



New England
Aquarium

Protecting the blue planet

Right Whale

RESEARCH NEWS

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In this issue:

Bay of Fundy 2012:

More Questions than Answers

Unusual Species in the Bay of Fundy

A New Mom (and News from the
Gulf of St. Lawrence)

Right Whale Population Status

Wind Energy Surveys

Sponsored Whale Update

Mortality, Injury and Entanglement

Outreach Efforts

Permit Numbers

Editor

Marilyn Marx

Contributors

Moira Brown

Marianna Hagbloom

Philip Hamilton

Amy Knowlton

Katherine McClellan

Jessica Taylor

Monica Zani

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.



Bay of Fundy 2012: More Questions than Answers

Moira Brown

The Aquarium's right whale research team relocated to Lubec, Maine, in late July for our annual Bay of Fundy field season. This marked our 33rd year of conducting right whale monitoring surveys and research in the Bay. Our research was supported by two longtime partners: Irving Oil (Saint John, New Brunswick) and the Island Foundation (Marion, Mass). Every day that the weather permitted (clear and less than 15 knots of wind), we headed into the Grand Manan Basin right whale critical habitat in the lower Bay of Fundy. The days at sea, especially in August, were long—depart at sunrise, a two-hour commute to the right whale area, survey all day and try to return to shore by sunset.

We departed on our first survey day on August 4 full of optimism, but the 20 surveys between early August and October 3 yielded only about 45 right whales and just one of the seven known mother-calf pairs for the year (**Catalog #3390**). The number of right whales seen in 2012 was more typical of the 1980s, when we averaged 43 right whales per year, and a long way from 1997, the year we saw a record-breaking 215 individual right whales during the season.

The behavior of the whales this season gave us the impression that there was little food to hold them in the Bay. We typically would see a few whales one day, and then none the next survey day and

Continued on page 2



A 1-year-old right whale, the 2011 Calf of Catalog #1243 breaches in the Bay of Fundy in August.

Photo: Marianna Hagbloom/NEAQ

Continued from page 1

Bay of Fundy 2012

then a small influx again. In addition, the right whales we encountered appeared to be traveling and searching for food rather than targeting a zooplankton patch at depth. So where was all the zooplankton? Water temperatures in the Bay were quite a bit warmer this year—58° F to 59° F compared to the more usual 46° F to 52° F. And a recent study discovered dramatic reductions in phytoplankton in the Gulf of Maine in recent years. (Phytoplankton, or plant plankton, is the very base of the food chain and is dinner for the copepods that right whales feed on.)

So with warmer water and reduced volume of phytoplankton, it's possible that there have been some shifts in the food resource for right whales—perhaps the copepods are available in a different location than usual, or at a slightly different time of year.

Are right whales responding to these or other environmental variations and changing their distribution? This summer there were a few sightings along the U.S. East Coast and in the Gulf of St. Lawrence (See *A New Mom...*), and we received reports from fishermen of right whales on Roseway Basin (the second critical habitat area for right whales in Canadian waters), but it was too late in the season to mount a survey offshore. Perhaps this unusual distribution pattern may be demonstrating the right whales' ability to adapt to what will probably be an increasingly changing environment. Our challenge is to locate the areas outside of the Bay of Fundy where they may be aggregating in the summer months. We are already making plans to expand the range of our surveys in Canadian waters in 2013 to cover Roseway Basin and other areas where right whales have aggregated in the past.

Visit our field season blog for more details and stories from the field season.
rightwhales.neaq.org



Unusual Species in the Bay of Fundy

Moira Brown

Over the past few years we have been treated to some unusual whale sightings in the Bay of Fundy. In 2010 several sperm whales were seen in the Bay (for only the second time in 31 years; see *Bay of Fundy...in RWRN Dec. 2010*) and they showed up again in 2011 and 2012, as did pilot whales and white-beaked dolphins. And this year, on August 19, we got quite a surprise when a whale that surfaced near our boat turned out to be another novel species for the Bay in our records: a bowhead whale! Based on entanglement scars on the peduncle we were able to confirm that it is the same individual seen by the Provincetown Center for Coastal Studies aerial survey team in March 2012! Bowheads are typically found only in the Arctic, so there has been much speculation as to whether this one is from the Eastern Arctic population, or whether it could have traversed the Northwest Passage and be from the Western Arctic. At this point we don't know anything about its origin except that it's a long way from home.

On October 3 we were treated to another surprise visit, an orca (killer whale)! There have been a number of



Acrobatic white-beaked dolphins visited the Bay in August.

