Bay of Fundy 2010: A Very Odd Year

Amy Knowlton

The Aquarium’s Right Whale Research Program conducted its 31st year of surveys in the Bay of Fundy this past summer. We carried out a total of 17 surveys between August 2 and September 19 on the R/V Nereid, with a second vessel, the R/V Callisto, expanding the survey coverage on five of those days. Unfortunately, poor weather at the end of September prevented any surveys after September 19.

Despite extensive coverage for much of the season, especially in August, the number of right whales we saw was extremely low. Only 106 sightings were collected by the two vessels, considerably fewer than the 863 sightings collected in the Bay by the Aquarium in 2009, and the lowest sightings tally for the entire 31-year period. Preliminary findings show only 35 individuals were identified plus five calves of the year. This is in stark contrast to the 168 individuals seen in the Bay in 2009. Of the 30 non-cow identifications, over two-thirds were adult or juvenile males, which is quite unusual.

We did receive photographed sightings from other collaborators that boosted the tally of individuals in the Bay by around five to eight animals, but no one found a sizable aggregation of right whales.

Also notable this field season was the change in the whales’ behavior. Very few surface active groups were seen, and those we did see usually involved two males engaged in “head pushing” (a behavior in which a whale, typically male, lifts his head out of the water and then forcefully drops it back down; usually associated with “gunshot” vocalizations). Most single animals were seen traveling fast—they
Bay of Fundy 2010: A very odd year
Continued from page 1

would be at the surface for two to three
breaths, dive for around eight to 10 min-
utes and then resurface quite a distance
away. Many of the animals had mud on
their heads, indicating contact with the
bottom, though we don’t know if they
were actively feeding at depth. Most of
the individuals were seen on only one day
during the season, suggesting that they
were not taking up residency, in the Bay
to feed.

But perhaps the most surprising aspect
of the field season was the presence of
sperm whales for the entire two months!
They were first reported by whale watch
boats in early August; our team sighted
them beginning on August 14, and they
remained in the Bay through our last
survey day with opportunistic sightings
as late as mid-October. Although we did-
not always see them, using a hydrophone
we could easily hear their sonar clicks. We
don’t yet know how many unique individ-
uals were seen during the season, but
we estimate at least six were in the Bay.
In the 31 years of our field work in the Bay,
we had only seen sperm whales once
before—a sighting of two individuals on
one day in the early 1990s.

In addition to the sperm whales, the
other atypical species we saw included
pilot whales, white-beaked dolphins and
ocean sunfish, as well as a lot of unusual
jellies. The presence of several squid-eat-
ing species and the lack of right whales
suggest that something had shifted in the
food resource. Oceanographically, the sur-
face water temperature was warmer than
normal, and there is a possibility that
warm water from the continental slope
may have infiltrated the Gulf of Maine
this spring and summer. This pattern
tends to diminish the copepod plankton
resource (on which right whales feed). We
will be conferring with oceanographers
and others to see what changes they have
documented in the currents and the food
resources in the Gulf of Maine, and the
potential impacts on right whales and
other species.

Although there were a handful of
right whale sightings over the course of
the summer—near southern Jeffreys
Ledge (off Gloucester, Mass.), off Mount
Desert Island (in Maine), on Lurcher
Shoal (southwest of Yarmouth, Nova
Scotia) and on Roseway Basin (See
Roseway Basin Expedition…)—the
majority of the population remained
unaccounted for during the summer and
fall of 2010. We hope those whales found
an adequate food resource outside of the
typical feeding areas.

One of the few mother/calf pairs seen in the Bay of Fundy this year, Catalog#2360 and her calf go for a deep dive in late August 2010. Photo: M. Marx/NEAQ

Despite considerable survey effort, fewer right whales were sighted than in past years.
It is with deep sadness that I report the passing of our veteran detection dog, Fargo, in September. Fargo was a member of the right whale research team in the Bay of Fundy for four field seasons, starting in 2003. He started out his career while he was still a puppy, serving as a companion dog to an elderly woman. Thus Fargo loved gray-haired women, and terrified more than a few ladies as he gleefully bounded up to greet them (all 90 pounds of Rottweiler joy). His next job was as a drug detection dog working under his owner, Barbara Davenport (Packleader Training), for the Washington State Department of Corrections. Then his scenting skills were refined by Barbara to detect wildlife scat, including black and grizzly bears in the Canadian Rockies, and later, the Mojave Desert tortoise. Fargo’s amazing scent detection abilities led him to specializing in endangered species.

In August 2003, Fargo arrived in Lubec, Maine, to be trained to detect right whale scat as part of my field study team. Detection dogs had been used for several studies of terrestrial mammals, but never before on an aquatic species. That summer I conducted a pilot study to see if dogs could be trained to find whale scat. My research had shown that scat contains a veritable goldmine of information on right whale reproduction and health that had previously been unobtainable. But scat samples were difficult to find in the waters of the Bay of Fundy, where right whales seasonally gather. Fargo and his colleague, Bob, were the first scent detection dogs trained to work from a boat to locate whale scat at sea. And the pilot study also proved that the dogs far outperformed human observers, finding more than four times as many samples per hour. Over the next four years, Fargo found hundreds of samples that were subsequently analyzed by laboratories all over the U.S. and Canada. (See Using Detector Dogs to Find Right Whale Scat at Sea…RWRN Vol.12(2), December, 2003, and The Scoop on Poop RWRN Vol.14(2) November, 2005.)

