



New England
Aquarium

Protecting the blue planet

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.



What the Future Holds...

Philip Hamilton

As you may have noticed from this and other recent newsletters, right whales seem to be shifting their movement and distribution patterns rapidly—likely in response to climate change and its impacts on their habitat and the food they need to survive. This is a critical time for scientists to document oceanic changes, because it is in the midst of such change that many clues to right whale ecology may be revealed. In addition, monitoring right whales' response to those changes will help us understand their prospects for survival and growth. And because their food (copepod zooplankton) is critical to much of the Atlantic food chain, right whales are early warning indicators of ocean health.

Unfortunately, our fiscal climate is changing as quickly and unpredictably

as the environment! We are still waiting to hear exactly how the U.S. government sequester will impact our Right Whale Research Program (the direct impact is potentially severe), and we don't know how it will affect many of our colleagues who also collect right whale data. Besides the obvious potential hardship to researchers and their families, the prospect of limited or interrupted surveys and data processing could not come at a worse time. It is exactly now that we need all eyes and minds on the water to determine where and how right whales will weather these environmental changes. Here's hoping that both right whales and researchers can successfully navigate these uncertain times.



The distinctive V-shaped blow of a right whale in the Bay of Fundy. Photo: Marilyn Marx/NEAQ

Stories from the 2012 - 2013 Calving Season

Philip Hamilton

Amazing to think that spring is here and the right whale calving season is drawing to a close. For the last several years, the New England Aquarium has been contracted by the National Marine Fisheries Service to provide near real-time right whale identification support for the many dedicated teams surveying right whales off the southeastern U.S. from December through March.

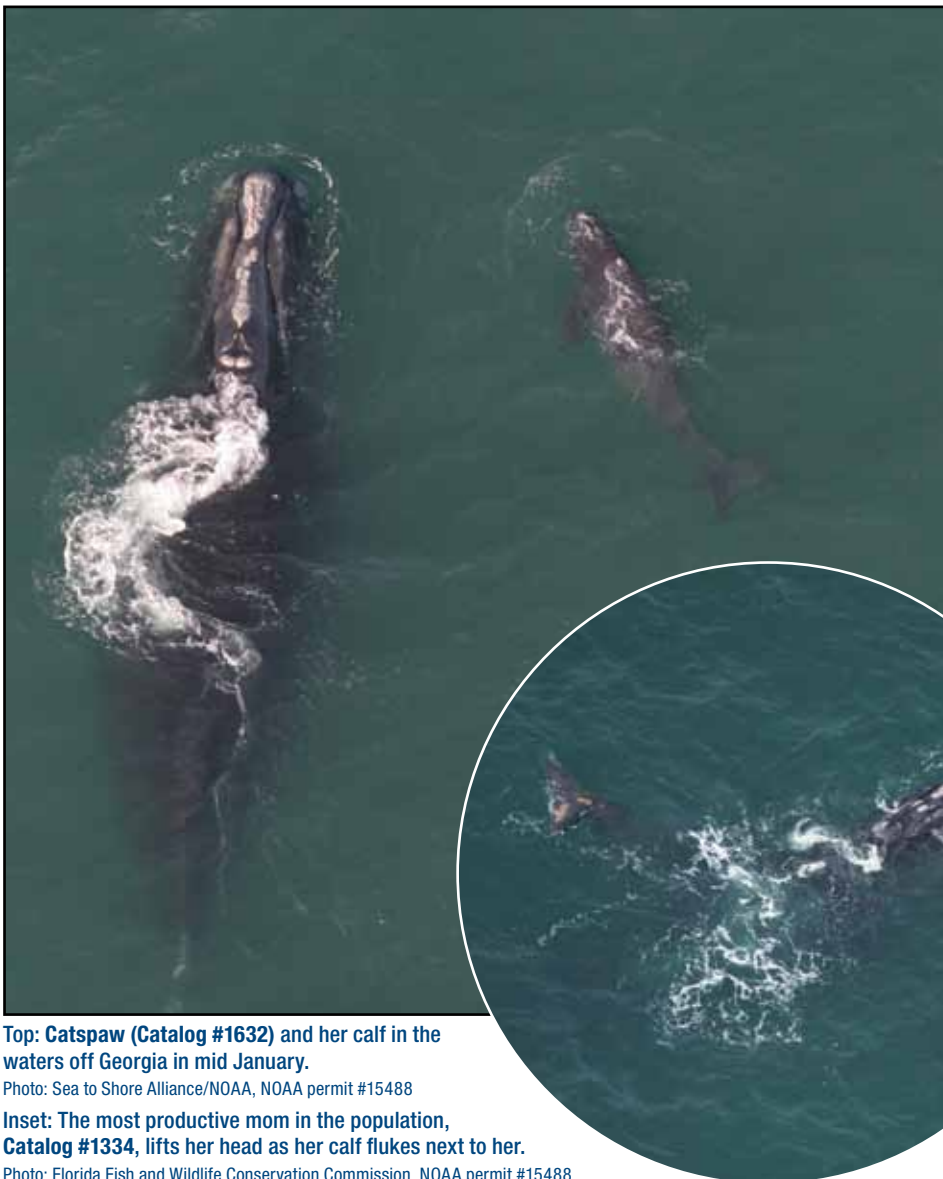
Each calving season is different, and we are always excited to see who the

