

Right Whale Research News

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Mortalities and Entanglements: A Dark Tally

This past summer proved to be the second most calamitous year for right whales, mirroring the tragic losses of 2017. The bad news began June 4, when **Wolverine (Catalog #4023)**, a 9-year-old male, was found floating belly-up with blood around him in the Gulf of St. Lawrence. On June 20, a second right whale carcass was found floating in the gulf east of the Magdalen Islands. **Punctuation (#1281)** was a regularly reproducing female more than 38 years old who had calved at least eight times. This death was particularly painful for those of us who have studied these whales for decades.

The fatalities kept coming. In a four-day period, more whale carcasses were reported. On June 24, a carcass was found floating east of Cape Breton. We

learned about this whale much later, but because few photographs and no genetic material were collected, it could not be identified. On June 25, the carcasses of **Comet (#1514)**, a male more than 34 years old, and **#3815**, an 11-year-old female, were discovered in the central gulf. The next day, **#3329**, a 16-year-old female, was found on the remote southeastern shore of Anticosti Island. The day after that, we learned of the loss of yet another reproductive female. **Clipper (#3450)**, who was more than 15 years old, was found floating east of the Gaspé Peninsula. Thankfully, the bad news slowed after the seventh carcass, but three additional deaths were documented. On July 18, **#3421**, a 15-year-old male, was found east of Gaspé, and, on July 21, the carcass of an unidentified right whale was spotted east of Cape Breton. On September 16, another old friend, **Snake Eyes (#1226)**, a male more than 40 years old, was found off Fire Island, N.Y. This was the only whale carcass discovered in U.S. waters. However, he had been entangled in fishing gear at his last sighting, which was in Canada (see below). Family histories of some of the whales are available at accol.org/blog.

The entanglements were equally heartbreaking due to the whales' ongoing suffering. The first entanglement of the year was **#4423**, a 5-year-old male found entangled in Great South Channel east of Cape Cod on April 25. He had a bridle of heavy rope going through his mouth with a buoy and weights trailing behind. He was seen repeatedly in the Gulf of St. Lawrence in July and August. Several attempts to disentangle him by the Campobello Whale Rescue Team (CWRT) were unsuccessful. He



Wolverine (Catalog #4023), a 9-year-old male, floats belly-up in the Gulf of St. Lawrence. He was the first of 10 whales to die this year. Photo: Alison Ogilvie/NOAA/NEFSC

Mortalities and...

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was still entangled and in deteriorating health at his last sighting in late August.

The other three entanglements were all first detected in the gulf:

1) **#4440**, a 6-year-old male, was seen entangled June 29. He was hogtied with line coming out his mouth and wrapped around his tail stock. Cuts made to the entanglement by the CWRT on July 16 allowed the whale to shed the rest of the gear by August 14.

2) **#3125**, an 18-year-old male, was first seen July 4 with a complex entanglement involving all aspects of the head and both flippers with more than 100 feet of line trailing. Broken baleen was protruding from his mouth, and the rope wrapping the head likely obstructed feeding. The *JD Martin* crew was able to attach a telemetry buoy that allowed the whale to be tracked so a disentanglement effort could be mounted. Three groups attempted to free him—Tangly Whales from Newfoundland, Canadian Department of Fisheries and Oceans off Cape Breton, and the Center for Coastal Studies east of Cape Cod. Between these efforts, **#3125** was almost completely disentangled, although his fate remains uncertain.

3) **Snake Eyes** was seen entangled on August 6 with several wraps of line through the mouth. His tail appeared to be weighed down and he was possibly anchored. He was far from shore during a

period of bad weather. The next time a survey could check on him, he was gone. On September 16, he was found floating dead off Long Island, N.Y., with no gear attached but deep wounds from the entanglement were evident.

After these tragedies, we felt like a tornado had ripped through the population and we took stock of the devastation. Four entangled, one of these later found dead and the survival of two others questionable. Nine others dead—nearly 2.5% of the population—including two calving females and two other females that would likely have started calving soon. Necropsies were conducted on six of the 10 carcasses. Three whales (**Punctuation**, **Comet**, and **Clipper**) likely died from vessel strikes, but the results from the others (**Wolverine**, **Snake Eyes**, and **#3421**) are pending.