Fargo came to be a beloved member of the right whale team in Lubec. Everyone soon found out that his rather intimidating Rottweiler stare was just a cover-up for a fun-loving dog with an obsession for tennis balls (his reward when he found a scat sample). Fargo was the dark, handsome, silent type—rarely uttering a sound—but always watching (and hoping) for a chance at a walk or a game of stick. He was serious about his job, eager to work when asked—a real professional in every way. Nevertheless, Fargo remained a puppy at heart, and closely bonded to his human companions.

Fargo’s assistance helped greatly to advance our understanding of reproduction, stress and factors affecting the health of right whales. His contributions to right whale conservation have been honored by multiple articles in Science, The Boston Globe, National Geographic and National Wildlife, and radio pieces on the BBC and National Public Radio. His work is featured in a new exhibit at the New Bedford Whaling Museum on modern research methods used to study whales. It was both a privilege and a whole lot of fun to work with Fargo. There was great symmetry in partnering with a dog to learn more about a rare whale. Fargo will be greatly missed.
In each newsletter we attempt to provide you with a summary of right whale mortality, entanglement and injury. Below I have summarized the cases that have been documented in the last six months only. It is important to keep in mind that this summary in no way provides you with a complete list of open entanglement cases and only provides the details of cases that have occurred since the last newsletter or changes to previous known entanglements. Only six months… will right whales ever catch a break?

Mortality:
On June 27, 2010, a United States Coast Guard (USCG) vessel found and reported a floating right whale carcass approximately 50 miles off the coast of New Jersey. Photo documentation showed rope around the upper jaw of the whale. With the support and cooperation of many entities the carcass was successfully landed on July 1 at the Delaware Seashore State Park, where a full necropsy was performed by researchers from many organizations and agencies. Among them, researchers from Woods Hole Oceanographic Institution (WHOI), Virginia Aquarium and Science Center (VAQS) and the University of North Carolina at Wilmington (UNCW) were tasked with determining the cause of death. The whale, currently unidentified, was an adult male that died from entanglement.

On July 2, 2010, a USCG vessel found, documented and reported a dead right whale floating approximately 20 miles southeast of Jonesport, Maine. The next morning a team from College of the Atlantic (COA) relocated the carcass, took skin and blubber samples for genetic and histology analyses, and began to tow the small (possible calf or yearling) right whale, hoping to get it to shore so that a necropsy could be performed. There were relatively large propeller cuts on the body, however, histology of the samples taken at sea could not determine if a vessel strike killed the whale or if it occurred after the whale was dead. The carcass was towed by COA until the weather conditions deteriorated so much that, for safety reasons, it had to be released. A search the following day by COA and USCG proved fruitless, as did a search two days later by aircraft. The unidentified whale was later sighted in August on a coastal island of Maine but could not be retrieved. Although the cause of death is not definitive, the evidence points toward a ship strike.

Early on August 13, 2010, we received a report of a dead right whale on a rocky shore in Nova Scotia from a whale watch captain who noticed images of the carcass posted on Facebook. It’s believed that the carcass could have been on the beach for a week or more but was never reported to the proper authorities. Within a few hours, right whale researchers from the Aquarium’s field station in Lubec, Maine, and fisheries officers from Canada’s Department of Fisheries and Oceans (DFO) found a moderately decomposed adult male right whale wedged between rocky outcrops, but because the tide was high and the carcass was floating, they were able to pull it off the rocks and tow it to Gullivers Cove on Digby Neck, N.S., for necropsy. Two days later a necropsy was performed by researchers from the Aquarium and the University of Prince Edward Island. Due to the state of decomposition the whale was unidentifiable, but results from the necropsy show that it is likely that the whale died from injury caused by entanglement. Possible identification from the DNA samples obtained during the necropsy are pending.

Injury:
Last winter (February 15, 2010) a young, injured right whale was documented by Florida Wildlife Conservation Commission. The whale was identified as the 2008 calf of Catalog #1703, but because the images were taken from an aircraft they could only provide limited information, so we were not sure what had caused the injury. Then, in August, the Provincetown Center for Coastal Studies (PCCS) documented this whale...
Entanglement:
On May 13, 2010, the Northeast Fisheries Science Center’s (NEFSC) aerial survey team reported an entangled right whale in Great South Channel, approximately 60 miles off Cape Cod, Mass. The disentanglement team from PCCS responded to find Catalog #2470, an adult male, with tightly bound rope cutting into his left fluke lobe. The team worked using a specially designed knife attached to a 30-foot pole to cut all the entangling lines. This animal has not been seen since its disentanglement but we hope his serious wounds have healed and he has fully recovered.

On September 10, 2010, researchers from Blue Ocean Society reported an entangled right whale on Jeffreys Ledge. The PCCS disentanglement team tried to respond but was forced to turn back due to deteriorating sea conditions. The whale has been identified as Trilogy (Catalog #1503), an adult female. At the time of this printing she has yet to be re-sighted and her current condition is unknown.

