



New England
Aquarium

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Right Whale

RESEARCH NEWS

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In this newsletter all photographs of right whales in U.S. waters were taken under NMFS/NOAA permit 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 a particular aspect of our project at www.neaq.org.

You may now access past issues of **Right Whale Research News** on our website. Go to www.neaq.org/right-whale and click on **Right Whale Research News Archive**. 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!



Calvin (left) and calf on Roseway Basin in September 2015. Calvin has become an icon for vessel strike mitigation because her mother was killed by a ship in 1992, when she was less than a year old. Now 23, she survived early weaning and two entanglements. Photo: Marianna Hagbloom/NEAq

Reports from Our Field Efforts

During the summer of 2015, the Aquarium's Right Whale Program, in collaboration with the Canadian Whale Institute (CWI), coordinated three field efforts. They covered two areas where right whales have typically been seen over the past three decades, plus a new area where more sightings have been documented in recent years. Below are the findings from these three survey efforts.

Bay of Fundy

Since 1980, our main base of operations has been at our field station in Lubec, Maine, using our 30-foot research vessel, *Nereid*. This year, despite 17 survey days in the Bay in August and September we only documented eight individual right whales, and each was seen only on one day. This is in stark contrast to the years 1993 through 2009, when the number of individuals seen ranged from ~110 to 220 per year, with multiple sightings of each whale within the season. These data are telling us that the Bay was not the suitable feeding habitat this summer that it had been in the past. Whale watch boats in the area did document

an additional 20 right whales in June and July, but again, these whales just seemed to be passing through in search of food. The changing pattern of right whale use of the Bay of Fundy started in 2010 and corresponds with a broader change in plankton productivity (or lack thereof) seen in the Gulf of Maine. What we don't know is whether this changing pattern is permanent or if it will shift back to a more productive area in the years to come.

Despite the lack of right whales, we did document some other interesting species rarely seen in the Bay, such as an adult killer whale, two leatherback sea turtles and a plethora of white cross jellyfish, as well as several larger jellyfish species.

Roseway Basin

In waters south of Nova Scotia lies Roseway Basin, the second identified habitat for right whales in Canadian waters. Recent changes in right whale numbers and residency times in the Bay of Fundy sparked a three-year joint effort by researchers from the Aquarium and CWI to survey Roseway Basin in August and

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Field Efforts

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September. In the latter two years, the visual search was augmented by listening for whales using autonomous underwater gliders provided through collaboration with Dalhousie University (<http://meopar.ca/research/project/whale-whales-habitat-and-listening-experiment>) and Woods Hole Oceanographic Institution (<http://dcs.whoi.edu/>).

The 2015 Roseway surveys yielded only 17 right whale sightings, a record low for the area. Of the photographed whales, 11 have been matched to a cataloged animal and demographics were typical for the area—dominated by adult males. We also recorded two adult females who are known mothers for the year: **Catalog #2790** was seen without her calf, which is of concern, but the sighting was short and in very foggy conditions, so we remain hopeful that the calf was missed. The second mother was one dear to our hearts and one of the sponsorship whales, **Calvin**, with her third calf. Mother-calf pairs are quite unusual on Roseway Basin, only seven have been recorded prior to this year since 1985.

Western Gulf of St. Lawrence (Baie des Chaleur)

At the close of 2014 we knew we needed to expand our survey effort, because right whales had been shifting away from the Bay of Fundy and Roseway Basin. How exactly to do that was the big question, since picking up and moving a field team is anything but easy. We decided to start small. In mid-August a team of three researchers took to the road with the *R/V Callisto* in tow. Our goal was to spend two weeks surveying the waters in and around the Baie des Chaleur, an arm of the Gulf of St. Lawrence located between Quebec and New Brunswick, Canada. This area was of great interest to us because of a rise in opportunistic sightings over the last few years.

