New England Aquarium

Protecting the blue planet

Right Whale

RESEARCH NEWS

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Right Whale Research News is produced and published by the New England Aquarium. We welcome your comments and suggestions.

Read more about a particular aspect of our project at neaq.org.

You may now access past issues of *Right Whale Research News* on our website. Go to neaq.org/rightwhale. The archive goes back to 2005, and all but the two most recent issues of *RWRN* are available. Now when one of the articles in the current issue refers to an earlier piece on the same subject, it's easy to check it out!

Pediddle (Catalog #1012) and calf rest at the waters surface off Amelia Island, Florida.
Photo: Florida Fish and Wildlife Conservation Commission, NOAA Permit #15488

A Worrisome Calving Season

It was an extraordinary calving season this year for right whales off the coast of southeastern United States, but not the type of extraordinary we hope for.

As has been the case for more than 20 years, dedicated teams from many state and private organizations completed thorough surveys focused on the waters off Florida and Georgia. Between December and March, the teams photographed just four adult right whales: three mothers with calves and one entangled, adult male. No other right whales were seen. This is unprecedented since consistent survey efforts began in 1994.

We have a number of concerns about the survey results this year.

- Only four whales were seen, compared to the more common range of 30 to more than 200 individual whales seen each year. In the past, even in years with low calf counts, quite a few noncalving whales were seen. For example, in 2000, there was only one calf seen on the calving ground, but 32 other whales were documented there.
- Only three calves were seen compared to the average 17 per year since 1994 (although the counts have been highly variable).
- The few whales that were seen this year left the area by early February, more than a month earlier than in past years.
- The three females that calved had an average inter-birth interval of 7.7 years. This means it took them more than twice the time it takes a healthy, robust whale to recover from their prior calving. In good years, right whales give birth every three years.
- No first-time mothers were seen this year. This was the first time since 2001 that no new mothers were added

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Calving Season

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to the breeding pool. During the past 25 years, an average of five mothers per year gave birth for the first time.

These five concerns paint a clear picture that all is not well for this population of right whales. These dramatic changes come on the heels of right whales shifting away from several of their historically important feeding grounds off New England (see *Right Whales on the Move* in *RWRN December 2014*) and make us wonder if these whales are finding enough food.

On a brighter note, at least three whales were fit enough to calve and three calves are better than none.

One of the mothers has quite a long history. **Pediddle** (**Catalog #1012**) was first seen in 1978, and this year's calf is her eighth since that first sighting. She was named for a round scar on the left side of her head that looks like a single headlight (pediddle is slang for a car with only one functioning headlight). The other two mothers are **Catalog #1711**, born in 1987 (two previous calves), and **Tripelago** (**Catalog #2614**), born in 1996 (three previous calves).

The only noncalving adult seen on the calving ground was the entangled male **Ruffian** (**Catalog #3530**). This poor whale already bore extensive scarring from a previous, severe entanglement that occurred between December 2007 and January 2008. We called him **Ruffian** because of his roughed-up appearance from those entanglement scars. At some point between August 2016 and Jan. 5, 2017, he became entangled again, this time in more than 450 feet of rope with a large, conical meshed fishing pot attached at one end—a trap similar to ones used to catch snow crabs in Canadian waters. A disentanglement team from the Georgia Department of Natural Resources and Florida Fish and Wildlife Commission was able to respond, cut all the lines, and retrieve the gear, giving **Ruffian** another chance at survival *(see photos, pages 6-7)*.

Ruffian successfully made the trek north to Cape Cod Bay off Massachusetts after his disentanglement. Two of the three mother-calf pairs have also been sighted in the bay! **Pediddle** and **Tripelago** and their calves were seen April 3. The moms were feeding—not surprisingly given they had spent the past few months fasting while on the calving ground. We are hoping that **Catalog #1711** and her calf make a safe return to the north as well. Perhaps another calf or two will be discovered this spring or summer. We'll have an update in our next newsletter!

—Philip Hamilton

Tripelago (**Catalog #2614**) and calf near Fernandina Beach, Florida. **Tripelago's** calf is one of only three born this year.
Photo: Georgia Department of Natural Resources, NOAA Permit #15488-02.

Inset: The first calf of the 2016-2017 right whale calving season was spotted on New Year's Day with its mom, Catalog #1711, in the waters off Georgia.
Photo: Sea to Shore Alliance, NOAA Permit #15488-02

Right Whales Have Arrived in Cape Cod Bay!