There has been little good news for this species since 2011, when whale numbers began to decrease. But it has worsened during the last three years. Between 2017 and 2019, the number of carcasses detected (26) have outpaced reproduction (12 calves) by almost two and half times. The increase in mortality and serious injury and the decrease in reproduction are likely both caused by climate change as whales are finding it hard to find enough food and are expanding their search into new areas where they are in greater danger. We must redouble our efforts to protect them before it is too late.

—Philip Hamilton

Field Season Updates

Bay of Fundy 2019

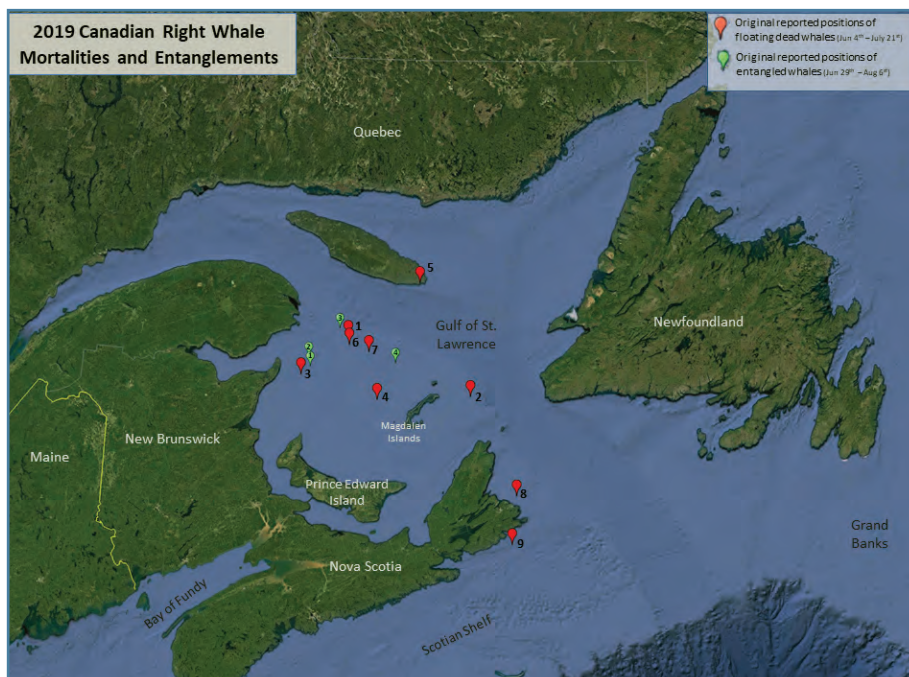
For our 39th consecutive Bay of Fundy field season, we had a similar schedule to last year: two weeks of fieldwork per month from June to September. It was another slow right whale season for us, but we still put the effort in with 18 survey days spread out over the summer. Similar to last year, we watched the bay slowly come alive in July and August as marine life, including birds, moved into the bay. Old Thom, an orca who sometimes appears in the bay during late summer, graced us with his presence on three days, which helped break up the tedium of very few large whale sightings.



A male orca, dubbed “Old Thom” by locals, is an occasional visitor to the Bay of Fundy. He was seen there three times this past summer by Aquarium researchers. Photo: Johanna Anderson/ACCOL/NEAQ

Although there had been three verified right whale sightings in the Bay of Fundy since May, our team didn't encounter any until August 26, when we found five right whales! It was a late start for right whale sightings, but we were optimistic that more right whales would soon arrive. A few new individuals trickled into the bay by early September, bringing our individual count to nine for the season. When Hurricane Dorian passed through on September 9, everything shifted, with most of these right whales departing the bay. Interestingly, based on sightings from a local whale watch boat, two of the nine whales, **Catalog #3150** and **#3991**, stuck around into mid-October in the northwestern part of the bay, an area that is uncommon for right whales. Unlike past years, none of these whales were spotted in the Gulf of St. Lawrence this summer. So as far as we know, there was no movement between the two habitats this season.