At the end of our two weeks we had logged more than 63 hours and 800 miles of survey effort. While we all wished for a big aggregation of right whales, we were more than pleased with the two right whales we did document. **Catalog #1278** and **Catalog #1307** are both adult males first seen in 1980 and 1974, respectively. In addition, neither whale had been documented by an earlier aerial

survey of the Gulf by NOAA Fisheries.

In the grand scheme of things, our effort in the Gulf was small in area and time, but what we learned was invaluable both in terms of what we did right and how we can do it better next year. This was just the beginning of what we hope will be a larger and more extensive survey effort in the future. It is clear from the number of mortalities there this past summer (See *Mortality and...*) that it is critical to understand how right whales are using the Gulf of St. Lawrence.

In summary, the productivity of the two known Canadian right whale habitats is changing. As a result, right whales are using different areas, with more sightings occurring to the north in the Gulf of St. Lawrence and around Cape Breton, Nova Scotia. The challenge for the years to come is to adjust our survey strategy so that we can locate the new right whale habitats. Although we are encouraged that right whales are adapting to changes in the habitats where we have seen them in the past, the effect on overall health and reproduction remains to be seen.

—Amy Knowlton, Moira Brown and Monica Zani

So Where Were the Whales?

Again this year, right whales did not show up in two of their well-known habitats in any significant numbers. So the question we have been asking for a few years now has to be asked again: Where *are* they going? The short answer is: We still don't know for the bulk of the population. But, the sightings we do know about, from our surveys of the Bay of Fundy, Roseway Basin and the Gulf of St. Lawrence, from dedicated surveys by Canadian Department of Fisheries and Oceans (DFO) and NOAA Fisheries in the Gulf of St. Lawrence and from opportunistic reports from throughout the Northeast, indicate that the whales are spread out far and wide. The map on the next page shows all the photographed right whale sightings for June through October, 2015. A few additional sightings are not on the map because we are awaiting data, but

this gives a good representation of the broad distribution of right whales, made possible by collaboration with DFO, NOAA and many other research groups and individuals.

Because many of the right whale sightings on this map come from opportunistic sources, we have limited information about the whales in these areas, which leads to more questions: Why are they in these locations? Are there other whales there? And are they finding enough food? There's more than scientific curiosity behind the question of where right whales are going. We need regular photographed sightings of the majority of the population to assess health, scarring rates from vessel strikes and entanglements, and to identify and catalog calves each year. In addition, we are concerned that the

whales may be at increased risk in some of these areas (note the three dead whales in the Gulf of St. Lawrence in just three weeks, and the many right whales showing up with severe scarring from recent entanglements). We are lucky to have a research community dedicated to collaboration, because we are going to need all the help we can get to figure this puzzle out!

—Philip Hamilton

Map on the right: These are the sightings in the North Atlantic Right Whale Catalog June 1–October 8, 2015, color coded by month. Symbols with a black dot in center indicate a calf either with its mother or alone (as was the case for most of the August and September calf sightings in Cape Cod Bay). Lastly, even though there may have been several sightings of a dead whale, the dead whale symbol is only shown once for each carcass.

Map: Brooke Wikgren/NEAQ

Wart's 2013 Calf Sighted!

When a well-known right whale, **Wart (Catalog #1140)**, was first seen with her seventh calf on January 12, 2013, the right whale community was stunned. She had the time of year right, but she was in a very different location than most females, who calve off Florida and Georgia. Wart had given birth 1,000 miles north—in the vicinity of Cape Cod Bay! We were happy to see Wart with a calf again after an unusual eight-year break (possibly due to an entanglement lasting from 2008 to 2010), but the excitement was tempered by concern: Would the northern waters be too cold for the newborn? The pair were seen repeatedly until January 21, then disappeared until April and May of 2013. The calf had made it through the coldest months, but how would this little one do once separated from its mom?



Catalog #4340, as a 4-month-old calf in April 2013 playing in Cape Cod Bay (left) and skimfeeding in Cape Cod Bay April 16, 2015 (above).