Our colleagues at the Center for Coastal Studies have been seeing a number of right whales during their aerial surveys, which began in January, and the sightings are beginning to creep up with the advent of spring. We recently have had the opportunity to join our colleagues from Woods Hole Oceanographic Institution and the Southwest Fisheries Science Center for their second year of fieldwork to collect health assessment images and respiratory blow samples using a UAS (unmanned aerial system, aka a drone) (see *Unmanned Aerial Systems…* in *RWRN May 2016* and *http://www.whoi.edu/oceanus/feature/whales-and-drones)*. Despite this March's cold, raw, damp weather, the efforts have been very successful with two dozen individual right whales photographed with a subset of those sampled for blow.

In April, we shift gears and join our colleagues from the Northeast Fisheries Science Center in Cape Cod Bay to collect skin samples of right whales not yet biopsied to further the genetic studies of this population (see *How to Identify…*in *RWRN May 2016*). Although the season is still early, we feel that the whales seen so far are looking better than they did last year (with blacker skin and not as many lesions) so we remain cautiously optimistic that maybe right whales will have a better year after a bleak calving season (See *A Worrisome Calving Season*).

—Amy Knowlton

A remotely operated, six-rotor hexacopter hovers over Catalog #2760 to collect samples of his "blow"— a whale's visible exhalation. The blow samples will be analyzed to determine what kinds of bacteria, viruses, and fungi make up the blow "microbiome."

Photo: Amy Knowlton (Woods Hole Oceanographic Institution), NOAA Permit #17355

Upcoming Field Season

As winter turns to spring, the Right Whale Team's thoughts turn to fieldwork. After a long winter in the office, we are eager to get back into the field and out on the water. However, before that can happen, we have a lot of preparation and planning ahead. We have to submit permit applications, update boat registrations, check safety equipment, get cameras and field computers ready, and schedule field station maintenance.

Similar to the past couple of years, we will be running two simultaneous field projects—one team will work in the Bay of Fundy, and the other will do surveys in the Gulf of St. Lawrence with our Canadian collaborators. As the preseason logistics come together, we begin to have many questions: Will the Bay of Fundy be busy and productive with right whales like last year or will it be mostly devoid of them like in 2013? Will the whales look healthy or will their body condition be poor? Will we have entangled whales?

We hope to answer those questions when we begin fieldwork, perhaps as early as the end of June. Check out our blog (www.tinyurl.com/RIWHblog) for our updates from the field!

—*Monica Zani*

From fall 2011 through 2015, the New England Aquarium conducted aerial surveys south of Martha's Vineyard and Nantucket, both off the south coast of Massachusetts, for the Massachusetts Clean Energy Center (MassCEC) to guide siting of offshore wind turbines. The surveys collected data on the presence of marine mammals and sea turtles within the area. In December 2016, MassCEC decided to support an additional year of surveys in this area. So in January, we welcomed an entirely new aerial team to the Anderson Cabot Center for Ocean Life. Chief Scientist Dr. Ester Quintana leads the team of highly trained professional observers. Ester has extensive marine mammal aerial survey experience and has coordinated, designed, and conducted surveys in Florida, Guatemala, Belize, and Honduras. Dr. Quintana is joined by Paul Nagelkirk and Angela Bostwick, both of whom bring a wealth of survey experience and observer skills to the team.

For previous articles about the MassCEC project, see *RWRN December 2011, December 2012,* and *May 2013.*

