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Focus on Ocean's Health as Dolphin Deaths Soar

By **LIZETTE ALVAREZ**

MIAMI — Like a macabre marine mystery, the carcasses — many badly deteriorated and tossing about in the surf — first turned up along the coast of New Jersey in June. Soon, droves of them washed up in Virginia, the Carolinas, Georgia and most recently Florida, their winter home.

So far this year, nearly 1,000 bottlenose dolphins — eight times the historical average — have washed up dead along the Eastern Seaboard from New York to Florida, a vast majority of them victims of morbillivirus. Many more are expected to die from the disease in the coming months.

The high death toll from the resurgence of the virus, which killed 700 dolphins in an outbreak 25 years ago, has alarmed marine scientists, who say it remains unclear why the dolphins have succumbed to the disease. The deaths, along with a spate of other unrelated dolphin die-offs along Florida's east and west coasts, raise new questions about the health of the ocean in this part of the country and what role environmental factors may be playing, scientists said.

“Marine mammals are very good sentinels for ocean and human health, and they really act like the proverbial canaries in a coal mine,” said Dr. Greg Bossart, a veterinary pathologist and senior vice president in charge of animal health at the Georgia Aquarium. “They give us an idea of what’s occurring in the environment.”

Because bottlenose dolphins are top predators, have long life spans and live near shore, Dr. Bossart said, “whatever happens coastally impacts them and potentially us.”

The deaths, [classified as an unusual mortality event](#), have puzzled scientists. They show no discernible demographic pattern, affecting dolphins that are young and old, male and female. One possible explanation is that some of those who have died this year were not alive during the first outbreak and may not be immune to the virus.

In Florida, the situation is particularly dire, with dolphins facing a triple threat this year. Nearly 80 dolphins who live permanently in the state's ecologically compromised Indian River Lagoon estuary on the east coast have died. An additional 233 perished in the northern Gulf of Mexico this year. Both of those events have also been labeled unusual mortality events by the federal government.

The causes of death appear to be unrelated; each group of dolphins faces separate challenges that in some cases remain scientifically murky — disease, a polluted environment, infection and possible residue from the BP Deepwater Horizon oil spill in 2010.

“It is alarming when you see so many different die-offs of marine mammals going on at once,” said Erin Fougères, a marine mammal biologist with the National Oceanic and Atmospheric Administration's fisheries service, which is tracking and investigating the deaths. “We can't say they are linked. But it says there are a lot of challenges that marine mammals are facing.”

This time around, scientists who first encountered morbillivirus 25 years ago were able to pinpoint the disease soon after the initial wave of dead dolphins washed ashore along the Eastern Seaboard. By August, the federal government had confirmed through necropsies that the virus was present. More than 90 percent of the 181 dolphins tested had the virus.

During the first outbreak in the late 1980s, it took scientists several years to uncover the reason for the die-offs, Ms. Fougères said. Scientists found the virus only after testing dolphin tissue retroactively.

There is little scientists can do to stop the airborne virus, which cannot be spread to humans. During the last outbreak, the virus killed off dolphins for 10 months, which means that this time, dolphins may continue to die through May. The dolphins infect one another by expelling air through their blowholes.

In the meantime, other threats remain, chief among them the possibility that the virus could spread to Gulf Coast dolphins and the already vulnerable population in the Indian River Lagoon.

“The results could be catastrophic,” said Stephen D. McCulloch, the program manager for marine mammal research at Florida Atlantic University's Harbor Branch, adding that “there is some degree of coastal interaction between dolphins in the inlets.”

The Indian River Lagoon, a diverse estuary, has been tainted by huge algae blooms caused in part by too much nitrogen. Research on some of the dead dolphins in the estuary — 76 died

this year, the third series of deaths since 2001 — has showed that some had high levels of mercury, fungal diseases, antibiotic-resistant bacteria and oral-genital tumors. The dolphins found were emaciated.

“You have to think, ‘Where does antibiotic-resistant bacteria come from in dolphins?’ ” said Dr. Bossart, who is involved in a long-term study of the Indian River Lagoon dolphins. “One thought is that it comes from environmental pollution.”

Scientists are monitoring the areas below Brevard County on the east coast of Florida to see if morbillivirus continues its spread as the dolphins head farther south.

On the Gulf Coast, from the Texas-Louisiana border through the Florida Panhandle, the dolphin die-off has gone on far longer, a phenomenon that scientists have been unable to fully explain. Since the first deaths nearly four years ago, more than 1,000 dolphins have died. The deaths initially began in Lake Pontchartrain in Louisiana in February 2010, before the BP oil spill. The spill added other possible causes for the high rate of dolphin deaths.

Gulf Coast states and the federal government are still investigating the impact of the oil spill in the region, and scientists cannot yet say why the dolphins are dying. So far, it appears that toxins or morbillivirus are not the primary cause.

“We can’t conclusively say what role oil played at this time,” Ms. Fougères said. “But the event is pretty unprecedented in terms of how long the die-off has been occurring and how many have died as part of that event.”

A NOAA study released last week of 29 bottlenose dolphins that were examined in Barataria Bay in Louisiana — an area hit hard by the spill — found that they had lung disease, hormonal abnormalities and other illnesses that are consistent with exposure to oil.

“We are seeing some similarities,” Ms. Fougères said, referring to the 1,000 deaths. “But that study was specifically related to the 29.”