Photo: Amy Knowlton/NEAQ

sightings over the last several years of a lone male around Nova Scotia, easily identified by scars on its tall dorsal fin. This orca turns out to be the same one we saw during a survey of Roseway Basin in 2010. This leaves us wondering: Do these additional species mean that the Bay of Fundy ecosystem is changing, or are these sightings merely the wanderings of a few individuals outside of their typical range?



Bowhead whales (left) are larger, Arctic relatives of right whales (right). Their heads are more strongly arched and they lack the distinctive callosities of right whales.

Bowhead photo: Meagan Moeyaert/NEAQ; Right whale photo: NEAQ

A New Mom (and News from the Gulf of St. Lawrence)

Philip Hamilton

On May 19, 2012, a team of researchers from the Northeast Fisheries Science Center (NEFSC) photographed a right whale mother and calf during a research cruise along the northern edge of Georges Bank. The team sent a photograph of the mother to the Aquarium, and after a thorough review of the images in our archive, we discovered that she matched a whale that had not yet been cataloged. (It often takes several sightings of a whale to obtain enough photographic information to add it to the Catalog.) Combining photos from her first two sightings in 2009, a sighting in 2011 and this sighting in 2012, we were able to catalog her as **#3995**. It is very rare to first add a whale to the Catalog when she is a mother. It means she was seen only a few times, if at all, during the 10 (on average) years it takes for a whale to grow to maturity. The last two whales that were first cataloged as mothers occurred in

2002 and 1996. These whales must use habitats that are not being surveyed.

Given the scarcity of previous sightings of this whale, we weren't surprised when we didn't see her and her calf in the Bay of Fundy later in the summer. There were several right whale sightings in the Gulf of St. Lawrence (GSL) this year, so when we were alerted to a photograph posted on Facebook of three right whales, including a calf, in GSL, we thought it might be them. Unfortunately, we could not identify either of the adult whales in the posted image because of the image quality, and we were never able to track down additional photos. Who knows? Maybe this new mom frequents the largely unsurveyed waters of the GSL and that was her calf in the photo. We know that some mothers are regulars in the GSL, and a number of other whales have gone there over the years (See *North Atlantic...Quebec* in *RWRN*

Dec 2006). This year right whales were sighted in the GSL on at least seven different days in August including **Diablo (Catalog #3139)**, who was first seen there as a calf in 2001 and who has returned repeatedly, and **Catalog #2681**, a 16 year-old male who was last photographed in the GSL in 2002. Interestingly, **Catalog #2681** was seen there on August 4 this year and then 28 days later in the Bay of Fundy. This type of movement supports our belief that right whales were not settling down in one place for the summer to feed this year, but instead were on the move.