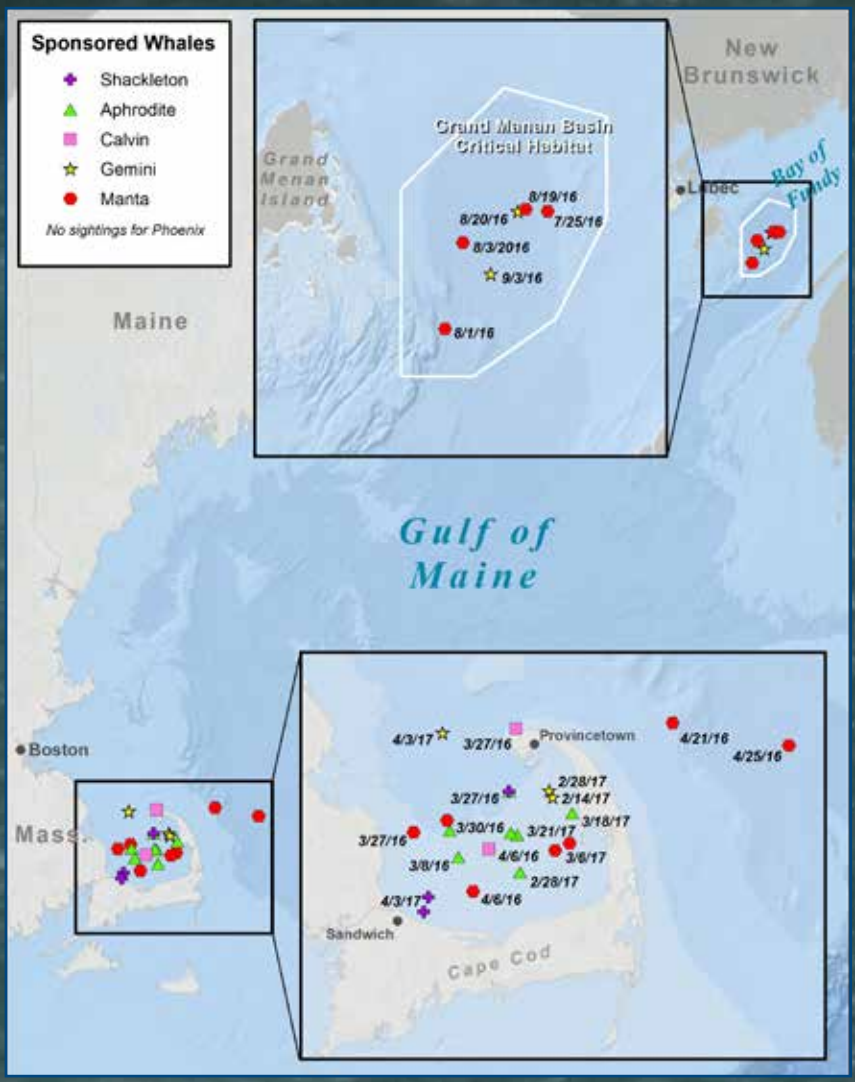
Sponsored Whale Update

Gemini (**Catalog #1150**) has had a few sightings this year in Cape Cod Bay, an important winter and spring feeding area for right whales. The Center for Coastal Studies (CCS) observed him in the area on Feb. 14 and 28, and subsurface feeding on April 3 and 9.

Manta (**Catalog #1507**) has also been seen in Cape Cod Bay this year by CCS. On March 6, he was seen skimfeeding with **Catalog #3823**, a female who was disentangled last September. We also recently confirmed three 2016 Cape Cod Bay sightings of **Manta** (April 6, 21, and 25); he was seen feeding on all three days.

Aphrodite (**Catalog #1701**) has returned to Cape Cod Bay as well! CCS observed her subsurface feeding with **Catalog #2910** on Feb. 28 and alone March 18. A few days later, on March 21, both CCS and Woods Hole Oceanographic Institution saw her among a scattered group of right whales.

Calvin (**Catalog #2223**) is another Cape Cod visitor this year. CCS saw her feeding with **Catalog #3192** on April 9. In addition, we recently confirmed an April 6, 2016, sighting of **Calvin** subsurface feeding with **Ruffian** (**Catalog #3530**).

