

# Endangered right whales are dying in record numbers off Canada, raising alarm

**S** [sciencemag.org/news/2017/08/endangered-right-whales-are-dying-record-numbers-canada-raising-alarm](https://www.sciencemag.org/news/2017/08/endangered-right-whales-are-dying-record-numbers-canada-raising-alarm)

8/23/2017



This North Atlantic right whale, found dead in June, had injuries suggesting it was hit by a ship.

THE MARINE ANIMAL RESPONSE SOCIETY

By [Erik Stokstad](#) Aug. 24, 2017 , 9:35 AM

The highly endangered North Atlantic right whale is having its worst year in decades. At least 13 of the whales—out of a population believed to be about 450—have died this year, most of them during the past 2.5 months in the Gulf of St. Lawrence off Canada's eastern coast.

That is "an unprecedented number of deaths," says whale biologist Moira Brown of the New England Aquarium in Boston. If the deaths continue, she says, "the population can't withstand this."

Researchers are still working to pin down how the whales died, but at least three appear to have been hit by ships, and one perished after becoming entangled in fishing gear. In a bid to prevent more losses, Canadian officials are scrambling to improve protections for the animals, which can reach 15 meters long and 72 tons. They've started near-daily reconnaissance flights to spot whales snared by ropes or nets, and imposed new restrictions on shipping and fishing until the whales migrate south later this year.

## Sign up for our daily newsletter

Get more great content like this delivered right to you!

By signing up, you agree to share your email address with the publication. Information provided here is subject to Science's [Privacy Policy](#).

In the meantime, the deaths have focused new attention on whether the whales' range is shifting northward, putting more of the animals in dangerous waters. Some scientists speculate that the whales are looking for new sources of food, perhaps driven north by warming seas. But others are agnostic. "It is entirely possible that right whales have always used that habitat," says Kim Davies, a postdoctoral oceanographer at Dalhousie University in Halifax, Canada.

This isn't the first crisis to hit the North Atlantic right whale (*Eubalaena glacialis*), which lives along the eastern coast of North America. Whalers nearly hunted it to extinction by the early 20th century. Even after gaining international legal protection in 1949, the whales—which rest and usually feed near the surface—often drowned in fishing gear or died from ship strikes. By the early 1990s, researchers estimated that fewer than 300 remained.

Since then, the population has increased. Many deaths have been averted by moving shipping lanes away from key habitats and deploying systems that warn ships when the slow-moving animals are nearby. (One system in the Stellwagen Bank National Marine Sanctuary off Massachusetts uses moored hydrophones to listen for the whales' slow, baritone whoops.) If entangled whales are found in time, highly trained teams can often cut them free. It is dangerous work: A Canadian rescuer died this summer after being struck by a right whale, causing the government to suspend such missions.

The whales also benefited in the early 2000s when a favorite prey, the oily copepod *Calanus finmarchicus*, burgeoned in the whale's summering grounds in the Gulf of Maine, the Bay of Fundy, and the Scotian Shelf. Females bulk up on these minuscule crustaceans before migrating to the waters of the southern United States to give birth, and the abundant copepods boosted birth rates, as well as optimism about the whale's future.

## Into the danger zone

Recently right whales have been seen much more often in the Gulf of St. Lawrence, where they have been killed by ships and fishing gear.

CREDITS: (MAP) J. YOU/SCIENCE; (DATA) NOAA/FISHERIES AND OCEANS CANADA

Recently, however, deaths from entanglement have become more frequent. Birth rates have also fallen dramatically, likely because of a decline in copepod populations and because entanglements have stressed females. And in 2010, researchers became alarmed when whale sightings dropped dramatically in some of their usual summer waters.

Researchers knew that some whales swam farther north, to the Gulf of St. Lawrence. So in 2015, several groups began surveying the region. That year and the next, they found 40 to 45 whales in the southern gulf, near Prince Edward Island. This summer, the crews documented more than 100.

Right whales may be moving to find denser aggregations of *Calanus* copepods, a subarctic species that prefers relatively cool water, say oceanographers Charles Greene of Cornell University and Erin Meyer-Gutbrod, a postdoctoral researcher at the University of California, Santa Barbara. Oceanographic models have predicted that the copepods will shift their range north as seas in lower latitudes warm, and the Gulf of Maine has warmed sharply in recent years. But Davies and other researchers say it is not clear that right whale distribution has changed or that warming is responsible: Researchers might be finding more whales in the Gulf of St. Lawrence because they're looking more systematically.

Regardless, all agree the whales are in treacherous territory, and some believe they are likely to reappear. "We expect right whales to continue visiting" the gulf, says Matthew Hardy, a science manager at Fisheries and Oceans Canada in Moncton. Many freighters ply the gulf, heading to and from the Great Lakes. But it doesn't yet have the robust whale-avoidance systems in place farther south. Davies and Dalhousie University oceanographer Christopher Taggart are testing a relatively low-cost approach: underwater gliders equipped with sound sensors and

gear able to transmit alerts to ships via satellites and shore stations. The project has been underway for 3 years, but this summer's death toll "has created a greater sense of urgency," Davies says. The pair hope to have a system operational next year in Nova Scotia.

A knottier threat is fishing gear. Right whales primarily get ensnared in ropes on crab and lobster traps, so Canadian regulators have closed, delayed, or restricted crab fisheries this summer in the area where the whales are present. Researchers are also looking for longer term solutions that would allow whales to coexist with the fishing industry, such as using weaker ropes that allow whales to break free, or adding weights to ropes so they sink to the sea floor, out of harm's way. But so far "we don't have a magic bullet to reduce entanglement," Brown says.

In September, Canadian officials plan to consult with the fishing and shipping industries about what to do next. After this summer's carnage, says marine ecologist Mark Baumgartner of the Woods Hole Oceanographic Institution in Falmouth, Massachusetts, "everyone is on the edge of their seats about what next year will look like."