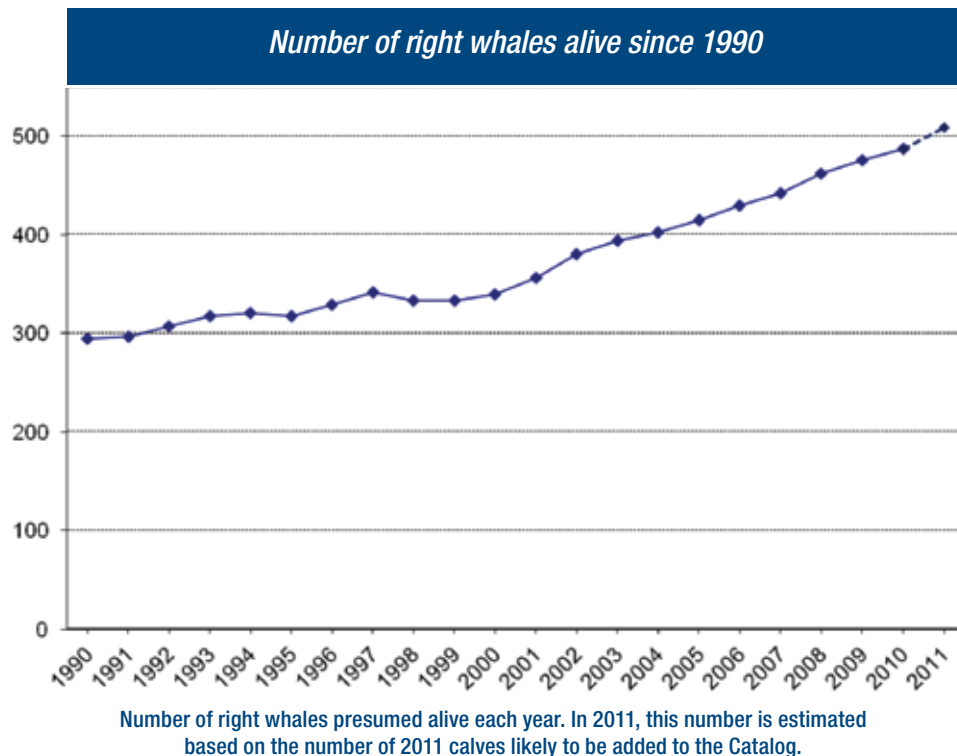


Catalog #3995 with her playful calf in May. The calf rests its chin on its mother's back (above) and both mother and calf lift their heads (inset). Photo: Jennifer Gatzke/NEFSC, NOAA Permit #775-1875 187

Right Whale Population Status

Amy Knowlton

Once a year we include a graph in our newsletter that shows the number of right whales presumed alive in each year since 1990 (to be presumed alive, an animal had to be seen alive sometime within the five years prior to or in the given year). As the graph shows, the population grew only slowly through the 1990's and then more dramatically through the 2000s to 2011. This year, 2012, the population experienced one of the lower calf counts recorded over the past 30 years (seven born, at least one dead) and endured several significant entanglements, including one documented entanglement mortality. So the increase witnessed over the past 11 years may not persist in 2012, but we will not have a firm number until all the data are fully processed. Despite the gains this population has seen, it seems entanglement remains one of their most serious threats. We will continue our efforts to investigate and report on entanglement impacts and explore all possible solutions to this persistent problem that right whales continue to endure.



Wind Energy Surveys

Jessica Taylor

The first year of large whale and turtle aerial surveys funded by Massachusetts Clean Energy Center has been successfully completed in an area proposed for wind energy development off the coast of Massachusetts. Due to the unique goals of this study, some survey methods reliably used through decades of successful aerial projects were tweaked and modified to address changing survey questions. In the process new techniques were developed that we hope may pave the path for improved aerial data collection in the future.

While we work to analyze all the data we collected, we look back at a



Monica Zani and Jessica Taylor look for whales during an aerial survey. Photo: NEAQ

productive year. During the 140 plus hours of flight time (two surveys per month), we collected around 144,000 images in our vertical photography, with an average of 7,000 images processed per flight! In aerial survey planes that don't have bubble windows, the observers cannot see directly under the plane, so our plane has a camera mounted over glass in the belly that is set to take continuous vertical images along the track line. It is a painstaking task to

review these images, but when they are combined with each observer's visual sightings we get a more comprehensive assessment of the area surveyed. The grueling process of sifting through hundreds of frames of water, whitecaps, glare and more water was undertaken by our observers, whose diligent attention was rewarded by the occasional photo of a shark, dolphin or turtle.

Over the next few months we will compile our data from vertical photography and observer sightings. The University of Rhode Island will begin sightings-per-unit-effort analyses, density and abundance estimates and will look for spatial and temporal patterns of various species detected. We very much look forward to sharing our discoveries with you once we have finished our analyses. Stay tuned for updates and news of future, similar work.

