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Birds

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ENVIRONMENT

Sea Bird Die-Off

Coastal Waters Become a Morgue for Dying Species as Biologists Search for Cause of Avian Mortality

by Joel Moreno

First it was the black abalone off Southern California coastal waters being depleted by an unknown disease scientists dubbed the "withering foot" syndrome — then comes a rash of sea otter deaths in the Monterey harbor area. Still, no answers.

Now some of the ocean-ranging sea birds found throughout the Monterey Bay Sanctuary are washing up on local beaches, either dead or half-starved. Hampered by the seemingly innumerable variables involved, scientists and environmentalists can only speculate as to the cause, or even if the incidences are related.

"Because all of this is happening at the same time and over a coastline that's not that far apart, it's certainly possible that these things are connected," said Harry Carter, a wildlife biologist with the National Biological Service in Sacramento.

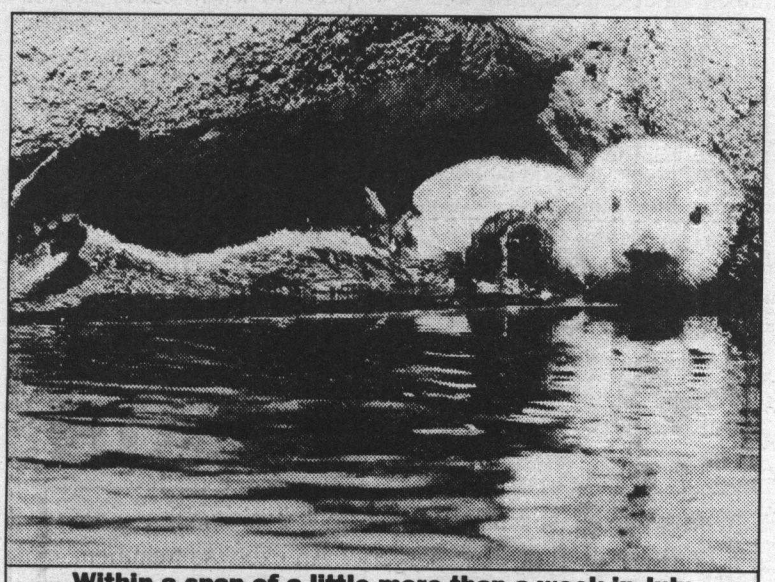
But Carter quickly added that most experts feel a linkage is also unlikely because the otters and the sea birds and the abalone are all feeding on dissimilar types of organisms and live in slightly different areas.

"It has just been astounding these last couple of weeks," said Jason Fastenau, a wildlife care provider at Native Animal Rescue Wildlife Rehabilitation Center.

Increased reports about sea bird deaths have persisted over the last seven weeks, Fastenau said, and recent observations show no indication that this trend is declining. The carcasses of as many as 30 common murres have been collected along the county's shoreline in a single day — a number which workers at Native Animal Rescue said is on par with annual totals from previous years.

So far, more than 400 common murres have been carried in for treatment to the facilities of Native Animal Rescue (NAR) in Santa Cruz. Common murres, which are abundant on the Pacific Coast, are usually found far out at sea gliding across the open ocean. They have the same coloration as do penguins with black bodies and white chest feathers. NAR director Lori Moak-Kean said about two-thirds of the common murres brought in over the last two months did not survive.

"My success rate is usually well over 80 percent with sea birds, so for me this is just devastating," she said. "We've had lots of necropsies done and the results are all over the place."



Within a span of a little more than a week in July, 10 sea otters were found dead in the Monterey harbor area, and two others in nearby locations.

Problems identified from the tests have included fungal infections, impaired kidneys, renal failure, and enlarged livers and spleens.

Nine brown pelicans have also been treated at the center, although none of those birds lived. The brown pelican is on the state's endangered species list. A few Cassins Aucklets, another seabird species, have also been brought to the center for treatment.

Workers at NAR had much better success with the 20 surf scoters that came in over the past few weeks. Half of those have already been released back into the wild.

Sea Otters Fall Victim

Sea otters have also had their problems in the Monterey Bay this year. Within a span of a little more than a week in July, 10 sea otters were found dead in the Monterey harbor area, and two others in nearby locations. Biologists report that these animals are washing up on the beach looking extremely emaciated.

The sea otter deaths are believed to be unrelated to the problems sea birds are experiencing, according to Ellen Faurot-Daniels, the science director for Friends of the Sea Otter in Monterey. The 10 otters found together were all female, and one theory suggests that these animals

continued on page 9

MCP AUG 8-21, 1995

Sea Birds
continued from page 8

died from some sort of environmental stress that occurred during or after the mating ritual, she said.

Researchers from the Monterey Bay Aquarium went out with Fish and Game officials to capture healthy otters and draw blood samples from them. Their blood work was compared with that of the animals that had died to see if there was anything there to indicate a problem.

"Nothing has turned up there," said Ken Peterson, a spokesman for the aquarium.

Full Assault Orchestrated

Part of the regular natural cycle for some species includes a normal yearly "die-off," wildlife biologists agreed, but this year's case is "extraordinary" because animal workers are seeing enough dead birds in a couple of days that used to fill an entire year's quota.

A collaborative research army of veterinarians, biologists and toxicologists affiliated with the Department of Fish and Game and the U.S. Fish and Wildlife Service is working to find the causes behind the rise in mortality among these birds. The carcasses of dead birds are picked up by officials from the Department of Fish and Game, who send them to the labs of the National Biological Service in Madison, Wisconsin, the veterinary hospital at UC Davis and elsewhere for necropsies, toxicology tests and other analysis.

Tissue samples can take several weeks before even preliminary conclusions can be reached, so scientists still aren't sure what may be linked to the rising fatalities. According to Fastenau, the possible causes of this sea bird die-off is so many as to be almost "limitless."