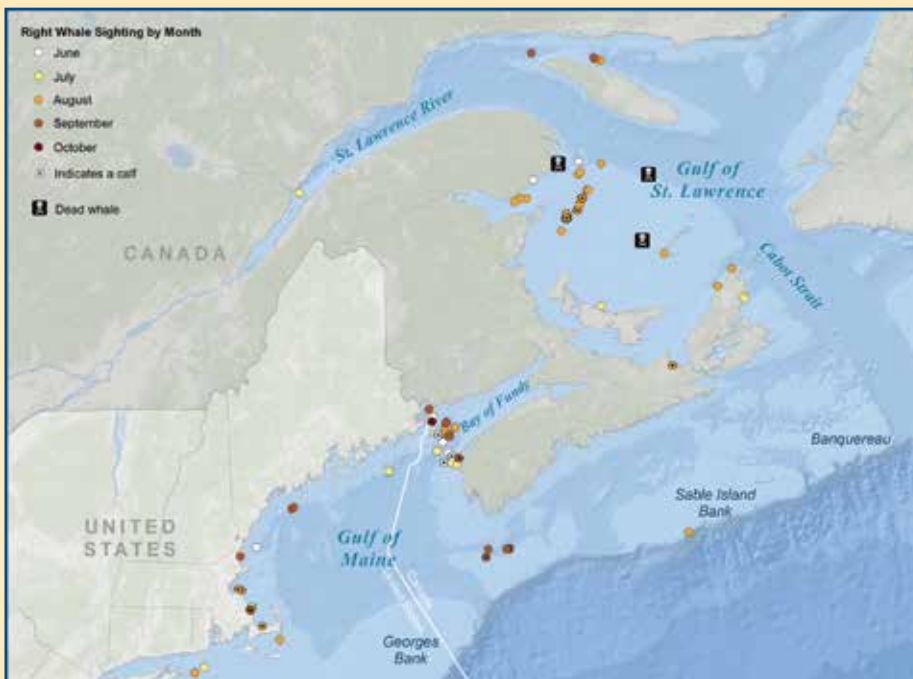
Photos: Elizabeth Burgess/NEAQ and inset; Amy Knowlton/NEAQ. Both images taken under NOAA Permit #14233.

Recently we discovered that Wart's 2013 calf is doing just fine! Matching older calves and yearlings to sightings of young calves is always a challenge. Calves' callosities don't fully develop until the end of their first year, so the likelihood of matching a yearling to

the callosities in a photo of a 3-month-old calf were slim. Luckily, in this case, the calf photographs were good enough to be matchable, and during the processing of the Center for Coastal Studies 2014 survey data, we were able to match the calf photos to several sightings: The yearling was seen feeding in Cape Cod Bay in January and April 2014 and looked very healthy. And just this past April it was again seen skim feeding in Cape Cod Bay. Wart's 2013 calf has now been added to the North Atlantic Right Whale Identification Catalog as **#4340**.

This calf of Wart's is not the first one to face adversity. Her 1994 calf swam over 100 miles up the Delaware river when he was just 11 to 12 months old and probably just weaned, earning him the name **Shackleton**, after the famous British explorer. You may recognize that name for another reason: He's one of our Sponsorship whales! Four of Wart's calves have gone on to have 12 calves among them, so Wart is responsible for bringing at least 19 right whales into the population. As we keep an eye on Wart and her offspring, including **#4340**, we look forward to seeing how this lineage continues to develop.

—Philip Hamilton



Mortality and Entanglement

In each newsletter we report on new entanglements and mortalities that the population has suffered in the preceding six months. We also update entanglement cases that were reported in earlier issues. This brief summary of known (documented) events should be viewed with caution. In recent years we have seen shifts in right whale distribution in some areas. We don't know how these shifts affect our detection of dead or entangled whales, but these factors could lead to an under-representation of mortality and entanglement events.