Sponsored Whale Update

Marianna Hagbloom

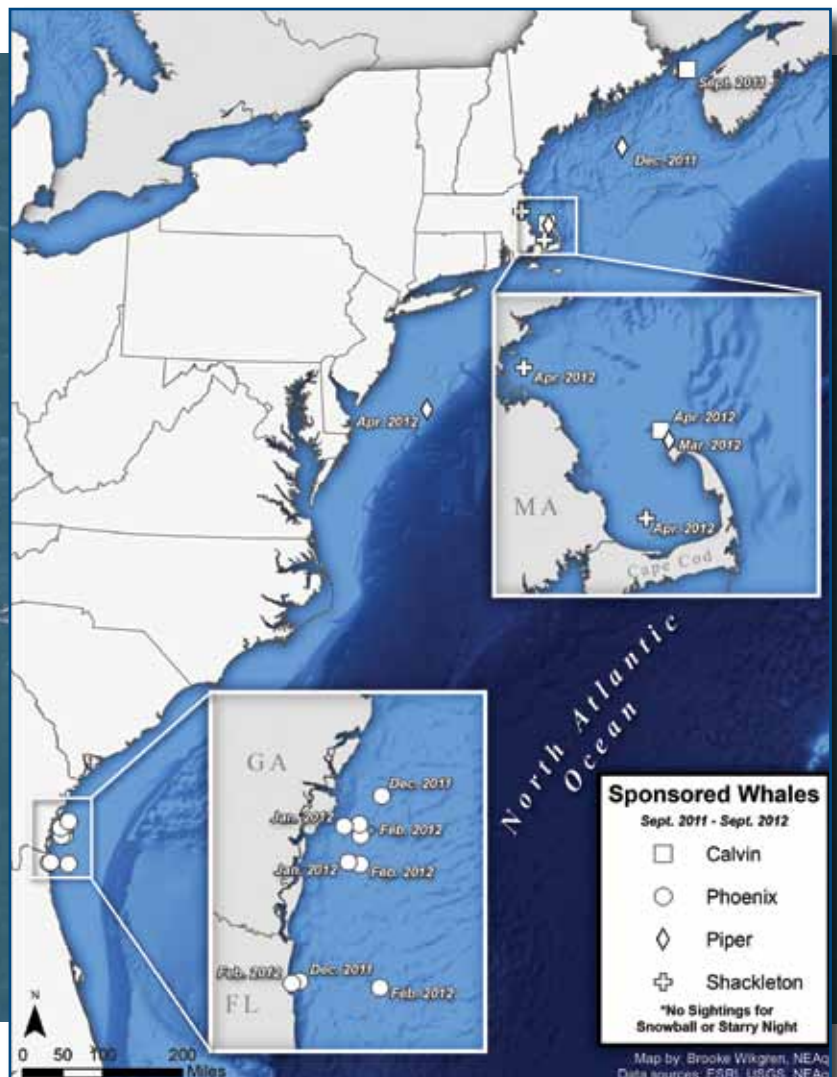
The field season in the Bay of Fundy was a quiet one for right whale sightings, and unfortunately we didn't see any of our sponsored whales in the Bay this summer. We were hoping that we would see **Phoenix (Catalog #1705)** and her new calf, since she brought her last calf (born in 2007) to the Bay. But she, like most of the other mothers of the year, must have spent the months in a more ideal habitat. However, we do have sighting updates for two of our sponsored whales:

- **Piper (Catalog #2320)** was seen on April 13 by the Southeast Fisheries Science Center off the coast of New Jersey. Although it has been three years

since **Piper** had her last calf, she was not seen with a calf this year. We hope she will calve in 2013.

- **Shackleton (Catalog #2440)** was spotted by the New England Aquarium Whale Watch on April 7, while they were in transit to Stellwagen Bank to observe humpback whales. **Shackleton** was skim feeding near another right whale. Knowing that it's illegal to approach within 500 yards of a right whale in U.S. waters, the vessel was only able to get a few confirming photos as they slowly and carefully moved away from him. But from that brief glimpse he appeared to be in good condition.

We wish we had more sightings to report, but please check out the map below for all the sponsored whale sightings within the past 12 months. And thank you for sponsoring a right whale to support our research!



Distinctively scarred **Piper (Catalog #2320)** swims alone off the coast of New Jersey in April. Photo: NOAA/NOAA permit # 779-1633-02

Mortality, Injury, and Entanglement

Monica Zani

In each newsletter we report on new injuries, entanglements and mortalities that the right whale population has suffered in the preceding six months and update you on the on-going cases. We have added a new category to this update called “entrapment” which will cover recent entrapments in herring weirs (a large circular fish trap made of net and poles). The following is a brief summary of all these known events.

Mortalities

An unidentified female right whale washed ashore around July 19 in eastern Nova Scotia. The carcass was severely decomposed but a necropsy was conducted on July 25. A large bundle of line (more than 1,000 feet) wrapped many times around the whale’s tailstock (peduncle) indicates that the cause of death was entanglement (and probably drowning). DNA analysis of a bone may determine ID.

Injury

- **Eros (Catalog #3701, 5-year-old, unknown sex):** Documented in Cape Cod Bay in March with a small series of new prop wounds on the left side of its body. The whale had been previously and extensively documented throughout January off the coasts of Florida, Georgia and South Carolina without the prop marks.
- **Monarch (Catalog #2460, adult female):** Sighted in May in the Great South Channel (east of Cape Cod, Mass.) with new and extensive entanglement scars/wounds around her peduncle.



Catalog #1708 swims in a herring weir off Grand Manan Island on August 25, 2012. Photo: Marianna Hagbloom/NEAQ

Outreach Efforts

Katherine McClellan

- **Catalog #1278** (adult male): Photographed in early August by a whale watch boat in the Gulf of St. Lawrence, Canada, with new and extensive entanglement scars/wounds on his head and peduncle.
- **Catalog #3610** (female of unknown age): Documented in the Bay of Fundy in late September with new and extensive entanglement scars/wounds around her peduncle. She had been seen six months prior in Cape Cod Bay without such wounds.