The first thought of many scientists was water quality, particularly since the heavy sets of winter storms likely inundated the bay with agricultural and urban pollutants. Another possibility is that some natural poison or pollutant has recently entered the food chain in the Sanctuary.

"There's a potential for it being a bio-toxin," said Harry Carter, a wildlife biologist with the National Biological Service.

Bio-toxins are often present in seasonal plankton booms known as "red tides." One such bio-toxin, domoic acid, was connected to a rash of incidents in 1991 that led to cormorants and pelicans having mental imbalances. The acid is produced by a marine phytoplankton that has a tendency to bloom in the summertime. Domoic acid binds with the nerves in the brains of the animals which leads to unpredictable and often aggressive behavior. In strong doses it can cause severe stomach distress, brain damage and even death.

"With the domoic acid we saw a lot of neurological trauma," recalled Fastenau. "What would happen is the acid would bind with the nerves and stimulate the nerves until they essentially burned out."

Researchers have ruled out domoic acid as the culprit in this case because the birds don't exhibit these neurological symptoms, but other types of bio-toxins may still be responsible, they said.

Although bio-toxins appear in phytoplankton at the base of the food chain, the poison doesn't necessarily have to afflict a wide variety of species. The poison may accumulate in prey items which are only being eaten by certain species of birds.

"It depends on what the pathway of the toxin is in the food chain. Those planktonic animals could be eaten by birds and other animals, but it may only effect certain species of fish that only certain types of birds feed on, and that's where it all takes some time to understand," Carter said.

"Heat Wave" May Be Cause of Fatalities

Another possibility is that warmer water moving into the area, such as what happens during an El Nino event, is affecting the cycle of food production at the lower end of the food chain which may be causing the starvation of species higher up the chain. Still, even that isn't resolved.

"It's too early to say for sure whether it's an El Nino-type season based on the water temperatures," said Dr. Scott Newman, who works at the Wildlife Health Center at UC Davis. "It's going to take a lot more research."

Showing Up in Bad Shape

Most of the birds arrive at the Native Animal Rescue center in a fairly anemic state with very poor blood values. Usually they are too weak to hunt for their own food.

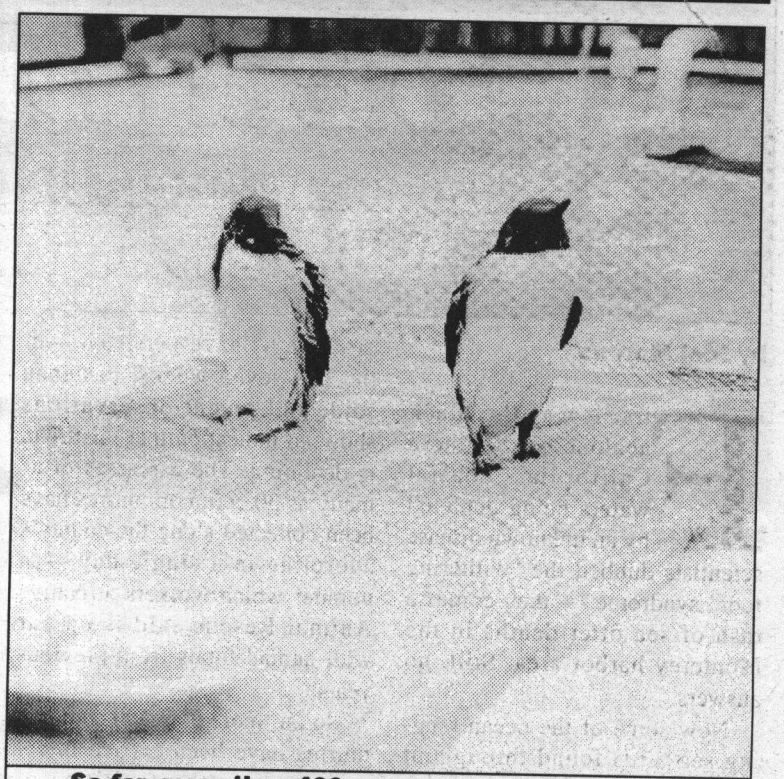
But the birds' half-starved state may be a symptom, rather than a cause, of their illness. The birds don't show signs that they have lost their appetite because they will readily eat a fish when it is placed before them.

"Lots of times, once animals start feeling sick they don't eat as much, so by the time they start showing up on the beach they look emaciated, but it may be that starvation was not the actual cause of death," said Faurot-Daniels of Friends of the Sea Otter.

"It's probably more that they can't hunt," Fastenau added. "For some reason they just become too weak in the wild to get food for themselves."

Road to Recovery

Treatment for these birds is extensive and includes an initial exam with blood and fecal tests.



So far, more than 400 common murres have been carried in for treatment to the facilities of Native Animal Rescue (NAR) in Santa Cruz.

Most every bird has been seriously dehydrated, so NAR staffers first response is to begin an aggressive fluid therapy program. They give the birds fluids intravenously and orally, and provide nutritional supplements as well as medications, depending on the results of the initial medical tests. Extremely anemic birds, for example, are given iron supplements.

The animals' white blood cell count is also checked, and any infections detected receive treatment with antibiotics. Moak-Kean said the care and attention are tremendous as the birds are monitored for 14 to 16 hours per day, and are hand-fed every two hours for about half of each day.

As the remaining birds are nursed back to health, people are again turning their attention to the human impact on the marine ecosystem, although the somewhat unfathomable size of the ocean makes for real speculation as to what our effect on the sea's resources are.

"People generally are becoming more concerned about water quality, watershed runoff and probable impacts to wildlife and habitat quality, but we've barely scratched the surface in terms of even knowing what questions to ask," said Faurot-Daniels. ❐