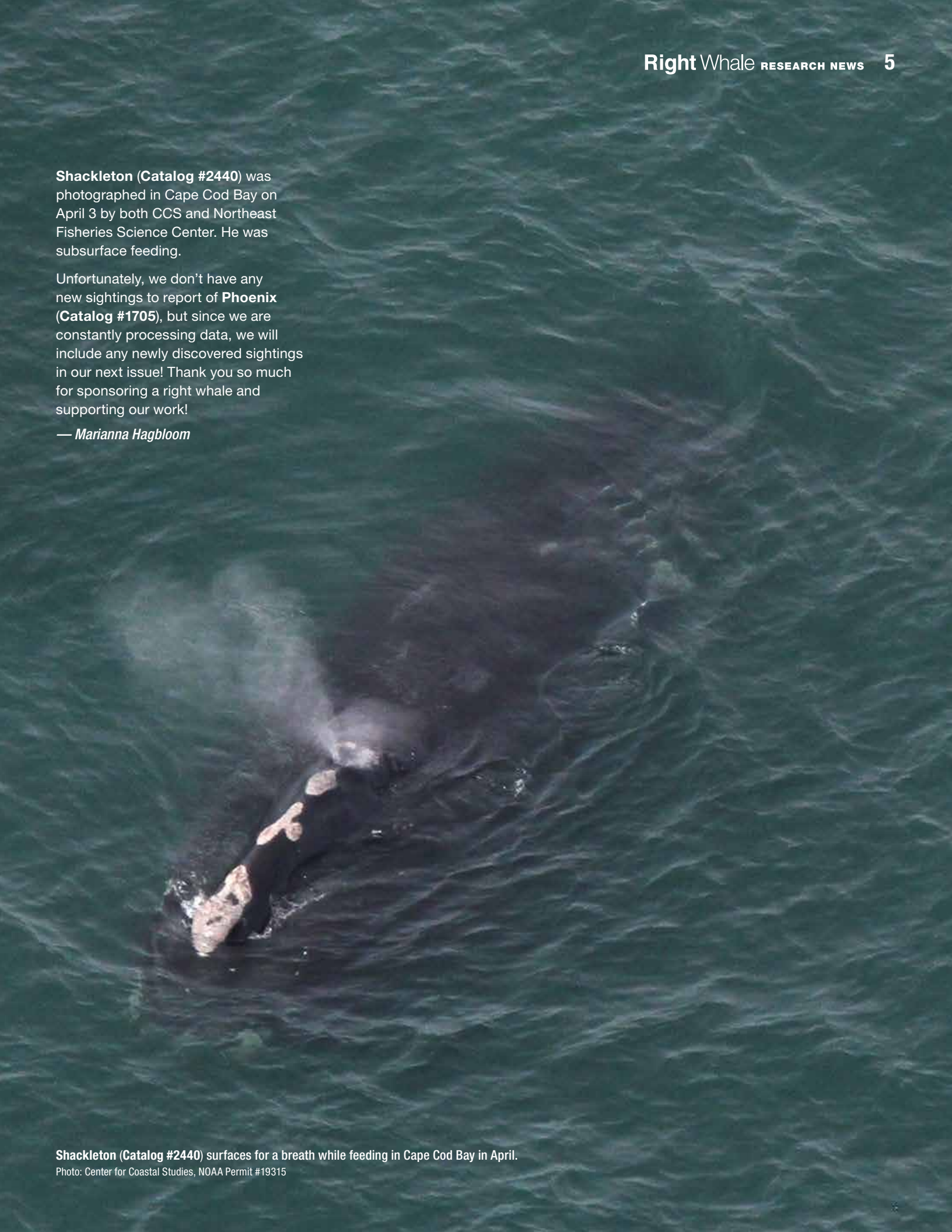


Sponsored whale sightings March 2016 through April 2017.
Map: Brooke Wikgren/Anderson Cabot Center for Ocean Life, NEAq

Shackleton (**Catalog #2440**) was photographed in Cape Cod Bay on April 3 by both CCS and Northeast Fisheries Science Center. He was subsurface feeding.

Unfortunately, we don't have any new sightings to report of **Phoenix** (**Catalog #1705**), but since we are constantly processing data, we will include any newly discovered sightings in our next issue! Thank you so much for sponsoring a right whale and supporting our work!

— Marianna Hagbloom



Shackleton (**Catalog #2440**) surfaces for a breath while feeding in Cape Cod Bay in April.
Photo: Center for Coastal Studies, NOAA Permit #19315

Update on Entanglements and Mortalities

In each newsletter, we report on new entanglements and mortalities that the population has suffered in the preceding six months and update the ongoing entanglement cases.

The following is a brief summary of all these known (documented) events. This information should be viewed with caution. In recent years, we have seen shifts in right whale distribution in some areas. How these shifts affect our detection of dead and/or entangled whales is unknown, but it is likely these factors could lead to an underrepresentation of mortality and entanglement events. For example, there has been no documented mortality in the previous six months. While this is welcome news, we must remember that our previous issue of this newsletter reported three dead whales (two from entanglement) and four new entanglement cases of living whales, whose fates remain unknown.

New Entanglements (Since fall 2016):

Fuse (**Catalog #3405**, 13-year-old female): In July 2016, **Fuse**, a mother of the year, was seen in the Gulf of St. Lawrence with her calf. In August, the pair was spotted in the waters of the Bay of Fundy. However, by early December, **Fuse** was documented off the coast of New York entangled in fishing gear. **Fuse** was no longer with her calf at the December sighting, but calves typically wean around 10 to 12 months, so, hopefully, the calf is safely on its own.