On October 20, 2010, researchers from the Whale Center of New England (WCNE) reported an entangled right whale on Jeffreys Ledge. A response from the disentanglement team was not possible due to the amount of daylight remaining. The whale was identified as Catalog #3120, a 9-year-old male and a previous entanglement survivor. Interestingly, he had just been documented by WCNE the day before gear free! At the time of this printing he has yet to be re-sighted and his current condition is unknown.

Entanglement Update: The good news
It is often a struggle to find the silver lining when reporting on such a topic. However, on rare occasions there are events that make you smile and restore your faith in all the hard work and dedication to the conservation efforts that surround these whales. In our last newsletter we updated you on Wart (Catalog #1140). Wart is a reproductive female that has contributed at least six calves to the population and has been entangled since 2008. On May 1, 2010, Wart was sighted by the NEFSC aerial survey team approximately 15 miles east of Cape Cod, Mass. Fortunately, the PCCS disentanglement team was only a two-hour boat ride away from the location so they were able to arrive quickly. Due to Wart’s entanglement configuration and her history with previous disentanglement attempts, the team decided to try a new cutting tool. Delivered through the air via cross-bow, the new four-bladed instrument was successful at cutting Wart’s entanglement on the first try! Wart was seen just days later (May 4) and photo-documentation confirmed that she is gear free.

Right whales continue to struggle from human interactions, especially entanglement. Work remains to be done in both the science and policy realms to understand where and how entanglements are happening and prevent these interactions from occurring. We hope in our next newsletter we’ll have fewer cases to report, and better news all around.

Continued on page 6
consecutive year, the Annual Meeting of the North Atlantic Right Whale Consortium was held at the New Bedford Whaling Museum in New Bedford, Mass. The 2010 meeting, which took place November 3 and 4, represents an important opportunity for researchers, managers, conservationists, industry representatives, students and others interested in issues facing right whales to come together. This year, approximately 215 people attended the annual meeting. This is approximately 65 more attendees than in 2009.

The agenda for the two-day event included 36 oral presentations. Additionally, a presentation and open discussion on right whale permitting was led by two representatives of the National Marine Fisheries Service permitting office.

Presentations covered a wide variety of topics, including population biology and distribution; data management; health and physiology; acoustics; management updates; shipping and entanglement conflict and mitigation; and genetics. Several researchers from the Aquarium’s Right Whale Research Program presented at the meeting. As the Consortium’s Executive Administrator, I presented the Annual Right Whale Report Card, which aims to summarize the status of right whales. In addition to the Consortium Annual Meeting, the report card is also presented to the Scientific Committee of the International Whaling Commission each year. The report card included updates on the status of the population, mortalities and entanglement events and a summary of current management and research efforts (See How Are North Atlantic Right Whales Doing in RWRN Vol.19(1)May 2010). Other presentations by New England Aquarium right whale researchers included The North Atlantic Right Whale Catalog Update and Whale Naming Results by Philip Hamilton, Entanglement Severity Related to Rope Characteristics for North Atlantic Right Whales by Amy Knowlton and Ocean Floor Encounters by Right Whales: Implications for Entanglement Risk from Fishing Gear by Scott Kraus.

In addition to the research, conservation and management goals held by Consortium members, educating the public and engaging youth in our efforts has become a priority. This year, the fourth generation of Calvineers, a group of middle school students from Castine, Maine, attended the meeting. This group of incredibly motivated young people travels throughout the year educating students and various interest groups about the right whale. Undoubtedly their work has inspired a whole new generation of right whale researchers and supporters.

This year marks the end of the tenure of Dr. Moira Brown (Senior Scientist, New England Aquarium) as chair of the North Atlantic Right Whale Consortium. Dr. Brown’s passion and commitment to right whale research and conservation have helped shape the vision and success of the Consortium over the last three years. On behalf of the Consortium Board and membership, I would like to publicly thank her for all that she has done, and will continue to do, for right whales. Succeeding Dr. Brown as chair is Dr. Douglas Nowacek of Duke University.

The importance of the North Atlantic Right Whale Consortium Annual Meeting to the right whale research community cannot be overstated, and once again, this year’s Annual Meeting was a tremendous success. As always, it inspired a renewed sense of excitement and commitment to continue efforts to ensure that the North Atlantic right whale population lives on. We celebrate the Consortium’s collaborative contribution to all of the good work that has been done to save the North Atlantic right whale.
depended entirely on several Delta pilots who volunteered their time and their own private aircraft. Known as the Delta Surveys, the initial flights in February of 1984 discovered 13 right whales, including three mothers with newborn calves. This pioneering group of dedicated scientists and compassionate pilots made one of the most exciting discoveries for this endangered population, making national news. The Delta Surveys continued for several winters and eventually a field team from the Aquarium was brought on location for two months at a time, relying on local volunteer pilots and planes as the efforts expanded.

In the winter of 1994, with support from the Navy, the Army Corps of Engineers (ACOE) and the US Coast Guard, the Aquarium began conducting daily EWS aerial surveys covering the three major shipping channels from Brunswick, Ga., to Jacksonville, Fla. Over time, as more teams became involved, it was possible to expand the survey boundaries beyond the critical habitat to the north and south, and extend the tracklines from 15 nautical miles (nm) offshore to 35 nm. These modified surveys continue to this day. The surveys have changed names, methods, observers and pilots, yet the primary goal—to warn ships about the presence of right whales—and the dedication of the participants has always remained constant.

