Slower Ships and Safer Haven for Right Whales

Bay of Fundy Field Season 2008: Weather and Whales
New Calves Discovered in the Bay of Fundy
Sinking Groundline Has Not Sunk Yet! Entanglement and Injury Update
Right Whale Research Team in the News!
Monitoring the Effectiveness of “Voluntary”
A Tribute to Two Dear Friends
An Urban Whale Goes To Washington: The Inside Story
Biological Hotspots in the Gulf of Maine
Putting a Name to the Face
Help Us Name a Whale!
Sponsored Whale Update
New Right Whale Research Blog
A New Look for our Sponsorship Package

Editor:
Marilyn Marx

Contributors:
Moira Brown
Cynthia Browning
Jonathan Cunha
Philip Hamilton
Amy Knowlton
Scott Kraus
Van Guilbault

Right Whale Research News is produced and published by the New England Aquarium. We welcome your comments and suggestions!

For right whales:
As the whales migrate along the Eastern Seaboard to their winter calving grounds, the gauntlet of ship traffic that crosses their path will be going much slower: within 20 nautical miles of port entrances, ships will be mandated to go 10 knots or less. This change is comparable to a school zone speed limit. When cars are going slower through these zones, children are safer, because accidents can be avoided both by children avoiding oncoming, slow-moving cars and by the cars avoiding children. By requiring ships more than 65 feet in length to move slowly through right whale migratory corridors and habitat areas during the seasons in which right whales are there, we are giving these whales a safer ocean. Although many dangers still face right whales in their urban ocean home, at least this regulation is positive step for this endangered population.

For the right whale research community:
This is a goal we have been working towards for more than a decade. We have witnessed many right whales that have

Figure 1. Catalog #3508, a two year old male, was struck and killed by a vessel off the coast of Georgia in December, 2006. A series of 22 propeller cuts can be seen along his head and body. He likely died instantly from the strike. Photo/Monica Zani, NEAQ

Slower Ships and Safer Haven for Right Whales

By Amy Knowlton

December 9, 2008, was a monumental day for right whales, researchers, ship operators and the general public alike. After years of work by the National Marine Fisheries Service (NMFS) and others, including the New England Aquarium, the Final Rule to Implement Speed Restrictions to Reduce the Threat of Ship Collisions With North Atlantic Right Whales went into effect. The Final Rule was passed on October 8, 2008, after significant delays at the White House level. For details on that aspect, see my blog, #21, from September 2, 2008, or my article in the May 2008 issue Right Whale Research News (Volume 16, Number 2). Sixty days after publication in the Federal Register, the measures of the rule will be implemented. What exactly will this mean?
Suffered from accidental vessel strikes. Some were killed, others badly wounded, but it is always a gruesome and tragic sight (Figure 1). Once we recognized in the mid 1990s that the problem of vessel strikes with right whales was prevalent, we initiated a process of bringing together many stakeholders, including the shipping industry, to brainstorm possible options for reducing the number of ship strikes. In 2001, recommendations from this effort were sent to NMFS. Without delving into the numerous details of that lengthy process, the passing of this final rule is a huge victory for right whales—and for us. The rule is balanced, fair and based on careful, high quality science. Although the final rule was not quite as strong as we had initially hoped, it represents an unprecedented and important approach for protecting large whales from vessel strikes.

**For ship operators:**

This regulation will be important for them to understand and integrate into their voyage planning and coastal operations. NMFS is working with the Coast Guard and other agencies to ensure that the shipping industry is properly notified about this rule. They recently published a Compliance Guide for all mariners, which we have included here (Figure 2). This provides a clear visual representation of when and where these regulations will be imposed. It may take some time to educate all ship operators about this new rule, and it will be important to monitor and enforce compliance, although the details of how NMFS and the Coast Guard will carry out both monitoring and enforcement are not yet clear. During our aerial surveys this coming winter off the southeast U.S. coast, we will conduct our own monitoring of vessel traffic transiting the calving ground and will hopefully bear witness to slower ships and a safer haven for right whale mothers and their newborn calves.

**For the general public:**

The passage of this rule is a strong reminder of the value of public input and support for the protection of wildlife and the environment. Thousands of written comments from the general public supported of this rule, which no doubt contributed to its eventual passage. Although this rule and others related to environmental protection result in a certain level of economic impact, allowing vessel strikes on the right whale population to go unchecked could likely lead to the extinction of this species. The extinction could happen quietly and quickly, with the majority of the general public unaware of it. The ongoing mission of our work is to do all that we can to prevent such an occurrence by keeping track of these leviathans and carefully monitoring and describing the impacts of the many challenges they face. Your individual and combined efforts to be stewards of right whales and the environment as a whole are important and much appreciated!

