Center.