Most Aquarium right whale researchers have participated in at least one, and usually several, EWS aerial survey seasons, complementing the two-month Bay of Fundy field season. This has given the Aquarium’s team valuable, well-rounded survey skills and a deeper understanding of the species by witnessing the different utilization of habitats. It is a rare opportunity for scientists who study marine mammals that cover such huge distances to work in more than one habitat within their vast migratory range, particularly when those migrations transcend international boundaries.

As a result of these intensive surveys, a variety of important measures have recently been put in place to protect right whales. These measures include a Ship Speed Rule in December 2008, which requires all vessels 65 feet or greater to travel at speeds of 10 knots or less in high-use seasonal right whale habitats. In addition, recommended routes put in place in 2006 reduced the distance of incoming and outgoing vessels for three ports in the calving ground. And to reduce fishery interaction, a rule banning the use of gillnets in the Southeast U.S. was put in place in June 2007. All of these measures were developed by managers within National Marine Fisheries Service with the input of Aquarium scientists as well as other research organizations studying this species.

The New England Aquarium is proud of having pioneered survey efforts in the Southeast U.S. calving grounds, and of the pivotal role we had in the development of the many protective measures now in place. Today, in the same waters where the last U.S. intentional killing of a right whale occurred in 1935, there is now an extensive, collaborative network of scientists, government managers and mariners working together to protect this species.

Mothers give birth to 12- to 14-foot-long, one-ton calves during the winter months. The mother and calf pairs remain along the Southeast U.S. coast for months so the calf can nurse and gain strength for the long migration north in the early spring. Photo: K. Mahoney/NEAq
Undaunted by three weeks of right whale surveys in the Bay of Fundy that had resulted in very few whale sightings, we set sail just after midnight on Wednesday, August 25, from the wharf at Head Harbor, Campobello Island, New Brunswick, aboard the 45-foot fishing vessel *Rominic*, heading to Roseway Basin, south of Nova Scotia. Our departure time was dictated by the tide—the first part of our trip was an overnight steam of 180 nautical miles (about 20 hours at our average of 9 knots), and the outgoing tide would give us a much needed push. The crew of five researchers was full of anticipation to find the mother lode of right whales on Roseway Basin, the second critical habitat for the species in Canadian waters (the other being the Bay of Fundy). Our optimism was fueled by the idea that the right whales might have chosen the offshore habitat this year because of unusually warm waters in the Bay of Fundy (See Bay of Fundy 2010…).

Our plan: Beginning at sunrise we would survey the rest of the way to Roseway Basin to see what whale species might lurk between the two critical habitat areas. All but the captain and one researcher were settled into their bunks, enjoying the rocking, sleep-inducing motion of the sea. Our spirits were high, we were comfortable and our boat was well stocked with pre-cooked meals of research staples such as chili, lasagna, macaroni and cheese, baked goods and a chicken ready to be roasted on a calm night. If the weather held, we had enough food and water for eight days and nights at sea. And there is nothing quite as spectacular as a star-lit night on a calm sea.

Those of us not on the night watch awoke the next morning to thick fog, and pretty soon it was apparent that we had yet to get our sea legs. Our store of food was barely touched on August 26, only the cracker and ginger ale supplies were consumed, along with the occasional banana. Despite the fog, we were able to steam all the way to our starting point on the southeast side of the Roseway Basin Critical Habitat Area. As darkness approached, the fog cleared and we climbed into our bunks to recover from a day of discomfort for many and be ready to survey the next day.

Usually at night we would shut down the engine and drift. While we backed up our data for the day, cleaned our equipment and had dinner, the captain kept watch. But the nights are already growing long in late August so we all shared the night watches to ensure that we didn’t drift close to any other vessels. Even after a long research day, each member of the team would take an hour and a half watch. During the watch it was our responsibility to monitor the radar screen and look out the wheelhouse windows for lights on the horizon. If we came within 3 miles of another vessel, we would alert the captain, who would decide if we needed to take any action.

As you may recall from a previous article (Roseway Basin… in RWRN Vol.18(2) December 2009), right whales feed and socialize on Roseway Basin during the summer and fall. In some years we have seen more than 70 individuals in a single day, while in other years we have seen mostly fog. Ideally, this area would be surveyed every year, as some right whales seen there are not seen elsewhere along the coast. Our primary goal is to follow preset tracklines to survey the entire area and obtain photographs that will be used to identify as many right whales as possible to contribute to the individual life histories in the right whale database. We also collect skin biopsy and fecal samples for ongoing studies on genetics and hormones, respectively. And we collect data on vessels in the area because a recommendatory Area to Be
Avoided (ATBA) for large vessels was implemented by the government of Canada in 2008 to reduce the risk of vessel-whale collision, and we were interested in assessing vessel compliance with the conservation measure. (See The Roseway Area To Be Avoided... in RWRN Vol.16(2), December 2007.)

We awoke on Friday, August 27, to more fog, so we revised our plan and steamed west until the fog lifted and we finally had clear visibility for our surveys. We decided to survey the western side of the habitat over the next two days and then transit back east Sunday night and, with a bit of luck, cover the area now enshrouded in fog. As it turned out, the next two days were good for surveying and we saw a few right whales, but certainly not the mother lode we had hoped for. But we weren't done yet. The plan unfolded, and on Sunday night we steamed back to where we had started earlier in the week.