Stay tuned for more updates on this front. In addition to the speed reductions, NMFS is also proposing a voluntary area to be avoided in the Great South Channel, one of the five important habitats for right whales. This will require approval by the International Maritime Organization. These efforts, in tandem with the Canadian changes in shipping operations (see Monitoring the Effectiveness of “Voluntary”) and the creation of recommended routes in Cape Cod Bay and the southeast U.S., as well as the shift of the shipping lanes leading into Boston, have resulted in a complex network of measures aimed at reducing the risk of vessel collision with right whales throughout their range. However, our work is not done. One of the unfortunate compromises that NMFS had to agree to in order for this rule to pass is a mandated “sunset” clause: this rule will expire in five years, unless there is clear proof that it has been effective at reducing strikes. In the years ahead, we will work closely with NMFS as we continue to assess the level of documented and presumed mortality and serious injuries related to vessel strikes.

**Amy Knowlton, Research Scientist**

After graduating with a bachelor's degree in Geography from Boston University in 1982, Amy began as a part-time volunteer with the Right Whale Program in 1983. She became a full-time employee in 1988. She holds a Masters degree in Marine Policy from the University of Rhode Island, where she focused on the feasibility of regulating ship traffic to protect right whales from ship strikes. She continues to work on assessing the effects of human activities on right whales with the goal of informing policy efforts aimed at mitigating entanglement and vessel strike threats.
Bay of Fundy Field Season 2008: Weather and Whales

By Cynthia L. Browning

We all made our annual migration northeast to Lubec, Maine in early August to begin the Bay of Fundy field season, which ran from August 1 to October 3. We had heard from our colleague Laurie Murison of the Grand Manan Whale and Seabird Research Station that right whales had already arrived in the Bay. While we were anxious to get out on the water and start working, we found Lubec cloaked in thick fog, and so began our weather worries for the season.

We always watch the weather closely, using a multitude of sources to determine if conditions will be good enough—winds less than 12 mph with no fog or rain—for a day at sea. We have these limitations because our research vessel, Nereid, is only 29 feet long, so we need relatively calm seas to safely do our work aboard her. We can’t work in fog because we need to visually locate the whales, and we can’t work in rain because of our camera equipment. Unfortunately, the season was full of bad weather, so our opportunities to work in the Bay were small windows between fog and choppy seas. The locals of Lubec informed us that this was the worst fog they had seen in more than 20 years!

After the fog and wind of August passed, September brought storms to the Bay of Fundy. While surges of rain and a bit of a ground swell were all we felt from most of the dying hurricanes that passed through our area, Hurricane Kyle brought Lubec high winds, rain—and Jim Cantore of the Weather Channel!

All told, we only had 17 days at sea all season: eight days in August and nine in September. Luckily, the time we spent in the Bay of Fundy was extremely productive. On the days with good conditions, we sighted between 23 and 60 whales, and within the 17 days working in the Bay, we collected more than 700 sightings of at least 132 individuals.

Of the twenty-three mother/calf pairs identified this year, sixteen were sighted in the Bay of Fundy. Sightings of calves in the Bay of Fundy are extremely important. Their callosity patterns have become more defined by this time of the year, and we can carefully photograph them to increase our odds of being able to re-identify the whales in years to come. We also use this opportunity to biopsy-dart any calves that weren’t been previously darted on the calving ground in the southeast U.S. These biopsy samples are collected for genetic analyses performed by our colleagues at Trent University in Ontario.

The Bay of Fundy is called a “nursery area” for right whales because of the number of mother/calf pairs we see there each summer. Mothers go to the Bay in part because it is an important feeding habitat. A mother needs to replenish her blubber stores after spending months not only fasting but also fully supporting her calf since its birth in the winter. While the mothers spend much of their time in the Bay of Fundy feeding, the calves slowly become more independent. They appear to be exploring their new environment, both on their own and with other calves of the year. Calves are often seen rolling at the surface, lobtailing, breaching or playing with seaweed. They probably also learn how to feed and socialize by watching the adults in the area.

The other 100 individuals sighted in the Bay of Fundy were a mix of adults and juveniles, males and females. As we continue the analysis of each sighting, several more individuals may be found. Within the two months of our season, we saw more than one-third of the right whale population, which emphasizes the importance that this habitat plays in the lives of these whales.