Mortalities —

During a terrible stretch this past summer we lost three right whales in three weeks in the Gulf of St. Lawrence:

- **Piper (Catalog #2320):** One of our sponsorship whales (see *Piper*), on June 24.
- **Unidentified:** On July 9 a Canadian Department of Fisheries and Oceans aircraft spotted a severely decomposed, floating right whale carcass. Because the carcass was far from shore (approximately 50 miles from the Magdalen Islands) and in poor condition, no attempt to recover the animal was made. The cause of death is unknown.
- **Catalog #3923** (6-year-old female): On July 13 a training/school ship reported a dead, floating right whale. The carcass was not recovered but washed ashore three weeks later on the Magdalen Islands. The cause of death is unknown.

New Entanglements (since Spring 2015):

- **Unknown ID (Field Code WR-2015-05):** On June 13 an entangled right whale was documented in the Bay of Fundy by a scout for a whale watch boat. The whale towed buoys and several hundred feet of rope/line from its mouth. Despite efforts to relocate for disentanglement that day, the whale has not been re-sighted.
- **White Cloud (Catalog #3160, 14 year-old male):** On the morning of July 21 a joint Canadian disentanglement effort from Newfoundland and the Maritimes was launched in an attempt to relocate an entangled humpback whale. While in transit east of Ingonish, Cape Breton, the team came

across a right whale entangled with heavy gear around its peduncle (tail stock). The team quickly went to work and successfully disentangled him.

- **Velcro (Catalog #1306, adult male):** On September 13, **Velcro** was sighted by a Canadian Whale Institute/New England Aquarium survey on Roseway Basin. The whale was sighted in difficult working conditions 35 miles south of Yarmouth, Nova Scotia. Line was seen streaming from the whale's mouth but the severity of the entanglement is currently unknown. The whale has not been re-sighted.
- **Unknown ID (Field Code WR-2015-28):** On Sept 30 a whale watch boat sighted an entangled right whale 17 miles south of Booth Bay Harbor, ME. All that could be seen was that the animal had entangling gear trailing over its fluke. The brief documentation didn't allow for individual identification of the whale, and it has not been re-sighted.

Previously Entangled Whales with No Current Update

Entanglements are documented each and every year, and not all cases can be resolved through disentanglement. Often we don't have any updates on previous cases because the whale has not been re-sighted. To our knowledge these entanglements persist or, in some cases, the whale may have died offshore. Currently there are 13 such entanglement cases from only the past five years. As each of these entangled whale cases enter their sixth year without sightings, they will be presumed dead. (See *When Whales Go Missing* in *RWRN May 2015*.)

—Monica Zani

Monitoring Right Whale Injuries

Injured whales, particularly those with severe entanglement wounds that are not observed carrying gear, are often overlooked in conversations about 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. Beginning with this issue, we will report on newly injured right whales and provide a summary of all right whales being monitored for injury impact in each issue of RWRN. Reporting will be based on the injured whale reports that are produced in June and December of each year.

Status of Injured Whale Monitoring List

As of June 2015, there are 51 whales being monitored on the Serious Injury/Human Impact Monitoring List (Table 1). Of these, 43.1% exhibited “evidence of declining health coinciding with injury” at their most recent sighting. Whales designated with “inconclusive injury impact” represented 37.3% of the list, while those exhibiting “no decline in condition” and those designated as “extended monitor” each represented 9.8% of the list. The “extended monitor” category was created to capture whales without current health impacts related to injury, but with injuries that have the potential to negatively affect future health condition (i.e., some severe vessel strikes, whales carrying gear, etc).

New Injury Cases

Between December 2014 and September 2015, five right whales with potentially serious injuries were documented: Three whales were sighted with new vessel strike wounds (**Catalog #3999**, the 2015 Calf of #2145, and a currently



Catalog #3999, a six year old female, was sighted on May 6, 2015 in Cape Cod Bay with a severe vessel strike injury across her blowholes and head. She has not been resighted since and her prognosis is unknown. Photo: Center for Coastal Studies, NOAA Permit #932-1905

unidentified whale). Two whales were sighted with new severe entanglement wounds in the absence of attached gear (**Catalog #3670** and a currently unidentified whale). The latter two whales exhibited declines in health coinciding with their injuries.