On Monday, August 30, the morning dawned clear and bright for us to resume our survey of the eastern side of the ATBA. By the end of the first trackline, we had found the concentration of whales! It was one of those odd right whale sightings where we were actually heading over to pick up a large bouquet of balloons from someone's wedding that had escaped to sea and up popped a right whale right beside the boat. We spent the next 10 hours taking data and photographing the individuals in the immediate area. By sunset we had photographed over 30 whales and completed our tracklines on the eastern side of the critical habitat.

We were hopeful of repeating some of our survey area on Tuesday morning to try and get as many right whale identifications as possible, but the weather changed our plans. By 9 a.m. on Tuesday morning (August 31), with waves building and wind increasing, and news of an approaching hurricane before the end of the week, we decided it was time to steam home. We always like to survey the area between Roseway Basin and the Bay of Fundy during our return trips, but more often than not we do that transit at night or in the fog, so it’s usually not possible. However, this time our trip home proved to be an unexpected surprise. The weather improved as we traveled west and, about 20 miles off Yarmouth, Nova Scotia, we came across a very active group of right whales southwest of Lurcher Shoal. In this group we had the only mother/calf pair of the trip (Aphrodite, Catalog #1701, and her 2010 calf, who gave us a curious approach), as well as a surface active group of 15 whales—the largest we’d seen during our survey! We also observed several of the whales subsurface feeding, and we were able to collect a zooplankton sample to confirm what the whales were feeding on in this area.

Over the seven days of surveying, we documented over 30 individual whales within the ATBA, and confirmed that the concentration of right whales was in the middle section of the critical habitat (see map). The many years of Roseway Basin surveys have enabled us to provide the data and justification to support measures like the ATBA, to reduce the risk of vessel strikes on right whales, and the designation of Roseway Basin as a critical habitat.

Are You My Mother?

Philip Hamilton

I recently co-authored the paper “Reciprocal Exchange and Subsequent Adoption of Calves by Two North Atlantic Right Whales (Eubalaena glacialis),” which appeared in the scientific journal Aquatic Mammals (Issue 36(2):115-120). In it, my co-author and I described how, by using a combination of detailed photographic and genetic evidence, we were able to determine that two right whale calves somehow got switched on the calving ground and spent the year being raised by the other whale’s mother. This was a big surprise, and something that right whales should have evolved to avoid. A female right whale loses up to a third of her body weight (15 to 25 tons!) nursing a calf, so it does not benefit her to do this with a calf that shares none of her genes. With this in mind, we checked to see if the mothers were related, as it might make sense for relatives to help raise each other’s young, but this was not the case. So how did this happen? Our best guess is that the two mothers, Stumpy (Catalog #1004) and Mavynne (Catalog #1151), gave birth near each other off the coast of Florida in December 1986 and that the calves somehow got mixed up. We checked the weather records for that month and there was an intense storm in the heart of the calving ground in mid-December, with winds over 50 knots for more than 12 hours. That would have caused an extremely rough sea state, which would have led to poor visual and acoustic conditions—a setup for calves to get separated from their mothers.

But when the mothers found a calf after the separation, why didn’t they recognize it as the wrong calf? We believe right whales recognize each other primarily acoustically rather than visually, suggesting that the mix-up happened before each cow and calf were able to distinguish each other’s voices. How long should this process take? It’s a good question, and the answer for other animals generally depends on the density of animals in their birthing area. Animals that are born into dense colonies, like many sea birds, penguins and some pinnipeds, learn to recognize their offspring very quickly. I’ve been to a beach where both penguins and seals were born, and the noise was deafening—remarkable that offspring can stay with their parents amidst the confusion and noise. Little is known about how quickly whale recognition is established, but it may well take days as opposed to hours.

The only published data on the matter for cetaceans comes from bottlenose dolphin calves that imprint on their mothers’ signature whistles within the first week of life.

This mix-up only happened once in the nearly 200 mother/calf pairs for which complete genetic samples were analyzed for this paper. It is only because of very detailed data from both the photo-identification catalog and the genetics database that such an interesting event could be detected. There are likely many more mysteries to be uncovered through this powerful collaboration.
Sponsored Whale Update

By Marianna Hagbloom

After two months of field work in the Bay of Fundy, the Aquarium’s right whale team is back in the office to focus on identifying the right whales photographed by our group and by our contributors. Our photo analysis work has paid off, and since our last newsletter in May (See Sponsored Whale Update in RWRN Vol.19(1) May 2010), we have updates on all six of our sponsored whales: Starry Night, Phoenix, Piper, Calvin, Shackleton and Snowball. Check out our map detailing all the sightings of the whales since last October to see where your whale has been photographed!

Every sighting of a right whale in the Bay of Fundy this year was exciting since overall numbers were very low compared to previous years (See Bay of Fundy 2010…). We were especially pleased to see Starry Night (Catalog #1028) on September 18, since it had been nearly two years since he was last sighted, in October 2008 (also in the Bay of Fundy). Both of the Aquarium’s research vessels saw him on the 18th, but the crew aboard the Nereid was actually able to hear him. Upon surfacing, Starry Night was heard “mooing,” sounding very much like a cow! It’s unclear why right whales moo, but it’s certainly thrilling to hear them make a noise that is produced above the water and audible to the “naked” human ear (rather than via a hydrophone). Starry Night was swimming quickly and may have been travelling to some other right whales seen in the area. Hopefully we won’t have to wait another two years to see (or hear) him again!