Throughout the season, the whales utilized various parts of the Bay (see map next page). They ranged from as far east as the coast of Nova Scotia (seen by a whale watch company) to as far west as the shores of Grand Manan Island. One morning in late September, we came around the northern point of Grand Manan Island to find a small group within a mile of the shore—nearly 10 miles west of where we usually find them! We continued to find small numbers of whales in this odd location during the next few weeks. There were also a large number of whales scattered to the south in September, and many were large, adult males. We observed them displaying “gunshot” behavior, lifting their heads out of the water and then pushing them down forcefully. This behavior is often accompanied by a sound, characterized as a low, percussive tone, like that of a gunshot. The function of this behavior is one of the mysteries of this species. Are the males using the behavior in competition with each other? Are they displaying for

Right whales engage in a small SAG near Swallowtail Light on the coast of Grand Manan Island, New Brunswick, Canada. Photo by N. Guitton; NEAQ

Continued on page 4
Bay of Fundy Field Season 2008
Continued from page 3

the females? Could it be a tool used to ward off potential predators? Hopefully further research will one day reveal the meaning of this behavior.

Throughout the season, sightings were reported to Fundy Traffic to be relayed to ships entering the Bay and to the National Marine Fisheries Service for their right whale sightings advisory system (rwhalesightings.nefsc.noaa.gov/). Fundy Traffic was also alerted to the presence of whales in unusual locations, such as off of Grand Manan, so that ferries and fishermen could be notified as well.

One of the highlights of this season was the multitude and size of the Surface Active Groups (SAGs), a behavior only seen in right whales. The group usually contains one female, who emits an acoustic call and floats on her back. The males, who are attracted to the call, try to position themselves next to her to have a chance to mate when she rolls over to breathe. These groups can involve from two animals to more than 60 and can range from slow rolling to energetic, erupting activity. This season, we witnessed 40 SAGs containing between two and 35 individuals! Several of the females involved in these SAGs were mothers this year. While the mother actively engaged in the SAG, her calf usually roamed around the outskirts, out of the way of most of the males.

This brings up another mystery concerning right whale behavior. SAGs were originally deemed a mating behavior, because we observe intromission. However, it is believed that right whales have a 12- to 13-month gestation period, and they give birth between December and April. This information shows that SAGs observed in the Bay of Fundy are occurring at the wrong time of year for conception to be taking place. In addition, a mother cannot get pregnant in the year she gives birth and weans a calf. The energetic cost of caring for the current calf is too high for her to support a pregnancy at the same time. Researchers suspect that SAGs observed in the Bay of Fundy must serve another purpose. Perhaps this is “practice” for SAGs that result in mating. Or could this serve to establish a social structure or build social bonds? One of the most interesting observations made about the SAGs this season concerned an old male, Gemini (Catalog #1150). Gemini was first seen in 1979 and is regularly seen in the Bay of Fundy. He is often seen in SAGs, and this season was no different. However, we began to notice that Gemini would often move to the periphery of the SAG. He would spend a considerable amount of time circling the group, but once he was on the periphery, he never got close to the female again.

Once, we even observed Gemini swimming away from a SAG that was still fully engaged. This made us wonder if Gemini’s age is starting to affect his behavior. He was first seen twenty-nine years ago, and we have no way to know how old he was at that time. Could it be that he can’t keep up with the younger males anymore?

Our season was extremely successful, but we were sad to leave the Bay of Fundy before the whales did. The end of a season can be a very interesting time. Some whales linger in the area longer than others, and new whales continue to come into the Bay even as others are leaving it. Unfortunately, funding has become tighter, and our season couldn’t extend any further, even though many whales were still in the Bay. A team of two researchers from the Aquarium conducted one survey on October 12 after our field season ended and documented more than 40 whales and the largest SAG of the season. Laurie Murison reported that, with the exception of a couple of whales near Grand Manan Island, the whales left the Bay in mid-October. The value of continuing this field season in future years is immeasurable, as the various mysteries will only be answered through further research efforts.

Cynthia Browning, Research Assistant
Cynthia earned a B.S. in zoology from the University of New Hampshire in 2003. She has traveled throughout the northeast working for various programs dedicated to right whale research. She has also studied the population biology of bottlenose dolphins and sea otter behavior in Monterey, CA. Cynthia assists in maintaining the right whale Catalog by processing and cataloging photographs of individuals. Her research interests include population biology and the reproductive success of endangered species.
New Calves Discovered in the Bay of Fundy

By Philip Hamilton

North Atlantic right whales calve off the coast of the southeast U.S. from December to March, with a few exceptions in both the timing and location. Since 1994, there has been a very thorough survey effort in the region, and most of the mothers of the year are seen with their new calves. Occasionally, a mother/calf pair is missed in the southeast because the calf is born further north, at a later date, or because the pair eluded the aerial surveys, but these few mothers are generally discovered with their calves off Cape Cod in the spring. This year proved to be quite different.