So why do we continue to survey the Bay of Fundy when right whale presence here has fluctuated and decreased dramatically in recent years? The key word here is fluctuated. Right whale



Map: Marine Animal Response Society

presence has been quite variable since 2010, but we still had decent numbers in 2011, 2014, and 2016. The 2019 season provided interesting insights into weather impacts and novel distributions. Also, for the last 39 summers, this project has recorded much more than just right whales: numerous other species (whales, dolphins, seals, sharks) as well as vessel traffic and fishing gear. Almost four decades of consistent data collection means that this project has had a front-row seat to decadal variations in this habitat and the effects of climate change on the Bay of Fundy. In conjunction with our Gulf of St. Lawrence surveys, we are able to piece together a narrative of shifting right whale habitat while continuing to document the movement and health of individual whales.

For more details on the summer fieldwork, visit accol.org/blog.

—Kelsey Howe

Gulf of St. Lawrence 2019

We had another productive season in the Gulf of St. Lawrence working off the crab fishing vessel *JD Martin*. This was a combined effort of the New England Aquarium and our Canadian colleagues from Dalhousie University, the University of New Brunswick, and Canadian Whale Institute. Similar to last year, we had two research legs, the first from July 5 to 22 and the second from August 7 to

25. Both trips were aimed at collecting plankton samples in the vicinity of right whales to better understand their food resource in this newly documented high-use area, and collecting vessel-based imagery of right whales to monitor movements, health, and human impacts.

The first sighting of a right whale in the gulf was on May 13 northeast of our study area. Before we even began our first leg, six right whale deaths and three live whale entanglements had been reported in the gulf (see *Mortalities and Entanglements*). The only consolation as we set out was that the crab fishing season in the primary right whale habitat had ended, so we hoped we wouldn't discover any additional entanglements.

Team July hit the ground running. On our first day on the water, we tried to clip a telemetry buoy to the rope entangling **Catalog #4440**. Although unsuccessful, we were able to describe the entanglement configuration much better, aided by drone images collected by photographer Nick Hawkins working on a nearby boat. Over the course of our trip, we saw many surface active groups (SAGs), a total of four of the seven mother-calf pairs

of the year, and all three of the live entangled whales. We assisted the Campobello Rescue Team on several days and, on July 19, we were able to attach a telemetry buoy to entangled **#3125**. That action helped save its life as it allowed the whale to be relocated and disentangled more than a month later (see *Mortalities and Entanglements*). Also, under direction of the Canadian Department of Fisheries and Oceans (DFO), we hauled five crab traps lost during the fishing season. Some additional crab gear was seen on other days, but could not be retrieved without DFO staff on board; entanglements were clearly still possible even though the snow crab fishing season was over.



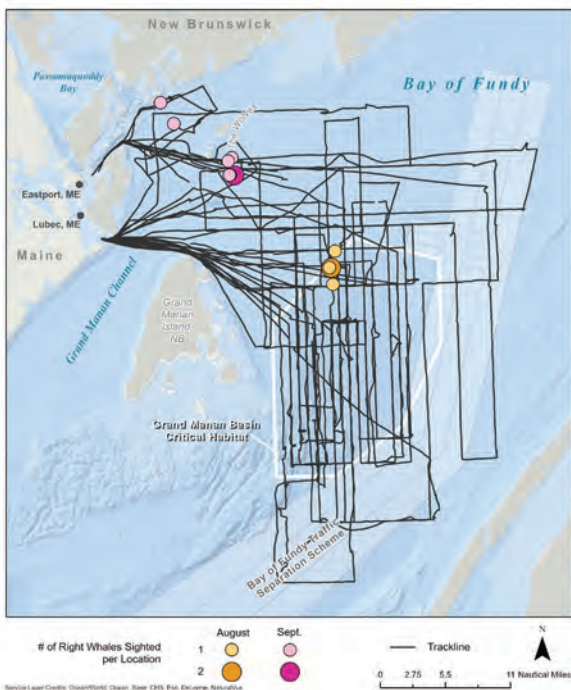
Catalog #2791 and her calf in the Gulf of St. Lawrence in July. Three other mother-calf pairs were also seen there. Photo: Marianna Hagbloom/ACCOL/NEAQ/CWI

Team August saw many of the same whales, but also more than 30 whales not seen on the first trip. The last day was arguably our most exciting as we sighted our only mother-calf pair of the trip and a bowhead whale, a species that rarely strays south of Baffin Island. The bowhead was among 20 to 30 right whales, and we learned that it is the same bowhead first sighted in 2012 east of Cape Cod. Since then, it has been seen more than a dozen times around the Gulf of Maine and Bay of Fundy (see *Unusual Species... in RWRN December 2012*).