In our spring newsletter, we reported that Phoenix (Catalog #1705) had last been seen swimming alone in Great South Channel in March. Not having strayed too far, she was sighted by the Provincetown Center for Coastal Studies (PCCS) in Cape Cod Bay on April 13. She was skim feeding, so perhaps she was gearing up for a long trip, because she hasn’t been seen since. However, Phoenix is due to calve this winter (if she’s on the typical three-year calving cycle), so we hope she is seen on the calving ground in the Southeast U.S. with her fourth calf!

Piper (Catalog #2320) was photographed only once this year, on April 20 by the Northeast Fisheries Science Center (NEFSC), but her sighting was a very interesting one. She was in a huge aggregation of 95 right whales found feeding in a very unusual location, between Block Island and Martha’s Vineyard. We didn’t see Piper in the Bay of Fundy this year, but we weren’t surprised; it appears that she has been spending the past few summers in an area that has yet to be discovered by researchers. It’s these kinds of mysteries that keep scientists coming back for more!

We were disappointed that we also didn’t see Calvin (Catalog #2223) in the Bay of Fundy this year, as we did in 2009, but she was seen often in March and April in Cape Cod Bay. On April 13, PCCS spotted her skim feeding and looking healthy. Calvin’s 2009 calf (no Catalog number yet) also appears to be doing well, as it was seen skim feeding in Great South Channel on May 5 of this year by NEFSC. A small skin sample was obtained from the yearling so that we can determine its sex and have a genetic record of the whale.

As reported in our last issue, adult male Shackleton (Catalog #2440) made an appearance off the coast of Florida in February. He must have worked up an appetite because when he was sighted by
I’m a terrible artist. Terrible. My stick figures aren’t stick-like at all and neither my 3-year-old nor my 6-year old can ever guess what my Pictionary clues are trying to show. I have tried, mind you, to tap into potentially hidden talents; clay, pottery, watercolor, jewelry and even Disney princess coloring books. I have had no luck on any front; it’s just not there.

Given my inability to put colorful pens to paper, it’s a good thing I chose a career in science. After all, helping to save the endangered North Atlantic right whale requires skills in research, analytical techniques and grant and paper writing. Artistic prowess isn’t a useful skill in this endeavor, right?

Wrong. Recently I have learned that art, too, is helping to save right whales.

The Endangered Species Print Project (ESPP) is a wonderful enterprise born out of the combined love of art and nature by artists Jenny Kendler and Molly Shafer. After meeting in graduate school, Jenny and Molly decided that they wanted to use their artistic talents to support global conservation efforts. Their project uses drawings, created by Jenny and Molly as well as guest artists, to directly and positively impact the natural world.

The idea behind the project is simple: Jenny and Molly select an endangered species-focused conservation project and then a work of art representing the selected species is created. The resulting limited-edition art prints are sold, and 100% of the profits go to the project to support research and conservation efforts. Their project uses drawings, created by Jenny and Molly as well as guest artists, to directly and positively impact the natural world.

The North Atlantic right whale limited-edition print created by artist John Vilhauer (top) will go to the North Atlantic Right Whale Consortium.

Be sure to check out our next issue of Right Whale Research News to get the scoop on the whereabouts of Snowball and our other sponsored whales! The Right Whale Research Team would like to extend a hearty thank you to all the individuals and organizations that support our mission by sponsoring a right whale. Our conservation efforts are successful because of generous contributions from folks like you who care about protecting this critically endangered species!

Right Whale Research News

Art and Science: Working Hand in Hand to Save the North Atlantic Right Whale

Heather Pettis

Starry Night dives and lifts his distinctively scarred fluke in the Bay of Fundy, 2010.

Photo: Z. Swaim/NEAq

Molly Shafer (left) and Jenny Kendler stand in front of a few of their Endangered Species Prints. Proceeds from the sale of the prints goes to support research and conservation efforts. The proceeds from the North Atlantic right whale limited-edition print created by artist John Vilhauer (top) will go to the North Atlantic Right Whale Consortium.

Photo: M. Czerepak

Snowball's last sighting was in March 2010 off the coast of Georgia, which we described in our last newsletter. But, just as with Shackleton, we recently confirmed a January 14 sighting from NEFSC, in which he was also swimming alone on Jordan Basin. Jordan Basin is the recently discovered potential right whale mating ground (See Right Whale Sightings in Unusual Places. RWRN Vol.18(1) May, 2009), so perhaps both Snowball and Shackleton were there for a good reason!

The North Atlantic right whale limited-edition print was created by artist John Vilhauer and is available at www.endangeredspecieprintproject.com. All proceeds from the sales of these special prints will help the North Atlantic Right Whale Consortium (See Consortium article, page 5) in its efforts to ensure the survival of this endangered species.