Three different mothers were first seen with their calves in late July or August in the Bay of Fundy, having avoided detection for seven to eight months. The first one, a seven-year-old female named Harmony (Catalog #3115), was seen with her first calf by her side on July 28 by Laurie Murison of the Grand Manan Whale and Seabird Research Station aboard the whale watch vessel Elsie Menot. (Laurie, a trained biologist who has been studying right whales for many years, is a great help to us during the Bay of Fundy season. She takes photographs for this project, or others, for the project, and because she’s aboard a much larger sailing vessel, she is able to gather data on days when windy or inclement weather keeps the Nereid on shore.) Harmony had been sighted repeatedly in the southeast during the winter but had not been seen with a calf, suggesting she gave birth late in the season and then left the area before her calf could be detected.

The second new calf of the year was first photographed by itself on August 6. It’s not unusual to see calves or mothers alone in the Bay of Fundy. Though the calves are still nursing, they’re becoming more independent and may spend hours away from their mothers. This calf was distinct because of the entanglement scars over its head; sad evidence that it had already had an encounter with fishing gear during its short life. It was 16 days before we finally saw this calf with its mother—an old friend, 27-year-old Sonnet (Catalog #1123), who had not been seen at all in the southeast during the calving season. This was Sonnet’s fourth calf.

The third newly discovered mother is perhaps the most interesting. Catalog #1208 is an adult female that had given birth to four calves with gaps of five to seven years between each, in 1985, 1991, 1996 and 2003. She has only been seen in the Bay of Fundy a couple of times over her 27-year sighting history and never without a calf. When we saw #1208 by herself on August 22, we made a bold guess that she was a likely mother, based on that unique sighting history of hers. Sure enough, nine days later, on August 31, Laurie Murison photographed #1208 with her fifth calf. The year’s 23rd mother had been confirmed!

Between 1994 and 2007, there was only one other mother/calf pair that was first detected in the Bay of Fundy, and that was Catalog #1179 in 1994. Why, 14 years later, we should discover three new moms in the Bay is one of the many mysteries that makes studying this species so exciting!

Philip Hamilton, Research Scientist
Philip began his whale research career in 1986 at the Provincetown Center for Coastal Studies in Provincetown, MA. He joined the Right Whale program at the Aquarium in 1989, where he now manages the Photo-identification Catalog. He has also participated in several humpback whale studies. He investigated right whale associations for his master’s thesis at the University of Massachusetts at Boston. He recently designed the DIGITS software used to manage all the images and data in the North Atlantic Right Whale Catalog and continues to collaborate with genetics colleagues at Trent University in Ontario.

Sinking Groundline Has Not Sunk Yet!

By Amy Knowlton

Entanglement in fixed fishing gear, such as lobster and gillnet gear, is a constant and troubling problem for right whales and other large whales inhabiting the waters off the eastern seaboard. An analysis of entanglement scarring conducted by the Aquarium indicated that 72.6% of the right whale population was entangled at least once between the years 1980 and 2004. Although many of these entanglements are not fatal and result in minor scarring, an increasing number of these events appear to be much more severe and have lead to chronic

Continued on page 6
Sinking Groundline
Continued from page 5

infection, impaired feeding and likely death.

For more than a decade, under the direction of the National Marine Fisheries Service (NMFS), the Atlantic Large Whale Take Reduction Team, comprised of fishermen, researchers, environmental groups, and state and federal agencies, has been trying to discuss and develop measures to mitigate entanglement risk from fixed fishing gear. One measure considered essential for reducing risk to right whales was mandating the use of sinking groundline, instead of floating groundline, between strings of lobster pots and at gillnet anchoring points. This requirement was implemented in stages starting in 2005 with mandated use in Seasonal Area Management (SAM) and Dynamic Area Management (DAM) locations during seasons and times that right whales are present. This requirement was broadened with the passage of a Final Rule in October 2007 mandating sinking groundline use throughout the right whales' range in U.S. waters from Florida through the Gulf of Maine.

This news did not sit well with certain fishing groups, especially the Maine lobstermen and, specifically, those lobstermen fishing on rocky bottom. The concern was that sinking groundline would abrade easily and quickly if it rested on a rocky bottom, resulting in gear loss and potential safety issues. These concerns were taken into account, and some near-shore rocky areas were exempted from the rule. However, because of continued opposition primarily related to timing of the fishing season and the switch over to the new gear, implementation of the rule has been delayed from October 2008 (one year after the rule's passage) to April 2009.

One huge drawback to this change—besides the obvious one of a six month delay—was that the SAMs and DAMs were not going to be in effect during this six-month delay, leaving right whales vulnerable during these months. The supposed reasoning to eliminate SAMs and DAMs for this period was the notion that right whales are not found or entangled in these northern waters during the winter months.