Whales Removed from Monitoring List

- **Catalog #1019** (Male, Adult): Presumed Dead (i.e., last seen entangled with gear and not resighted for six years; see *When Whales Go Missing* in *RWRN May 2015*)
- **Catalog #1131** (Male, Adult): Severe entanglement with attached gear, seen in very poor condition, likely dead
- **Catalog #1920** (Male, 26 years old): Repeated sightings with no apparent health impacts from entanglement injury

—Heather Pettis

	Entanglement		Vessel Strike	Other	Total
	Gear Present	No Gear Present			
Decline in Condition	9	11	2	0	22
Inconclusive	5	10	4	0	19
No Decline in Condition	0	3	2	0	5
Extended Monitor	1	2	2	0	5
Total	15	26	10	0	51

Table 1. Impact of anthropogenic injury on right whale health by injury type based on assessments of photographs pre- and post-injury for all North Atlantic right whales on the Serious Injury/ Human Impact list as of June 2015.

Piper

In a span of only six months we've learned of the deaths of two of our Sponsorship whales. In our last issue of *RWRN* we reported on Snowball, last sighted lethally entangled (see *Goodbye Snowball* in *RWRN May 2015*). Now we are very sad to report that we have also lost Piper, a Sponsorship whale since 2001. She was found floating off the coast of Gaspé, Quebec, Canada, on June 24. Although her carcass was retrieved and towed ashore for necropsy, no cause of death was determined.

Piper (Catalog #2320) was a reproductive female but her exact



age was not known because she was not seen as a calf. She was first photographed off Florida in 1993, and in the more than two decades since she was seen every year by research teams and had been observed in all five identified right whale habitats. She was named for a unique scar on her left flank that looked like a small airplane (such as the little Piper Cub).

She had survived two entanglements, first in 1994 and again in 2002. The latter was a potentially life-threatening two-year ordeal, with line wrapped over the top of her head and through her mouth. Although disentanglement attempts were made, they were unsuccessful. Luckily the gear eventually came off, but it left deep scarring on her head.

Piper had three calves: a female, **Catalog #3670**, born in 2006, and two males, **Catalog #3993** in 2009 (last seen entangled in 2011) and **Catalog #4320** in 2013. Although **Piper** is now gone, we hope her lineage carries on.

—Marilyn Marx

Sponsored Whale Update

Thank you for sponsoring a right whale! In addition to including newly added sightings for these whales, we're happy to include sighting information from March 2014 to October 2015 for our newest whales: Aphrodite, Gemini and Manta. These sightings are a result of research efforts conducted by the Aquarium's Right Whale Research Team and by our colleagues at the Center for Coastal Studies, Syracuse University, NOAA Fisheries, Sea to Shore Alliance, Florida Fish and Wildlife Research Institute, Canadian Department of Fisheries and Oceans and the Canadian Whale Institute, as well as opportunistic sightings from whale watch companies and other observers, all of whom contribute sightings to the North Atlantic Right Whale Identification Catalog. It is only through the collaborative effort of these organizations and many others along the Eastern Seaboard that these right whale stories can be told.

Calvin (Catalog #2223) and her 2015 calf were seen together several times this summer: On August 19 off Antigonish, Nova Scotia, on September 17 in Roseway Basin and on September 26 in the Bay of Fundy. A recently received sighting of **Calvin** from August 20, 2014, in the Baie de Chaleur, confirmed she stayed in the Gulf of St. Lawrence region for at least four days last year.

Shackleton (Catalog #2440) was seen feeding in Cape Cod Bay in April 2014 and he returned again to Cape Cod Bay this spring; he was observed skim feeding several times throughout April and May.

Gemini (Catalog #1150) was seen feeding in Cape Cod Bay on March 23, 2014. Like Shackleton, he returned to Cape Cod Bay this year and was seen feeding there on March 6 and again on March 25.