Thanks to Jenny and Molly’s efforts, it looks as though right whales, and those who work on their behalf, have garnered yet another ally in their fight for existence. It also looks like I may need to reconsider some art classes on the side.
In November and December 2010, right whale researchers from the New England Aquarium and the Canadian Whale Institute (CWI) in New Brunswick, Canada, are mounting four one-day vessel surveys southwest of Jordan Basin in the central Gulf of Maine to assess if this area is a mating ground for the critically endangered North Atlantic right whale. The funds for this survey effort are being provided by the Canadian Wildlife Federation (through CWI) and the Marine Mammal Commission (through the Aquarium). The surveys will originate out of Bar Harbor, Maine, and we will be chartering the M/V Friendship V, a 112-foot-long catamaran used in the spring, summer and fall by the Bar Harbor Whale Watch Company. The plan is to look for four reasonably calm days between mid-November and early January, and leave Bar Harbor during the night to be on Jordan Basin by sunrise, since we will only have about nine hours of daylight at that time of year. We will get some help finding the general right whale location from ongoing aerial surveys by the Northeast Fisheries Science Center (NEFSC, see map below). The vessel will return to Bar Harbor the same evening, and we will try to space the survey days out over two months.

The seasonal aggregation of right whales near Jordan Basin was first identified in 2004 by a group of government scientists from NEFSC during aerial surveys of the Gulf of Maine. Right whales have been seen consistently in this area in November, December and sometimes into January since 2004 (See Right Whale Sightings in Unusual Places in RWRN Vol.18(1) May, 2009). Although photographs from the airplane can be used to identify individual right whales, the vessel-based photographs hold a goldmine of information not accessible in aerial images. With shipboard images, not only will we get individual identification and life history information, but we will also be able to analyze scars from fishing gear entanglements and body and skin condition for visual assessment of health. This data will be invaluable, especially coming from a wintering/mating ground. In addition to the shipboard photographs, two other types of samples are not obtainable from an airplane: skin biopsies (to contribute new data for the ongoing genetics research and to establish the relationship of the whales sampled and parentage of past and future calves), and fecal samples (for studies on reproductive hormones).

Data from this study will be available to managers and policy makers to develop area-specific protective measures such as those implemented in other known right whale habitat areas. Be sure to look for an article about our Jordan Basin expeditions in the next issue of RWRN!
NEW ENGLAND AQUARIUM

Right Whale RESEARCH NEWS

Sponsorship Application

or use our secure form at www.neaq.org/rwsponsor

Ο YES, I would like to sponsor a right whale:
Ο Calvin  Ο Phoenix  Ο Piper  Ο Shackleton  Ο Snowball  Ο Starry Night

Enclosed is my sponsorship of:
Ο $45
Ο $75 (Ο North Atlantic right whale plush toy or Ο T-shirt *)
Ο $125 *
Ο $250 *

* Please circle T-shirt size: S, M, L, XL

(Please print) Recipient’s name, as it should appear on sponsorship certificate

Ο YES, I would like to make an additional tax-deductible contribution to support the Right Whale Research Program.

Amount enclosed: ________________________________

(Please print)

Your name
Address
City  State  Zip
Telephone
Email

Is this a gift? Ο yes Ο no
If yes, please complete the following:
(Please print)

Recipient’s name
Address
City  State  Zip
Telephone
Email

Sponsorship Level

<table>
<thead>
<tr>
<th>$45</th>
<th>$75</th>
<th>$125</th>
<th>$250</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Benefits

- Right whale information packet: photo certificate, information sheet and map of sightings
- One year subscription to Right Whale Research News (biannual newsletter)
- Disappearing Giants book
- North Atlantic right whale plush toy or T-shirt*
- North Atlantic right whale plush toy and T-shirt*
- North Atlantic right whale plush toy, T-shirt* and signed copy of the The Urban Whale

* T-shirt is available in small, medium, large and x-large

Disappearing Giants by Scott Kraus and Kenneth Mallory, hardcover, 48 pages
The Urban Whale edited by Scott Kraus and Roz Rolland, hardcover, 543 pages

Please mail sponsorship packet to:
Ο Me  Ο Please check this box if you would prefer the newsletter to be sent to recipient by email instead of by regular mail.
Ο Gift recipient

(Please print)

Email

Payment Information:

Amount enclosed: ____________________________________________________________

Please make checks payable to the New England Aquarium.

Or, please charge to:
Ο MasterCard  Ο Visa  Ο American Express  Ο Discover

Account number

Expiration date

Name on credit card

Signature

To make a contribution by phone, please call 617-973-6582.

Please mail completed form to:
Right Whale Research Program
New England Aquarium
Central Wharf
Boston, MA 02110

Thank you for your generous support of our Right Whale Research Program.
Whales You Can Sponsor

Who’s Who?

Calvin (female born in 1992)

Calvin was orphaned at the very early age of 8 months. She went on to survive an entanglement and, on December 30, 2004, she was sighted with her first calf. She was named (before her sex was known) for the spunky little character in the Calvin and Hobbes comic strip because she exhibited similar traits to the youngster: cleverness, perseverance and adaptability.

Shackleton (male born in 1994)

Named after the intrepid Antarctic explorer, Shackleton the whale caused quite a commotion when he ventured up the Delaware River to Camden, NJ. During this adventure he was struck by a tug boat, but he survived his ordeal and is now seen regularly.

Phoenix (female born in 1987)

Phoenix is a mother and grandmother. In 1997 she was entangled in fishing gear but managed to escape. She was named for the mythical bird that burned but rose from the ashes. Phoenix has survived a serious entanglement and “returned” from almost certain doom with only a distinctive lip scar to show for her two-year ordeal. A life-size model of her now hangs at the Smithsonian Institution in Washington DC.