Entanglements

- **WR-2012-10** (temporary ID code): An entangled right whale that is unidentified at this time was documented in May on Georges Bank (approximately 120 miles east of Cape Cod, Mass.). The whale's evasive behavior made documentation difficult and therefore the entanglement configuration is unknown.

Previously Entangled Whales

- **Catalog #3996** (3-year-old, unknown sex. Previously referred to as **M040**, a temporary code): Originally seen entangled in February in Cape Cod Bay, this whale was photographed in September off Jeffreys Ledge still entangled. The entanglement has shifted forward of the blowholes and appears to be tighter.
- **Kingfisher (Catalog #3346**, 9-year-old male): First documented with an entanglement in 2004, he continues to be the longest persistent right whale entanglement case. He was seen in June east of Cape Cod, Mass. still carrying gear on his right flipper.

Previously Entangled Whales with no current update

These whales have not been sighted since we last reported on their entanglement in previous newsletters, but we want to recognize that their entanglements may still persist or, in some cases, the whale may have died offshore.

- **Catalog #1719**: Adult female, last seen in January 2012. **Catalog #3111**: 11-year-old male last seen in April 2012. **Catalog #3821**: 4-year-old, unknown sex, last seen in February 2012. **Catalog #3302**: 9-year-old male last seen in September 2011. **Catalog #3993**: 3-year-old male last seen in February 2011. **Catalog #4090**: 2-year-old, unknown sex, last seen in September 2011. **Catalog #1503**: 22-year-old female last seen in 2010. **Catalog #1019**: adult male last seen in 2009.

Entrapments

- **Catalog #1708** (25-year-old male): Reported trapped in a herring weir off Grand Manan Island, New Brunswick, on August 25. The weir fisherman had to remove much of the structure before the whale finally swam out two days later.
- **Catalog #3790** (unknown age and sex): First sighted trapped in a herring weir off Grand Manan Island on October 17. The whale remained in the weir for at least a full day before the weir fisherman removed the bottom netting, at which time the whale forced its way out between the bottom poles.

The Consortium for Wildlife Bycatch Reduction has partnered with the Maine Lobstermen's Association (MLA) to carry out projects to encourage dialog among fishermen, scientists and gear manufacturers to help reduce large whale entanglements in fishing gear.

In 2011, the Bycatch Consortium hosted a workshop that brought together a diverse group of scientists and fishermen to examine fishing gear removed from entangled whales (see *Dynamics of Large Whale...in RWRN May 2011*). The goal was to “reverse engineer” whale entanglements (i.e., try to determine how a whale would have had to collide with the fishing gear in order to result in the configuration of rope we see on the animal). To follow up on the success of the workshop, the Bycatch Consortium and MLA hosted a series of informal meetings with lobstermen in Maine last spring to present the latest research on whale entanglements and bycatch mitigation. The Consortium and the MLA also hosted booths at the MLA's Annual Weekend and the Maine Fishermen's Forum to provide information about whale research and to answer questions. Throughout these projects, lobstermen provided feedback on the bycatch mitigation gear research that has been conducted and what direction they would like to see future research take. They also discussed ways to configure gear that may pose less of a risk to whales. The MLA has compiled these ideas and hopes to distribute them later this year.

To learn more about disentanglement efforts for right whales and other large whales, visit the website of our colleagues at the Provincetown Center for Coastal Studies, who are the pioneers in disentanglement techniques. Together with their network partners they have saved many whales from a slow and painful death. 

http://www.coastalstudies.org/what-we-do/whale-rescue/update_disentanglement.htm/



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Permit Numbers

Question: Why do some of the photographs of right whales in this newsletter have a permit number in the credits and others do not?

In 1997, the National Marine Fisheries Service (NMFS) enacted a rule prohibiting vessels to approach within 500 yards of North Atlantic right whales without a permit. Vessel strikes are one of the leading causes of mortality for this species, and the rule aimed to minimize vessel strikes and harassment. Since the rule was enacted, a scientific permit is required for vessels to approach closer than 500 yards in U.S. waters, and NMFS requires that any public display of images collected under their U.S. permit lists the permit number with the image. However, right whales are an international species, and the Canadian government does not have comparable approach restrictions (although they do require permits to work with endangered species that fall under their Species at Risk Act). Therefore, any images collected in Canadian waters will not have a permit number listed in their photo caption.

Thank you!

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

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For more information visit 
www.neaq.org/rwsponsorship
or call 617-973-6582 or
email rwhale@neaq.org.