Manta (Catalog #1507) was seen several times last year — in March he was seen feeding in Cape Cod Bay; in July, he was a member of a Surface Active Group of at least 32 right whales observed on George's Bank. He then moved into the Bay of Fundy and was seen repeatedly in August and September. This past April, he was again feeding in Cape Cod Bay and was seen often during the month.

Aphrodite (Catalog #1701) also took advantage of Cape Cod Bay's rich zooplankton resources in 2014: She was observed feeding throughout March and April. In August she was seen in the Bay of Fundy, and later in the month in Roseway Basin. This past winter, she was sighted swimming with **Catalog #3232** off Georgia on December 17, but a month

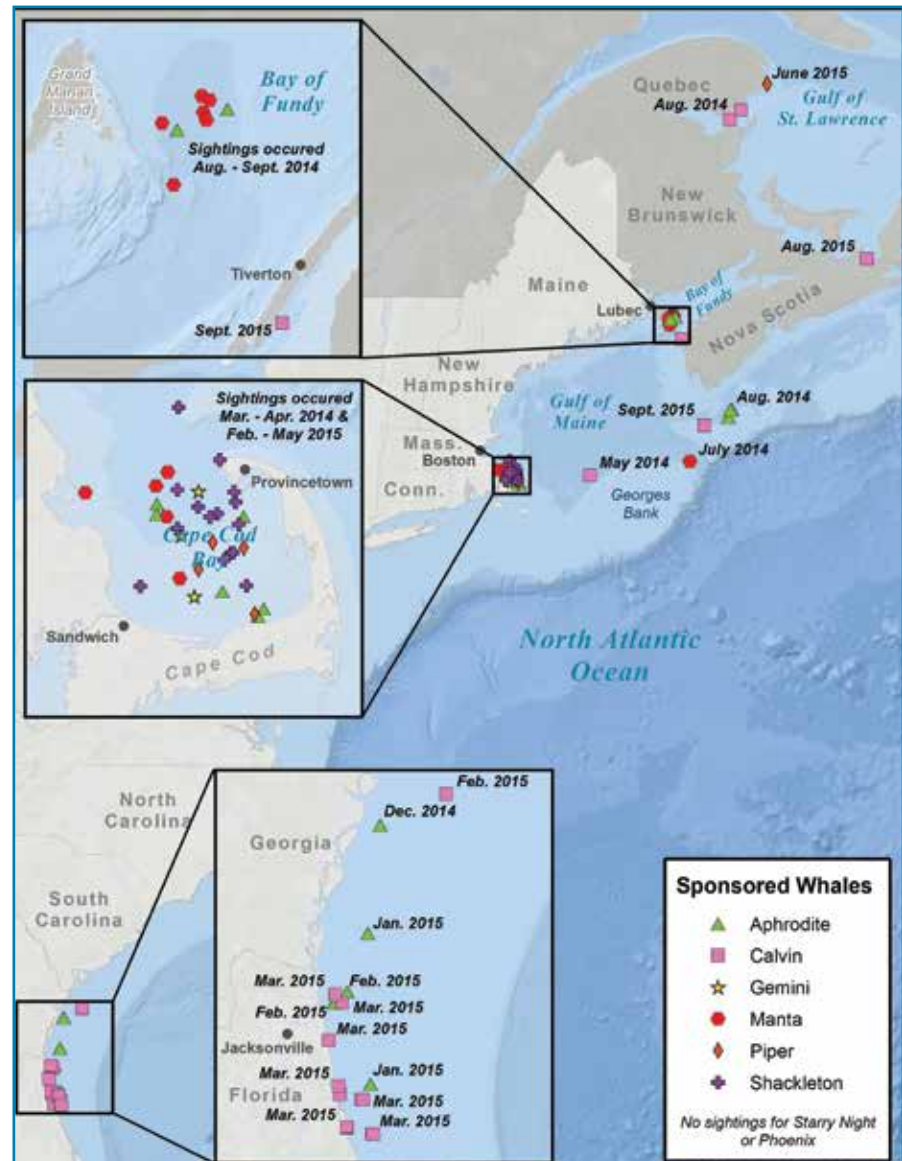
later on January 19, she was discovered off Florida with a calf! **Aphrodite** and her calf were seen in the Southeast a few

more times during January and February before migrating north. Although they weren't seen in the northern habitats, we hope they made it safely.