To address this concern, the Humane Society of the United States and Defenders of Wildlife asked the Aquarium for a declaration about the timing of entanglement interactions in order to ask the courts for a preliminary injunction. Using data compiled during the assessment of scarring interactions with right whales, we were able to provide a clear indication that right whales do get entangled during the winter months. Of the 625 unique entanglement interactions detected from 1980 to 2004, 69 were known to have occurred within a six-month timeframe. (The remainder of the events did not have a known narrow timeframe of occurrence.) Of those 69 events, 30 were documented between September/October and March/April. In addition, a recent wintertime survey effort by NMFS in the Gulf of Maine showed a significant wintertime presence of right whales in these offshore northern waters. The court agreed with most of the plaintiffs' requests and asked NMFS to reinstate DAMs during the six-month interim period until the Final Rule is finally implemented. The court did not ask that SAMs be reinstated, as fishermen fishing in these areas have likely already converted their gear to sinking groundline.

Although sinking groundline is not sunk yet, right whales will have some level of protection during these winter months before the broader-based measures are put in place. This accomplishment is due, in part, to the careful scientific work we carry out to document human-related interactions.

Entanglement and Injury Update

By Monica Zani

Entangle (verb): 1) To make tangled; ensnare; intertwine. 2) To ensnare; entangle. 3) To twist together or entwine into a confusing mass. 4) To involve in difficulties. 5) To confuse or perplex. (dictionary.com)

Unfortunately, something that many right whales have in common is to have been entangled at some point in their lives. In our spring newsletter, we reported the current right whale entanglement cases. Here is a quick update on each:

Catalog #2645, an adult female, first documented entangled in January 2008. Update: currently still entangled.


Wart (Catalog #1140), a reproductive female, first documented entangled in March 2008. Update: currently still entangled.

Kingfisher (Catalog #3346), a young male, has had a large amount of line wrapped around his right flipper for more than four years. Despite the entanglement, Kingfisher appeared healthy. However, because the line has wrapped around his flipper, and he was still young and growing, he could have been at risk from his entanglement. Update: Kingfisher appears in the same condition.

I am excited to report that Catalog #3333, a young male born in 2003 and first seen entangled in January 2008, was documented as gear free when he was sighted in Cape Cod Bay in May! In addition, Catalog #2029, an adult reproductive female first seen entangled on March 9, 2007, and partially disentangled on September 8, 2007, was sighted on two occasions, May 30 and June 18, 2008, with no gear visible. Unfortunately, with the good news comes some bad. Catalog #1249, an adult male, was first documented with a mouth entanglement in May 2008. There have been no subsequent sightings of this whale.
Cyamids

Cyamids, also called whale lice, are tiny (about one-half inch) amphipods that live on the callosities of right whales. They are believed to feed on dead, sloughing skin, but they don’t appear to harm the whales. Right whale callosities are actually black, just as the skin is, but the cyamids are white or yellow; they cover the callosities and give them their light color. That’s great for us, because that allows us to see the callosity patterns, which would be virtually invisible to us with out them. There can be as many as ten thousand cyamids on a single whale. Cyamids have no free-swimming stage and can only “migrate” if their host whale comes in contact with another whale. If a cyamid falls off, it will likely die!

Three species of cyamids live on right whales: Cyamus ovalis, Cyamus gracilis and Cyamus erraticus. C. ovalis and C. gracilis are the light colored ones that infest the callosities and provide the contrast that allows us to distinguish the underlying pattern of the callosities.

C. erraticus have a very different look and “habit,”. Reddish orange in color, they are found on young calves and on adults with wounds or on smooth skin that has low water flow.

Monica Zani, Assistant Scientist

Monica came to the Aquarium in 1993 as a naturalist with NEAQ’s whale watch and Science at Sea programs. In 1999 she received her 100 ton near-coastal USCG license and began working as one of the Aquarium’s whale watch captains. She became involved in the Right Whale Program as an aerial observer in the winter 1999/2000 and began working full time in 2002. Monica is currently the co-investigator and project manager for the Early Warning System aerial surveys on the calving grounds in the southeast U.S. She holds a B.S. degree in biology.
Right Whale Research Team in the News!

By Amy Knowlton

The Right Whale Research Team made a big splash, so to speak, with a great article in the October issue of National Geographic. Written by veteran wildlife author Doug Chadwick, with pictures by renowned marine photographer Brian Skerry, the article compares the struggles the North Atlantic right whale faces living in this urbanized stretch of ocean, with their southern counterparts, who live in a remote, pristine habitat south of New Zealand called the Auckland Islands. Doug and Brian spent several months with members of our team during their research efforts in the North Atlantic and in the Auckland Islands to document and witness the research and whales in action. The enthralling article and the vivid images bring the reader closer to the world of right whales, researchers and the challenges faced by both.