moms of the year will be, and which other whales will show up in the southeast. Thirteen of the 19 moms seen in the area gave birth by the end of December—early calving times for such a large proportion of the moms. (The 20th known mom is a particularly interesting story—see *An Unusual Northern Birth*). Twenty calves is a big improvement over the mere seven born in 2012, and it's possible that more will be discovered. We increasingly hear of whale sightings through opportunistic

channels. For example, this year we learned of two interesting mother and calf sightings via YouTube: a pair sighted near Miami (few right whales are seen that far south) and a pair at the mouth of the Cape Fear River in North Carolina. Unfortunately, often the images from these videos are not good enough to identify the individual, so we don't know whether the mother off Miami is one of the 20 known or not.

Besides the relatively early calvings, another change this season was the near absence of juvenile whales. In recent years, 100+ juveniles had been seen cavorting in the waters of the calving ground. This year there were fewer than 20. Where they all were remains a mystery. Similar to the very low numbers of right whales in the Bay of Fundy in 2012, the change in the southeast U.S. whale sightings suggests these animals are changing their behavior—likely in response to changes in their environment. It will be very interesting to see where the whales show up the rest of this year. Will Cape Cod Bay be packed with right whales as it was last year? Will the Bay of Fundy be empty?

We had a number of reliable older moms this year—**Catalog #1204**, **#1315**, and **#1334** have had at least 23 calves among them previously, with **#1334** taking the lead as the most productive mom in the population. This was her ninth calf! She is also an interesting whale because she is almost never seen unless it is her calving year, and we know that she took one of her calves to a feeding area farther north than most—in the Labrador Basin southeast of Greenland. Whales like **Catalog #1334** always make us wonder how many other whales travel to far-flung places where there is little or no survey effort. If you go to far northern waters, please keep your eyes peeled for right whales and let us know!



Top: **Catspaw (Catalog #1632)** and her calf in the waters off Georgia in mid January.

Photo: Sea to Shore Alliance/NOAA, NOAA permit #15488

Inset: The most productive mom in the population, **Catalog #1334**, lifts her head as her calf flukes next to her.

Photo: Florida Fish and Wildlife Conservation Commission, NOAA permit #15488

A Northern Birth

Philip Hamilton

On January 12, 2013, fishermen reported a pilot whale in Plymouth Harbor on the western side of Cape Cod Bay. Whale and Dolphin Conservation responded only to discover that it was not a single pilot whale, but a young right whale accompanied by its mother. This was quite a surprise as, in general, female right whales in the North Atlantic go to the southeast calving ground to give birth. Prior to this year, there had only been one documented northern birth, in June 2007 (see 2007 *Mother/Calf Update* in *RWRN Jan 2008*).