An interesting aspect of our work was the use of sonobuoys by the Dalhousie crew (see sidebar to *2018 Gulf of Saint... in RWRN November 2018*). These were deployed around SAGs during both trips. In August, we spent an hour collecting above-water video along with below-water sonobuoy recordings of **Lacrosse (#1249)**, a male more than 37 years old. He repeatedly made head pushes at the surface and then dove for several minutes at a time. The calls he made throughout the recordings were so consistent that we could predict when he was about to resurface each time.

All told, both teams had 544 sightings of at least 115 different whales and collected four fecal samples and three biopsies samples, including from **Chiminea (#4040)** and **Lemur (#3380)**—whales that had been eluding us for years. Between our work and that of NOAA Fisheries aerial survey team and DFO vessels and aircraft, we are piecing together a fascinating story about this emerging habitat. We appreciate the sightings provided to us by all the teams working in the gulf and are grateful to our captain, Martin Noel, and his crew for their knowledge, skill, and enthusiasm.

—Philip Hamilton



Track lines covered and right whales seen by the Anderson Cabot Center's survey team in the Bay of Fundy from June 18 to September 19, 2019. Map: Brooke Hodge/ACCOL/NEAQ

Where to Next?

“Not all those who wander are lost.” – J.R.R. Tolkien

At one time, North Atlantic right whales lived in both the eastern and western Atlantic Ocean. Basque whalers were the first to hunt the species, hundreds of years before Yankee whalers took to the sea from the New England coast. The Basques originally focused on the Bay of Biscay area, off the coasts of Spain and France. By the mid-1500s, the Basque whalers were sailing across the Atlantic to harvest whales off eastern Canada. Today, only a remnant population of about 400 right whales survives in the western North Atlantic.

Occasionally, right whales appear in locations that we think of as outside their normal range. With sightings off Iceland, Norway, and the Azores, these whales help us better understand right whale movements throughout the entire North Atlantic Ocean. We reported last year on **Mogul (Catalog #3845)**, who had been photographed off Iceland in July 2018 ([see *A Rare Sighting in RWRN November 2018*](#)). We have an update on a few of his travels since, and he's been getting around!

We know he was back in home territory this past spring because our

colleagues at the Center for Coastal Studies photographed him in April 2019 feeding in Cape Cod Bay. But at some point after that, **Mogul** made a trans-Atlantic swim as his next sighting was on June 21... off the coast France! A boater videotaped him skimfeeding close to shore near Penmarc'h, a town located at the northern edge of the Bay of Biscay. Perhaps **Mogul's** distant ancestors fed in this very same place a thousand years ago. Then, similar to the Basque whalers, **Mogul** crossed the Atlantic Ocean and, by September 19, was documented off the coast of Newfoundland, Canada.

From the United States to Iceland and from France to Canada, **Mogul's** movements were traced thanks to people enjoying a walk, whale watching, or sailing the coast. Every sighting is important, and **Mogul's** journey is known thanks to the efforts of those people who took the time to submit their photographs to the New England Aquarium, curators of the [North Atlantic Right Whale Catalog](#) on behalf of the [North Atlantic Right Whale Consortium](#).

—*Monica Zani*

Transitions

Change is not always easy to accept, especially after decades of working with a colleague. This was certainly the case when we learned that our longtime leader, mentor, and friend, Dr. Scott Kraus, had decided to retire from the New England Aquarium after 40 years of directing the Right Whale Research Program and serving as an Aquarium vice president. Scott will be ending his tenure here at the end of 2019, although he has assured the team that he will remain committed to right whales and the work that he has helped to spearhead for these past four decades.

Recognizing that Scott's departure from the Aquarium would leave a tremendous void within the marine mammal program Scott developed here, a broad search effort for a replacement was initiated this past spring. This resulted in the hiring of two people to help fill Scott's shoes. Dr. Peter Corkeron, of NOAA Fisheries' Northeast Fisheries Science Center has been chosen to run the recently named **Kraus Marine Mammal Conservation Program**. Peter is a very accomplished marine mammal scientist and is well versed in the right whale story. He knows a tremendous amount about other marine mammal species, and his research has spanned many continents over his career. He will work with the team to continue and expand our marine mammal work here.