Unfortunately, we have no new sightings of **Starry Night (Catalog #1028)** or **Phoenix (Catalog #1705)**, however, we are constantly processing data, so if a past sighting is discovered we will include it in our next issue!

Tragically, **Piper (Catalog #2320)** died in the Gulf of St. Lawrence on June 24, 2015 (See *Piper*).

—Marianna Hagbloom



Sponsored whale sightings March 2014 through October 2015. Map: Brooke Wikgren/NEAQ

New Sponsorship Whales!

We are thrilled to offer three new whales for sponsorship! And our sponsorship packages have a fresh, new look, with updated materials, stickers and a coupon for the Aquarium Gift Shop!

Aphrodite (female, born 1987)

Named after the goddess of love because the callosity pattern on her head is sometimes heart-shaped, she is a mother five times over, most recently this year! Two of her calves have had calves of their own, making **Aphrodite** a grandmother. She also has a claim to fame no other right whale can share: Her callosity pattern was used as the model for the drawing of the breaching right whale on the back of our Right Whale Research Program T-shirts!



matching scars on his back, he is one of our oldest whales and has been seen nearly every year.

Gemini has fathered at least three calves in the population, and two of them have gone on to have calves of their own, so he is a grandfather, too!

In addition to these three, you can also sponsor **Shackleton, Calvin** or **Phoenix**. Our friend **Starry Night** has been retired from the program as his

through genetic analysis we know his father was **Delta (Catalog #1333)**. **Manta** is often seen in surface active groups and is a favorite of researchers.

sightings have been few and far between. And sadly, **Snowball** and **Piper** are no longer with us. As new stories about individual right whales unfold, we will share them with you in *RWRN*, so stay tuned!

Gemini (male, first seen 1979)

Named for the sign of the zodiac represented by twins because of the two

Manta (male, born 1985)

Named for his upturned flukes, which resemble a swimming manta ray, he was the second calf of **Shenandoah (Catalog #1266)** and

To learn more about the sponsorship program and the different support levels available, visit us online. www.neaq.org/rwsponsorship

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*, the small format hardcover book *Disappearing Giants*, 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. www.neaq.org/rwsponsorship



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!
www.rightwhaleresearch.bigcartel.com



Aphrodite



New England Aquarium

Central Wharf
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A Mysterious Calf

For a week at the end of August into early September, a lone right whale calf was seen meandering around Cape Cod Bay and in shallow waters near Duxbury and Barnstable. The calf may have recently weaned and could have been exploring new territory away from the watchful eyes of its mom. Unfortunately, at some point in its wanderings it was struck by a vessel—wounds from a propeller and keel were visible on the flank and back at its last sighting. We do not know to which mother this calf belongs. We usually see the mothers and calves together

at that time of year, and we try to obtain better images of their callosity pattern in order to follow them into the future. When calves are first born and documented by our colleagues in the southeast U.S. calving ground, their callosity tissue has not yet erupted, therefore the pattern is not clear until months later. If we can get a biopsy sample of this whale for genetics, we can eventually link it back to its mother and resolve this little mystery.

—Amy Knowlton

New England Right Whale Festival

On Sunday, May 3, the second annual New England Right Whale Festival was hosted by the Aquarium and co-sponsored by the Calvineers, a group of 7th and 8th grade students from the Adams School in Castine, Maine, whose mission is to educate the public about right whales and promote conservation. Fifteen different organizations came to share their knowledge about right whales and engage visitors with fun activities during this free event. More than 1,400 people attended, learned many interesting facts about right whales and had a great time in the process!

*The third
Right Whale Festival
is scheduled for
Sunday, May 1, 2016.
Come join us to celebrate
this amazing species!*

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.