This year's northern mother is **Wart (Catalog #1140)**, who was last seen with a calf in 2005. In 2008 **Wart** became entangled with fishing lines wrapped through her mouth, but it wasn't until the spring of 2010, after many disentanglement attempts, that the

Provincetown Center for Coastal Studies (PCCS) was able to completely free her. Without that successful intervention, it's unlikely that this newest member of the population would have been born. However, being born is just half the battle, surviving is the other half. There was concern that the cold winter waters of Cape Cod would be too much for the calf (the water temperature in western Cape Cod Bay was at least 10 degrees C lower than those off northern Florida in January). **Wart** and her calf were seen together on and off in the western Bay until January 21. There have been no photographed sightings since then, though there was a report from a fisherman of two whales off Race Point on January 29—possibly the pair leaving the Bay.

This is **Wart's** seventh calf. Most of her other calves were seen on the calving ground, and all of them have been seen in the Bay of Fundy. We hope to see **Wart** and her calf soon, either in Cape Cod Bay or during our summer field work in the Bay of Fundy.

Exciting update! Wart and her calf were sighted April 18 by members of the Aquarium right whale team in Cape Cod Bay: Wart was feeding and the calf was by her side! We have no idea where they've been for the past two and a half months, but we are relieved that they made it through the coldest months. We hope to see them in the Bay of Fundy in August!



Wart and her very young calf in the waters off Plymouth in January.

Photo: Allison Glass Henry/NEFSC under PCCS NOAA permit #14603.

Comings and Goings

*In the past few months we've had quite a few personnel changes, so we want to update our sponsors on the latest news. First, our long-time colleague Jessica Taylor decided to return to London, her hometown, to be closer to her family. Jess first came to the Aquarium in the summer of 2004 as a volunteer and was hired in 2005 as an observer (and later, team leader) of the Aquarium's aerial surveys on the right whale calving ground. Jess also became involved in field work in the Bay of Fundy and was part of the Catalog curation team (six members of our team work a portion of the year on maintaining the right whale photo-id Catalog). In 2011 Jess began running the Aquarium's aerial surveys for the Massachusetts Clean Energy Center (MassCEC) (see Surveys for Wind Energy...in *RWRN Dec. 2011*). Jess was an integral member of the right whale team and she will be greatly missed!*

Jess's research assistant for the MassCEC surveys was Tracy Montgomery, who originally joined the right whale team as an intern in the Bay of Fundy in 2011. Tracy is currently studying primates in South Africa.

Replacing Jess as team leader for the MassCEC surveys is Sarah Mussoline, who worked for Woods Hole Oceanographic Institution and NOAA's Northeast Fisheries Science Center as a bio-acoustic research assistant analyzing baleen whale vocalizations. Her assistant is Sarah Leiter, who comes to us from her previous job in Alaska, where her work focused on an endangered population of belugas.

Another new member of our team is Dan Pendleton, a marine ecosystem modeler, who has worked in the field with us for the past several years. Dan earned his Ph.D. from Cornell University, where he studied right whales and their prey with respect to remotely sensed data. He is now a full-time research scientist focusing on modeling the distribution of whales in relation to sea surface temperatures and zooplankton abundance.



Slowing Down and Making Progress

Amy Knowlton

Back in the 1990s we began to see an alarming number of right whale deaths from vessel collisions. This prompted the New England Aquarium to host a workshop in 1997 to bring together members of the shipping industry, whale research organizations, conservation groups, port authorities, Canada's Department of Fisheries and Oceans and the National Marine Fisheries Service (NMFS) to review what we knew about where right whales were being struck and what might be done to keep it from happening.

This was the beginning of what became a multi-year endeavor to work closely with the shipping industry through the Ship Strike Committee of the Northeast Right Whale Recovery Team, which I co-chaired with Bruce Russell, a maritime consultant. Through our efforts, in 2001 we made recommendations to NMFS about where and when speed restrictions (considered the most feasible management approach in many areas), could be used to reduce the number of strikes. Several years of an internal federal regulatory review process followed, but finally, in December 2008, a regulation was put in place to restrict ship speeds all along the U.S. East Coast in areas and at times when right whales were present (see *Slower Ships...in RWRN Fall 2008*). The only catch with this regulation is that it has a five-year sunset clause, meaning if it isn't shown to be effective, the rule will expire in December 2013.