Dr. Jessica Redfern of NOAA Fisheries' Southwest Fisheries Science Center has joined us as a Senior Scientist and Chair of the Spatial Ecology, Mapping, and Assessment Program (EcoMap) at the Anderson Cabot Center. The goal of this program is to assess risk to marine species from human use and climate change. Jessica's research focused on how marine mammal populations overlap with human activities on the West Coast. She will apply those tools here on the East Coast and help continue to inform management efforts to better protect right whales and other marine mammal species.

We welcome Peter and Jessica to our team! We are sad that Scott is departing, but grateful that he will continue to be closely involved in the right whale efforts.



Mogul skimfeeds in the waters off Newfoundland in September 2019. Three months earlier he had been photographed off the coast of France, more than 2,000 miles away. Photo: Eric Abbott

Ropeless Fishing Gear Testing

The best way to limit whale entanglements is to have less rope in the water column. The most effective gear solution is to remove ropes that connect bottom-set gear to surface buoys. These ropes are typically used to identify the presence of gear and for hauling back the gear. Ropeless fishing is an innovation in which buoy lines are retained at or near the seafloor except during hauling. Haul lines can be recalled to the surface by releasing bottom-stowed ropes and floats using timed or acoustically triggered releases. If groundlines are used to attach pots at the bottom, grappling is another option that avoids buoy lines. Individual pots could also use inflatable bags to bring them to the surface.

With offshore Gulf of Maine lobster fishermen, the Anderson Cabot Center's Bycatch Solutions Program is testing a flotation rope spool and its acoustic-release system, developed with engineers at the Woods Hole Oceanographic Institution. After a successful first phase of testing in Cape Cod Bay this summer, the on-call, ropeless, spooled device is now being deployed as part of commercial lobster fishing trips in offshore waters. Testing will aim to assess the performance and feasibility of the system in the Northeast Canyons and Seamounts Marine National Monument, located on the edge of Georges Bank. More information on these tests and the participants' perspective will be shared at the Ropeless Consortium Annual Meeting on November 13 (see *The North Atlantic... Consortia* in *RWRN May 2019*).

—Tim Werner and Richard Malloy



Whale Day

In May, Anderson Cabot Center scientists Amy Knowlton and Heather Pettis gave a briefing about right whales to Massachusetts state elected officials and their staff. Because of the interest that briefing generated, the Massachusetts House of Representatives passed a resolution asking U.S. Congress to pass the SAVE Right Whales Act in support of right whale research and conservation (see sidebar to *Seismic Surveys...* in *RWRN May 2019*). To celebrate the announcement of the Resolution, "Right Whale Day" was held at the State House on July 29. Our researchers and staff from the Aquarium's Education department were on hand to answer questions about right whales and our ongoing research efforts.

Learn more: neaq.org/blog/state-house-right-whales

Right Whale Sculpture

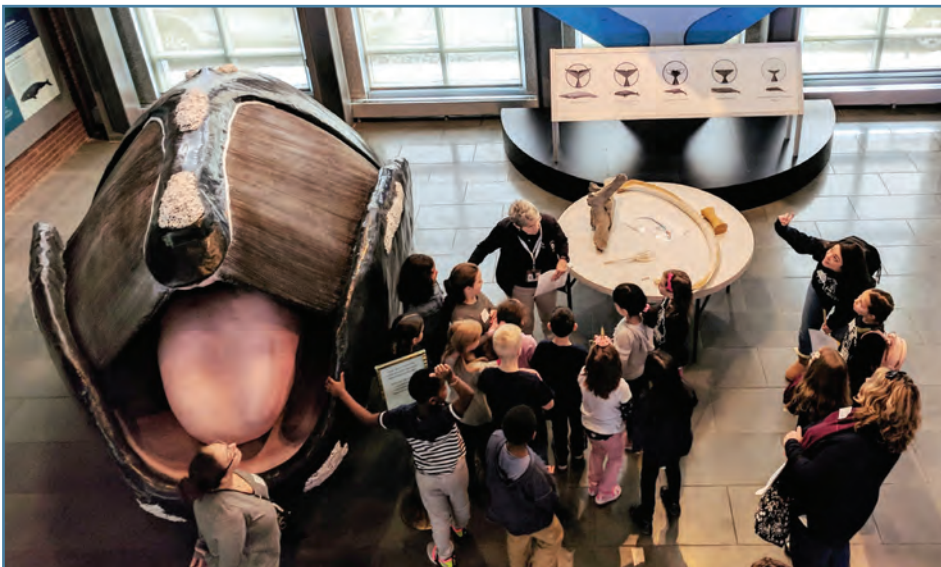
The New Bedford Whaling Museum in New Bedford, Massachusetts, features exhibits on whales and the whaling era. Robert Rocha, the museum's Director of Education and Science Programs, shared information about a new exhibit.