Monitoring the Effectiveness of “Voluntary”

By Moira Brown

As reported in the May 2008 issue of Right Whale Research News (Volume 16, Number 2), the Canadian government, through Transport Canada, designated an Area To Be Avoided (ATBA) on Roseway Basin, south of Nova Scotia. Roseway Basin was designated as a right whale conservation area by Fisheries and Oceans Canada in 1993 in recognition of the area’s seasonal importance as a feeding and socializing ground for the North Atlantic right whale. Because one factor affecting right whale recovery is serious injury and mortality from ship strikes, the ATBA was designated to significantly reduce the risk of vessel strikes and thus enhance conservation and recovery of this species. The measure, adopted by the International Maritime Organization (IMO; an agency of the United Nations) in December 2007, re-routes vessels around the area with the highest concentration of right whales. The ATBA is seasonal, from June 1 through December 31, and recommendatory, or voluntary.

In collaboration with our colleagues at the Oceanography Department of Dalhousie University, we are studying how the vessel operators react to the voluntary ATBA by measuring compliance through a project called VACATE: Vessel Avoidance and Conservation Area Transit Experiment. Researchers Christopher Taggart and Angelia Vanderlaan at Dalhousie use Automatic Identification System (AIS) technology that transmits static, dynamic and voyage-related information, including vessel position, speed, heading, destination, and vessel name and type. The VHF radio transmissions are received using a Bell-Aliant cell tower and antenna located near Cape Sable Island, Nova Scotia. Dalhousie scientists use the AIS data to determine the routes of vessels in the Roseway Basin area and calculate the additional mile and time.

A Tribute to Two Dear Friends

By Moira Brown

The right whale community lost two dear friends and colleagues over the last year: Philip Kibler in October 2007 and John Ambroul in April 2008. Their role in right whale research and conservation was played out behind the controls of the small aircraft we use for aerial field studies, steadily guiding the aircraft along miles of survey lines, so the biologists on board could search for and photograph right whales for our studies on this highly endangered species. I’d like to tell you a little bit about their lives and the intersection of their careers through right whales.

Philip Kibler grew up in Troy, N.Y. and was a naturalist and outdoorsman at heart. His passions were canoeing, skiing, hunting and hiking, often in such remote places as the Canadian Arctic. By day, he was a scientist, a biochemist working for a pharmaceutical company in Montreal studying viruses. Along the way, he developed a passion for flying and left science to fulfill his dream of making his living as a pilot.

John Ambroul grew up in North Eastham on Cape Cod. Like many classic Cape Codders, his path was an eclectic one, ranging from a stint in the Army, where he was trained as an aircraft
cost for vessels that comply with the ATBA, as compared with a standardized trip through the ATBA for each vessel. The same will be done for vessels that continue to transit the ATBA, by providing alternative routing and associated cost. Although the ATBA is a recommended, and therefore voluntary, measure, the computer monitoring of vessel routes provides information on those vessels for which the benefit outweighs the cost. A final aim of the project is to make sure that no area is ignored, so that compliance is maintained. The ATBA as established provides a way to achieve this goal.

Phil Kibler feeding a small bird.

mechanic, to commercial fishing and plumbing. His passion was flying, and he turned a hobby into a career with Ambroult Aviation based out of the Chatham airport.

John and his team of pilots, including Philip, flew aerial surveys for right whales over Cape Cod Bay in the winter months. Aerial surveys for right whales are seasonal, and, like so many dedicated members of the right whale research community, pilots make their livings by doing other aerial work in the off season. Such was the case for both men: Philip ferried skydivers for their jumps out on the west coast; John piloting surveys for environmental impact studies related to wind farms. It was during these other ventures that both men were lost.

They also shared a passion for their winged brethren. Philip loved to sprinkle a few seeds on his hand and wait with outstretched arm among the birches for a chickadee to land and feed. John loved to set out crackers on the ground behind the terminal at Chatham airport and then wait for a crow, aptly named "Wilbur," to land and pile the crackers one on top of the other before taking hold of the stack and flying off.