With four years of data to review, my colleague David Laist from the Marine Mammal Commission and I have been able to show that the regulation has in fact been very effective at reducing ship strikes of right whales. We compared the proportion of ship struck carcasses found inside or near Seasonal Management Areas (SMAs) versus those found outside those areas for 18 years pre-rule and four years post-rule. We found a significant reduction in this proportion with NO right whales killed by ships found in or near any of the SMAs in the past four years. The shipping industry is to be commended for abiding by this regulation and helping to keep right whales out of harm's way.


Now the task at hand is to make sure the federal government extends this regulation indefinitely, a process that is in the works. To help this effort along, we are aiming to get our paper

A ship in the Bay of Fundy north of Grand Manan Island passes near **Catalog #1960**.

Photo: Allison Glass Henry/NEFSC

published in a scientific journal. Having this information peer-reviewed by other scientists is an important step for ensuring that the study was appropriately done and merits publication. We should have news soon from the journal. The success of the speed rule is an important step forward for this endangered species! Thank you as always for supporting our efforts to carry out the important scientific studies needed to carefully assess this population and the regulations aimed at protecting them. We will be sure to keep you apprised about the status of the rule.

You can also sign a petition developed by our colleagues at Whale and Dolphin Conservation in support of the extension of the ship speed rule online.

http://www.wdcs.org/protect/critical_habitat/right_whale_vessel_strikes.php 

Update on Injury, Entanglement and Mortality

Monica Zani

In each newsletter we report on new injury, entanglement and mortality events that the population has suffered in the preceding six months and update you on the on-going cases. The following is a brief summary of all these known events.

Mortalities

- One mortality has been documented in the last six months. In December 2012 a recreational boater reported a dead whale off the coast of Florida. By the following morning the whale's carcass had washed ashore. Photographs provided enough information to allow the whale to be matched to **Catalog #4193**, a 2-year-old male. Although the whale's carcass was entangled in fishing gear, a full necropsy was performed to conclusively determine cause of the death. This mortality was indeed caused by a long-term entanglement.

Injury

- **Catalog #3308** (10-year-old male): In July of 2012 he was photographed with new entanglement wounds that might be considered severe. The whale was last seen off the coast of New Jersey in August, but the area of new wounds (the peduncle) could not be seen. We did not report on this whale in our last newsletter because these sightings were unknown to us at that time.
- **Catalog #3692** (adult female): A first-time mother this year. She was sighted off South Carolina in March with new propeller wounds on her fluke, but because she was documented by an aerial survey team, there is little information about the severity of these wounds. Her calf had no visible signs of injury.

Heavy equipment is used to bring the carcass of **Catalog #4193** up onto a beach in Florida for a necropsy. Although the loss of a right whale is sad, the necropsy is necessary to accurately determine cause of death.

Photo: FWC, NOAA permit #932-1905-MA-009526

- **2013 Calf of Catalog #1612** (calf, unknown sex): Sighted with small and likely minor propeller cuts on its back.

Entanglements

- There are no new entanglement cases for us to report since our last update. While we would love to welcome this news as a great sign of success, we are always cautious in our optimism. Limited survey efforts can affect the number of whale sightings significantly. With reduced effort, caused by either funding or inclement weather, or with limited sightings simply because of the lack of whales in a given habitat, the likelihood of unreported entanglements is potentially high.

Previously Entangled Whales

- **Catalog #1719** (adult female): First sighted entangled in January 2012 off of Georgia. **Update: Catalog #1719** was sighted in March 2013 off Cape Cod, Mass. gear free. It appears she has shed

her gear over time and looks to be in relatively good condition.

Previously Entangled Whales With No Current Update

- We attempt to keep you informed of current entanglement cases, but often we don't have any updates on previous cases simply because the whale has not been re-sighted. We recognize that these entanglements may still persist or, in some cases, the whale may have died offshore. Currently there are eight such entanglement cases that are considered on-going since 2009. If these whales are not sighted for six years they will be presumed dead. In addition to those eight cases there is also **Kingfisher (Catalog #3346)**, the 10-year-old male that continues to be the longest persistent entanglement case (first documented with a flipper entanglement in 2004). He was last seen in March 2012.

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/



Sponsored Whale Update

Marianna Hagbloom

Our update this time around has several sightings from previous years that have recently been discovered during photo analysis. New photographs are continually being submitted to the Catalog, and sometimes the whales in those photos are not identified until months (or even years) after they were sighted. We try our best to keep you updated on these stragglers!