Snowball (an adult male)

Snowball got his name from a unique scar above his left lip that resembles a big white snowball. We do not know what caused this scar, but it does make him easy to identify, even from a distance. Snowball has been seen in habitats where only a few right whales are documented yearly, such as Jeffrey’s Ledge off the coast of New Hampshire and in the waters off Long Island.

Piper (an adult female)

Piper was first seen in 1993 and at the time was already at least two years old. She was named for a scar on her flank that looks like a small airplane, such as the Piper Cub. She had been entangled twice in a 12-year period, but was seen in April 2005 free of gear. She was sighted with her first calf in January 2006.

Starry Night (an adult male)

The many white scars and dots on this whale’s black body reminded researchers of the night sky, so they named him Starry Night. He is frequently seen in courtship groups and, with the development of new genetic techniques, we may soon know which calves he has fathered.
**Gift Ideas**

Are you looking for a special gift for someone? Here are a few fun and interesting suggestions from our right whale collection. Plus with every purchase you’ll be helping to support right whale research!

---

**Plush right whale**

There are many stuffed animals on the market, but this is the only one that looks like a right whale! This little whale is cute, soft and accurate too, with wool callosities, corduroy baleen and paddle-shaped flippers. 15 inches long. $20.

---

**T-shirt**


---

**Books**

*Disappearing Giants* by Scott Kraus and Ken Mallory

This is a small format, hardcover book that tells the story of the North Atlantic right whale and the decades of efforts by scientists, managers and citizens to ensure this species’ survival. It is filled with interesting facts and lots of color photos. 48 pages. $10.

---

*To order the plush right whale, T-shirt or Disappearing Giants, use the handy order form on this page.*

---

*The Urban Whale: North Atlantic Right Whales at the Crossroads* Edited by Scott D. Kraus and Rosalind M. Rolland

First published in 2007, *The Urban Whale* is now available in paperback! It covers nearly everything we know about North Atlantic right whales in a clear and accessible style and includes many photos and illustrations. Major contributions to *The Urban Whale* came from the right whale research staff at the New England Aquarium. Each chapter starts with a personal story about a whale, a researcher or an encounter between them. It is the belief of the editors that right whales have many lessons to teach us, both about their lives and about their home in the oceans. 576 pages. $19.95 (paperback)

This book is available through Amazon (www.amazon.com) or by ordering directly from the publisher: www.hup.harvard.edu/catalog/KRAURB.html

---

**Right Whale Sponsorship**

Share the compelling story of a right whale with a friend! By learning about the life of an individual right whale, a sponsor will gain a more in-depth understanding of the struggles and successes these endangered whales experience. Sponsors will receive a Sponsorship Certificate with a picture of their chosen whale, the book *Disappearing Giants*, written by Scott Kraus and Ken Mallory of the New England Aquarium, and a colorful and informative four-page pamphlet that includes the life story, composite drawing and map of sightings of the specific sponsored whale. It also includes links to our website and others that allow you to keep track of right whales at all times.

For more information see the insert in this newsletter or visit the following link: http://www.neaq.org/get_involved/animal_sponsorship/right_whale_sponsorship.php (or go to the www.neaq.org homepage and click on Get Involved and Sponsor an Animal to find the right whale sponsorship page).

---

**Order form**

<table>
<thead>
<tr>
<th>Please send me</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plush Right Whale(s) $20 ea. = $___</td>
</tr>
<tr>
<td>Disappearing Giants book(s) $10 ea. = $___</td>
</tr>
<tr>
<td>Right Whale T-shirt(s) $20 ea. = $___</td>
</tr>
</tbody>
</table>

T-shirt size: OS OM OL OXL  
Total $ ______

(Please print)

---

Your name

---

Address

---

City State Zip

---

Telephone

---

Email

---

Payment Information

Amount enclosed: __________

Please make checks payable to the New England Aquarium.

Or, please charge to:  
☒ MasterCard ☑ Visa ☐ American Express ☐ Discover

---

Account number

---

Expiration date

---

Name on credit card

---

Signature

---

Please mail completed form to  
Right Whale Research Program  
New England Aquarium  
Central Wharf  
Boston, MA 02110

Or please fax completed form to 617-973-0242

Thanks again for your continued support!

Each dollar spent through your purchase will go directly to the Right Whale Research Team, helping us to continue our mission to protect this critically endangered species.
Thank you!

As we write this newsletter, we are reminded how very grateful we are to all of 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 to our work than ever before. With your generous contributions we are able to continue our research to help ensure the recovery of the North Atlantic right whale population. We truly appreciate all of your efforts and commit to use these funds directly for the conservation of right whales. Thank you so much for your support!

This year your generous donations were used for:

- Camera repair
- Computer supplies
- Shipping costs
- Travel expenses to and from the field stations
- Travel to the Green Marine Conference in Montreal, Canada
- Travel to the Right Whale Consortium Meeting in New Bedford, Massachusetts
- Monthly fees for an offsite web-based file storage site for secure transmission of data files from field teams to the main office
- Monthly fees to cover usage charges for a satellite phone used during our field efforts

Catalog #3320 and her calf swim together off Florida, February 2009. Photo: Z. Swaim/NEAq