Ruffian (**Catalog #3530**, 13-year-old male): see *A Worrisome Calving Season*

Updates on Previously Known Entangled Whales:

Catalog #3821 (9-year-old, unknown sex): In 2012, **#3821** was first spotted entangled in fishing gear in Cape Cod Bay. The Center for Coastal Studies (CCS) Disentanglement Team made a few strategic cuts in the gear, which the team hoped would allow the gear to be shed over time. However, sightings over the next two years indicated that the whale was still entangled. In February 2017, **#3821** was again sighted, but because of the angle of the images it's difficult to determine if the whale is free of gear.

Catalog #3823 (9-year-old female): In September 2016, **#3823** was discovered off Massachusetts entangled with a rostrum wrap and a large amount of trailing gear with buoys. A CCS team made a disentanglement attempt, but was uncertain if it was successful. In March 2017, **#3823** was sighted by CCS and confirmed to be completely free of gear.

Previously Entangled Whales with No Current Update:

Entanglements are documented each and every year, and not all cases can be

Ruffian (Catalog #3530) was entangled in fishing gear in January. The white scars on his head and back are from a previous entanglement.
Photo: Georgia Department of Natural Resources and Florida Fish and Wildlife Commission, NOAA Permit #18786

In an effort to find solutions to the serious issue of entanglement, we are exploring two important avenues of research. The first is "whale release" ropes, i.e., ropes of a reduced breaking strength of 1,700 pounds. The second is ropeless fishing technology, which would keep rope out of the water column altogether. These gear modifications, if implemented broadly, may be the most effective approach to reducing the frequency and severity of whale entanglements while still enabling fishermen to fish effectively.

Some of the heavy fishing gear removed from Ruffian during his disentanglement. He was also carrying 450 feet of rope.
Photo: Georgia Department of Natural Resources and Florida Fish and Wildlife Commission, NOAA Permit #18786

resolved through disentanglement. Often we don't have any updates on previous cases because the whale has not been sighted again. To our knowledge, these entanglements likely still persist or, in some cases, the whale may have died and never been documented. Currently, there are 10 such entanglement cases from only the past five years. If these whales are not sighted for six years, we presume they are dead. In 2016, a reproductive female named **Trilogy** (**Catalog #1503**) was added to the presumed dead list. In 2010, she was seen with rope tightly bound around the top of her head and she was in poor condition. She was never seen again.

— Monica Zani

Monitoring Right Whale Injuries

Injured whales, particularly those with severe entanglement wounds that are not observed carrying gear, are often overlooked when reviewing population status and anthropogenic (human-caused) impacts on the population. With generous support from the Volgenau Foundation, right whale survey teams, and the North Atlantic Right Whale Consortium, we developed and implemented a standardized protocol for reporting, assessing, and monitoring the impact of serious injuries on right whale health starting in 2013. Reporting is based on the injured whale reports produced in June and December of each year (See *Monitoring… Injuries* in *RWRN December 2015*). As of December 2016, there are 63 whales from 2010 to 2016 being monitored on the Serious Injury/Human Impact Monitoring list (see table right), up from 59 in December 2015.

As has been the case since we started monitoring injured right whales, entanglements significantly outnumber vessel strikes as a source of serious injury for this population. Clearly, there is still much work to be done to mitigate these kinds of interactions. By monitoring impacts of injury on right whale health, we are able to support efforts to develop clearer, comprehensive, and long-term approaches to evaluating human impacts on the population. Such an approach is essential to effective and successful management efforts for this population, particularly in light of recent shifts in distribution and habitat use (See *Right Whales on the Move* in *RWRN December 2014*).

— Heather Pettis

	Entanglement		Vessel Strike	Other	Total
	Gear Present	*No Gear Present*			
Decline in Condition	10	14	2	1	27
Inconclusive	11	11	5	0	27
No Decline in Condition	0	4	1	0	5
Extended Monitor	1	2	1	0	4
Total	**22**	**31**	**9**	**1**	**63**

Impact of anthropogenic injury on health by injury type for North Atlantic right whales on the active injury monitoring list.

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Thank you!

We would like to thank all the individuals, organizations, and schools that continue to support our research with annual sponsorships and donations. In these difficult economic times, with federal research budgets shrinking, your support is more critical than ever before, and we truly appreciate your generosity. Sponsorship funds are used by the New England Aquarium Right Whale Program to support activities that directly contribute to the conservation of North Atlantic right whales.

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Consider purchasing a limited-edition print from the Endangered Species Print Project! Artist John Vilhauer created this lovely depiction of a right whale, and proceeds from the sale of the prints help support the North Atlantic Right Whale Consortium (see… *Consortium in RWRN, December 2013*).

For more information:
http://tinyurl.com/ESPPrighwhale