Starry Night (Catalog #1028)

- Back in 2011, Starry Night was observed in the Gulf of Maine by the Northeast Fisheries Science Center (NEFSC) aerial team on November 8. He was in a Surface Active Group (SAG) with six other right whales, and from the photos taken, appears to have been one of the most energetic in the bunch!

Phoenix (Catalog #1705)

- **Phoenix** and her 2012 calf (her fourth) were observed slowly migrating north after leaving the waters off Florida and Georgia, where the calf had been born. They were photographed by Sea-To-Shore Alliance (S2S) on March 8, 2012, off the coast of South Carolina, and a few days later, on March 13, off the coast of North Carolina. The calf appeared to be nursing and healthy.

- **Phoenix** was seen in Cape Cod Bay on March 18, 2013, by the Provincetown Center for Coastal Studies, traveling with another right whale (**Silt**, Catalog #1817).

Calvin

(Catalog #2223)

- During an NEFSC research cruise through the Great South Channel on

May 8, 2012, **Calvin** was photographed with three other right whales.

Piper (Catalog #2320)

- We're thrilled to report that **Piper** is a mother for the third time! She was first seen with her new calf on December 31, 2012, by Florida Fish and Wildlife Conservation Commission (FWC) observers during an aerial survey, and then several more times in January and February off Florida and Georgia. We know the pair successfully migrated back up the coast because they were photographed in Cape Cod Bay on April 11, 2013, where **Piper** was busy



Piper rests while her playful calf rolls and nuzzles her in the waters off Florida in January.

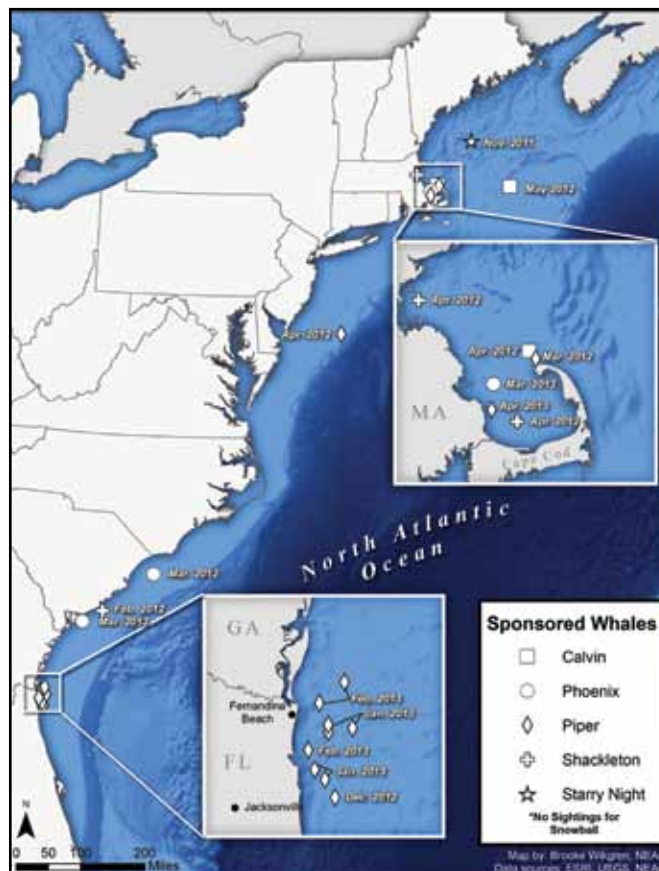
Photo: FWC, NOAA Research Permit #15488

skim feeding. It's interesting to note that back in December of 2011 **Piper** was photographed on Jordan Basin, a suspected right whale mating ground in the Gulf of Maine. Since gestation is about one year, it seems likely that **Piper** was in the right place at the right time!

Shackleton (Catalog #2440)

- A sighting of **Shackleton** from May 31, 2011, was recently added to the Catalog. He was seen by the NEFSC aerial team, swimming alone through the Great South Channel.
- Another sighting comes to us from S2S, which saw **Shackleton** off South Carolina on February 1, 2012. He was in a SAG, and later that same day was seen swimming with another right whale.