A special delivery arrived at the New Bedford Whaling Museum in February 2019—a life-sized sculpture of the head of a North Atlantic right whale. This sculpture is 21 feet (6.4m) long, 8 feet (2.4m) tall, and 6 feet (1.8m) wide. Its enormous mouth is open as if ready to skimfeed through a patch of copepods.

This sculpture is one of many important educational resources installed as part of the new *Whales Today* exhibit. Having a life-sized, anatomically accurate teaching tool has made it much easier for docents and staff to explain how right whale filter feeding works. The sculpture, along with the accompanying panels and artwork, brings attention to this species' status as endangered and to important conservation issues, especially entanglement.

We are proud to be one of the many voices speaking on behalf of North Atlantic right whales. We are grateful to North Atlantic Right Whale Consortium members Michael Moore, William McLellan, and Marilyn Marx for their review of the mock-ups, their important suggestions regarding anatomy, and the reference photographs that enhanced the accuracy of this sculpture.

—Robert Rocha



Left: This life-size model of a feeding right whale dwarfs students at the New Bedford Whaling Museum. The sculpture is part of the museum's new "Whales Today" exhibit. Photo courtesy of New Bedford Whaling Museum

Sponsorship Update

Manta (#1507) was seen consistently throughout the summer in the Gulf of St. Lawrence. Between the Northeast Fisheries Science Center (NEFSC) and the Aquarium/Canadian Whale Institute (NEAq/CWI) teams, he was seen in June, July, and August.

Aphrodite (#1701) was seen on April 25, 2019, in Cape Cod Bay by the Center for Coastal Studies (CCS). Curiously, her only known sighting thus far in the Gulf of St. Lawrence this summer was north of Anticosti Island on July 11 by the Mingan Island Cetacean Society.

Calvin (#2223) was observed in the Gulf of St. Lawrence many times this summer. Between the NEFSC and NEA/CWI teams, she was seen repeatedly in June, July, and August.

Shackleton (#2440) was seen by CCS on April 11 and 17 in Cape Cod Bay.