Philip and John lived doing what they loved, a message to us all to not be afraid to pursue our dreams.
An Urban Whale Goes To Washington: The Inside Story

By Marilyn Marx

On September 25, the Smithsonian's National Museum of Natural History (NMNH) in Washington, D.C. hosted a gala for the opening of their new permanent exhibit, the Sant Ocean Hall. Suspended from the ceiling above the center of the Hall is the focal point of the exhibit—a full-size model of a North Atlantic right whale. It's an actual replica of a cataloged individual, a female named Phoenix (Catalog #1705). For the past four years, Amy Knowlton and I have been working with the Smithsonian to make sure the model, and every other detail of information about right whales, is as accurate and up-to-date as possible. Because of the long relationship helping to develop that aspect of the exhibit, Amy, Scott Kraus and I were invited to the black-tie event.

The Sant Ocean Hall is 23,000 square feet of fun facts and education about the world's most precious resource: the oceans that cover 71% of the Earth's surface. The exhibit includes more than 650 marine specimens, ranging from microscopic plankton to giant squid, and Phoenix, of course! The opening was great—first, to see Phoenix and read all the information about right whales that we had spent years reviewing and also, to have insider knowledge about just how much work went into each and every aspect of the exhibit. Here's how it all began:

In March of 2004, Jill Johnson of the Smithsonian's National Museum of Natural History contacted Amy Knowlton about including a right whale model in a new permanent exhibit they were designing. They wanted it to be a full-size replica of a real individual. The five of us in the right whale office at the time brainstormed about the best candidate for such an honor. We knew it would be an ambassador of the species, seen by thousands of visitors for years to come.

We wanted a whale whose life history was representative of the challenges that all right whales face. And, we wanted a reproductive female whose calves could be followed through their lives. We knew that the long-term nature of our research program would enable us to provide a right whale story that was both compelling and enduring.

We decided on Phoenix, a female born in 1987. Phoenix was a great choice because, sadly, her experiences echo that of many right whales. She had been entangled at one point in her young life, and her mother, Stumpy (Catalog #1004, named for her partially severed fluke), was killed by a ship strike when pregnant with her sixth calf. In fact, Phoenix's name comes from the fact that she survived that very serious entanglement and came back from almost certain doom with only a distinctive lip scar as evidence of her two-year ordeal. (The phoenix was a mythical
bird that perished on a funeral pyre but rose from its ashes to live again.) We gathered photos and all the information we had about Phoenix and her family and sent it to the Smithsonian. Then, they sent us sketches and illustrations of their ideas, which we reviewed and returned with our critiques and suggestions. So began the multi-year saga as we traded information, photos and illustrations about how a feeding right whale should look and how to portray her story to the public. In addition to the model itself, there was a huge amount of information about right whales that would be part of the exhibit—their history, biology and threats to their survival. We carefully reviewed all the text, video and images. More than a thousand emails were sent back and forth between the Smithsonian, Amy and me from March 2004 through September 2008.

The model was created by Chase Studios, and in January 2005, Amy and I got a look at their first try at a small clay model. The gathering took place at the NMNH in Washington and involved about 12 whale researchers from several organizations. That initial modeling attempt had some problems, so it was back to the drawing board. Chase redesigned and returned to D.C. with a one-twelfth scale model in July of 2005. By this time, the group of twelve reviewers had been narrowed down to four: two whale experts from the Smithsonian (Charley Potter and Jim Mead), Harriet “Rox” Corbett (a whale research colleague and excellent artist) and me. We spent days in the basement of the NMNH, reviewing the newest version, studying photos of real whales, and scaling to one-twelfth measurement data from Phoenix collected during aerial photogrammetry efforts, as well as from necropsies of dead whales. The latter was necessary to accurately depict such features as the genital and mammary slits, including length and distance from each other and from the tail, flippers and umbilicus. It’s one thing to look at a photo and make a guess, but we needed exact measurements. Once we determined exactly what changes needed to be made, we would incorporate them into the model. Chase would take the model back to their design facility in Missouri, revise and return a few months later, and our review group would reconvene, review and modify.

Finally, in February 2006, Chase brought us the painted model (still only one-twelfth the size of the real Phoenix). It was up to me to assess the call-safety pattern and all the scars to make sure they were absolutely accurate. It was Phoenix the whale, in miniature.

They subsequently did a one-third size version before the final, full-scale model, but our work with the model itself was over. We had made sure that not only was it an accurate representation of a right whale in general, but it was an exact model of Phoenix, as well. All of our recommendations were followed, and the final result is the magnificent life-size model that hangs from the ceiling of The Sant Ocean Hall. On the kiosks beneath her is an informative exhibit that shares the trials and tribulations of Phoenix and her family and the constantly unfolding story of the North Atlantic right whale.

To learn more about all the exhibits in the Sant Ocean Hall, visit ocean.si.edu/ocean_hall/.