Unfortunately, we don't have any new sightings of **Snowball** (Catalog #1131), but we hope to have an update on his whereabouts in our next issue. Many thanks to all of you for sponsoring a North Atlantic right whale! Our success in the conservation and protection of such a critically endangered species is greatly helped by your generous contributions.



Sponsored whale sightings March 2012 through April 2013. The November 2011 sighting of **Starry Night** and the February 2012 **Shackleton** sighting are also included. Map: Brooke Wikgren/NEAQ

Wind Energy Surveys Update

Sarah Mussoline

Somewhere in the vastness of the North Atlantic, marine mammals and sea turtles are roaming. And squeezed inside a small blue twin-engine aircraft, two Aquarium observers are tasked with locating, identifying and counting these critters on the Outer Continental Shelf off Massachusetts. As part of an extended contract with the Massachusetts Clean Energy Center (MassCEC), we will continue for a second year to assess how large whales and sea turtles utilize these waters. The ultimate goal: provide seasonal migratory data to inform the federal offshore leasing process in areas proposed for wind energy development.

Combining observations made by a camera mounted in the belly of the plane and two observers scanning from windows, we were able to collect around 1,000 animal sightings in year 1 alone. From thresher sharks to gray seals to ocean sunfish to pilot whales—we documented the presence of 26 distinct marine species! In addition to visually scanning the ocean surface (when weather and daylight allowed), we also acoustically scanned its subsurface 24 hours a day, by deploying underwater acoustic devices across the survey area. One of the most surprising discoveries from year 1 was overhearing the presence of the low frequency calls from the majestic blue whale—the largest animal on earth.

Now coming on the heels of a successful first year, we approach our second year with a new survey team (see *Comings and Goings*), an expanded survey area (including waters off Rhode Island), several equipment improvements and a host of research questions we hope to answer. So keep an eye to the sky and stay tuned for more updates.

For previous articles about this project see Surveys for Wind Energy... in RWRN Dec 2011 and Wind Energy... in RWRN Dec 2012.

The Gulf of Maine: Not a Typical Winter Cruise Destination

Marianna Hagbloom

One of the best parts of being a whale biologist is doing field work—becoming more familiar with the ocean environment and right whales! Usually our field work involves being aboard a small vessel for just the day, so when I was offered a position on a 185-foot research vessel for a nine-day Woods Hole Oceanographic Institution (WHOI) research cruise into the Gulf of Maine, I jumped at this opportunity that screamed “Adventure!” Fellow Aquarium researchers Moira Brown, Tracy Montgomery and I met the *R/V Endeavor* at port in Rhode Island to help load gear. WHOI would be using several large pieces of equipment at sea, including a hi-tech plankton sampling net.

On November 28, 2012, we set sail toward Outer Falls in the Gulf of Maine, thought to be a right whale mating and/or feeding ground. Ideally, we would find feeding right whales, and the sampling net could be cast to determine what the right whales might be eating. To help determine where our survey should be focused, the WHOI team had launched two autonomous gliders equipped with hydrophones to survey the area for two weeks prior to our cruise and reveal where right whales had been acoustically detected. Like most field work, things



The *R/V Endeavor* at its University of Rhode Island home port. Photo: Marianna Hagbloom/NEAQ

don't always go as planned, and we encountered bad weather with 36+ knots (41 mph) of wind and even some snow! The intense conditions for the observers led us to take short shifts, and plenty of hot coffee was consumed on breaks!

We saw a few right whales over the span the trip, but because of the high sea state, had difficulty following them. On December 4, we were finally able to successfully photograph and observe two pairs of right whales, with several others nearby. The whales were identified as four juveniles: **Catalog #3460, #3611, #3620 and #3803** (the only female of the four). We didn't observe mating or feeding behavior during the trip, but because of relatively warm water temperatures, we may have been in the right place but at the wrong time. Hopefully we'll continue

to be presented with opportunities to venture into this habitat, gaining a better understanding of how right whales utilize these waters.



A pair of right whales, **Catalog #3620** (foreground) and **#3460**, in the Gulf of Maine in December 2012. Photo: Marianna Hagbloom/NEAQ, NOAA Permit #14233



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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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