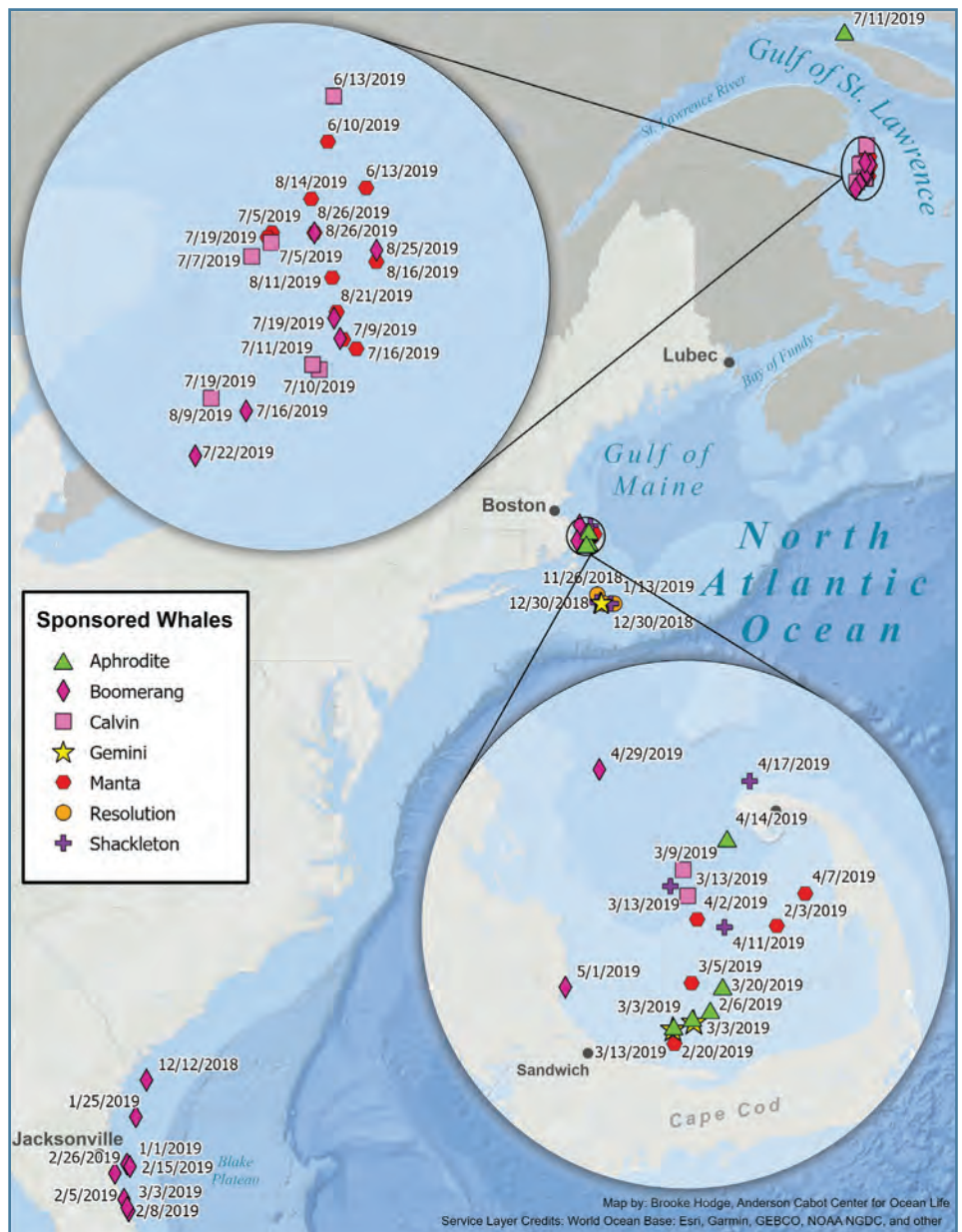
We have no new sightings of **Gemini (#1150)** to report at this time, but will keep a watchful eye out for him. Check out the map to see where all the sponsorship whales have been seen since last October. Thank you for sponsoring a whale and supporting our research program!

—Marianna Hagbloom



Aphrodite swims alone on July 11, 2019, in the Gulf of St. Lawrence.

Photo: Christian Ramp/Mingan Island Cetacean Society



Sponsored whale sightings November 2018 through October 2019. Map: Brooke Hodge/ACCOL/NEAQ

New Whales to Sponsor!

In our last newsletter, we reported that we were retiring Phoenix and Starry Night and would introduce two new whales in the next issue. And here they are: **Boomerang (#2503)** and **Resolution (#3532)**!

Boomerang is one of seven moms in 2019 (this is her third calf) and was named for a boomerang-shaped scar on her ventral fluke. She and her calf were most recently sighted this summer in the Gulf of St. Lawrence, where the NEFSC and NEAq/CWI teams saw the pair on multiple days in July and August.

Resolution was named in honor of his birthdate, January 1. Knowing the exact date of a right whale's birth is extremely rare, but what's really remarkable about **Resolution** is that he was the first right whale calf to be observed being born! His most recent sightings were from this past winter, when NEFSC and Aquarium researchers observed a significant number of right whales off Martha's Vineyard. He was seen in November and December 2018 and January 2019.

To sponsor **Boomerang** or **Resolution** or to learn more, visit neaq.org/rwsponsorship

An Inspiration

Those of us who have dedicated our lives to researching and protecting North Atlantic right whales sometimes get discouraged as we witness the ongoing threats they continue to face from human activities. Entanglements and ship strikes that have become more prevalent with whale distribution shifts related to climate change seem like overwhelming obstacles. But then along comes someone who inspires us to keep fighting to save this beleaguered population. Eight-year-old Johannes "Jan" Heere is one of those inspirations. Jan lives in Spain and, with the help of his parents, created a #RIGHTWHALE reusable water bottle to help reduce single-use plastics and protect right whales. He sells the water bottles through his website, myrightwhale.com, and contributes the funds raised to our Right Whale Sponsorship Program. His goal is to raise awareness about the plight of right whales by giving presentations to schools to educate as many children as possible. Jan and his family have also made a video



Boomerang (#2503) Photo: ACCOL/NEAq/CWI



Resolution (#3532) Photo: ACCOL/NEAq

about right whales and his efforts to help them. We appreciate Jan's interest in the right whale story and his dedication to reducing plastics in the ocean and educating others about the necessity of preserving wildlife. Thank you, Jan!

Watch the video: bit.ly/NARWVideo

Health Assessment Workshop

In response to the ongoing right whale unusual mortality event (see *The 2017 Mortalities...in RWRN December 2017*), the Working Group on Marine Mammal Unusual Mortality Events, in conjunction with the National Marine Fisheries Service, convened a three-day North Atlantic Right Whale Health Assessment Workshop from June 24-26, 2019. Held in Silver Spring, Maryland, the goal of the workshop was to assess current health information and identify available and needed tools and techniques for collecting

additional health data that can be used to refine our understanding of the impacts of environmental and human activities on right whales.

Four researchers from the Anderson Cabot Center for Ocean Life at the New England Aquarium participated in the workshop. Philip Hamilton, Amy Knowlton, Heather Pettis, and Rosalind Rolland provided presentations summarizing a variety of right whale topics including recent distribution shifts, monitoring of health and human impacts, and the potential effects human impacts, fecal parasites, harmful algal blooms, and stress hormones have on reproduction.

In addition to presenting their work, the Anderson Cabot Center researchers participated in working groups to outline specific recommendations for continued and new data collection techniques and analyses to better evaluate and understand right whale health. These activities will be essential in guiding population recovery strategies for this critically endangered species. A full report on the workshop will be published in early 2020.



New England Aquarium

Central Wharf
Boston, MA 02110-3399



World Marine Mammal Conference

In December, 12 Anderson Cabot Center researchers will be attending the World Marine Mammal Conference in Barcelona, Spain. This meeting will be cohosted by the Society for Marine Mammalogy and the European Cetacean Society and will bring together marine mammal researchers from all over the world. Our researchers will present work on a variety of topics including entanglement mitigation, genetics, outreach, health, and distribution. It is always exciting to share our important research with the broader marine mammal community! And be sure to watch for updates from the conference on our blog: accol.org/blog.

Calling All Teachers! We now offer a Classroom Sponsorship!

Perfect for classrooms or service projects, this sponsorship includes a full-color booklet about your whale, a one-year subscription to *Right Whale Research News*, a small informational book about whales, a plush right whale for the classroom, certificates and stickers for up to 30 students, and access to the right whale-themed Smithsonian in Your Classroom lesson plans "*The Tale of a Whale*." **To learn more about our sponsorship program, visit us online. neaq.org/rwsponsorship**

Editor

Marilyn Marx

Contributors

Marianna Hagbloom
Philip Hamilton
Brooke Hodge
Kelsey Howe
Amy Knowlton
Richard Malloy

Marilyn Marx
Heather Pettis
Robert Rocha
Tim Werner
Monica Zani

In this newsletter, all photographs of right whales in U.S. waters were taken under NOAA research permits under the authority of the Marine Mammal Protection Act and the U.S. Endangered Species Act. *Right Whale Research News* is produced and published by the New England Aquarium. We welcome your comments and suggestions.

Read more about our project at accol.org.

You may access past issues of *Right Whale Research News* on our website at 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!

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, and we truly appreciate your generosity. Sponsorship funds are used by our Right Whale Program to support activities that directly contribute to the conservation of North Atlantic right whales.

Gift Ideas



Give an adorable right whale plushy, a colorful T-shirt, or other right whale gifts and support our efforts to save right whales.

Buy online. Shipping is free! rightwhaleresearch.bigcartel.com