Marilyn Marx, Assistant Scientist
Marilyn began her work with right whales in 1985 at the Provincetown Center for Coastal Studies on Cape Cod. In 1994 Marilyn joined the Right Whale Research Program at NEAQ, where her main area of expertise is the individual identification of right whales. She has been an observer aboard vessel surveys for marine mammals throughout the Gulf of Maine and the Bay of Fundy, and has flown many aerial surveys. She has participated in large whale research projects in Iceland, New Zealand, Norway, the Dominican Republic and Canada. She holds a B.A. from the University of Wisconsin.
Biological Hotspots in the Gulf of Maine

By Scott Kraus

Birds, tunas and marine mammals in offshore waters of the Gulf of Maine are seasonally abundant and active around banks and ledges, presumably due to favorable feeding conditions. Birds and marine mammals eat a range of species at all trophic levels, with most specializing on specific types or sizes of prey. Marine biological hotspots are aggregations of multiple predators, and usually multiple prey species, including copepods, krill and fish, are present. These aggregations of food and feeding are ephemeral, appearing relatively quickly (within minutes to hours) and lasting from a few hours to a few weeks. The speed with which large predators arrive is mysterious, suggesting either rapid long-distance communication, multiple cues detectable at long distances, or well-known (to the animals) circumstances in a particular place and time that would favor good feeding. New England Aquarium scientists, in conjunction with scientists from the University of Southern Maine and Bigelow Laboratories, are engaged in studies to identify which of these factors operate in seabirds and marine mammals and to identify why aggregations of food occur in one place and not in another.

Our approach follows this reasoning: if the prey are planktonic, then the oceanographic features, such as tides, currents and upwellings, that concentrate prey may provide cues to predators about the location, intensity and timing of that aggregation of prey. If the prey are fish, then fish behavior, food preferences and migrations can dictate the locations and density of the schools. But low do whale and birds find them? Correlations between physical oceanography and marine mammal and seabird distributions have been reported for years, but little is known about how dense aggregations of food are formed, and even less is known about how they are found by large predators.

The goal of this collaborative research is to understand the foraging strategies of different large vertebrates in response to the biological and oceanographic factors influencing a particular region. Why is this important? Managing the oceans has become an increasingly difficult task, with many commercial and recreational interests competing for space. To reduce such conflicts, and to support healthy marine ecosystems, identifying biological hotspots is necessary to facilitate their protection.

Scott Kraus, Vice President of Research
Dr. Kraus received his B.A. from College of the Atlantic, his M.S. in biology from the University of Massachusetts, and a Ph.D. from the University of New Hampshire. He has published over 50 scientific papers on cetacean biology and conservation and is adjunct faculty at Univ. of Mass. at Boston and the University of Southern Maine. Kraus' recent research is increasingly focused on conservation issues faced by endangered species and habitats and the difficulties of identifying what animals need to survive in an increasingly urban ocean.

A Gulf of Maine hotspot in full swing as humpback whales, white-sided dolphins and seabirds feed on small fish.

Gannet, #2860, January 11th, 2006
Photo/Florida Fish and Wildlife Research Institute

Putting a Name to the Face

By Philip Hamilton

All North Atlantic right whales are given a unique Catalog reference number, but only about one third currently also have names. This year, the right whale research community decided to make an effort to fill this gap and name more whales. To this end, the main contributors to the Catalog got together and developed a system to nominate and vote on good, descriptive whale names. The primary reason for naming whales is to be able to recognize and remember a whale in the field. Knowing individuals allows us to collect any additional data that we need for that particular animal—for example, a skin sample for genetic analysis or photographs of a particular body part for animals that were recently entangled in fishing gear. Although a name that serves as a good mnemonic device—something that will assist in memory—is the primary aim, it is also important to have names that are palatable to the general public for those times when a cataloged right whale is in the news.

This year, Yan Guilbault developed a private section of the North Atlantic Right Whale Consortium web site
Researchers to enter nominations and vote on potential whale names. We decided that anyone from the Consortium, more than 200 people, could nominate names, and the 26 researchers who collect photographs in the field and need to recognize individual whales would vote on them. Considering it was the first attempt at this system, everything went quite smoothly. We chose 15 whales to name, and 19 different people from 15 organizations came up with names. All were required to provide an explanation for how they came up with that name. After a week of nominating, researchers from 10 organizations were able to vote on the names. Our voter turnout was comparable to the U.S. election, with 27% to 54% of all eligible voters voting on each of the names. Some of the favorites were “El” for Catalog #1209 (named for an “L” shaped callosity pattern), “Toothbrush” for Catalog #3193 (named for a scar on the under side of the tail), and “Gannet” for Catalog #2660 (named for a scar on the head that looks like a diving sea bird; see photo, above left). You can see more images of these whales at the Catalog web site at rwcatalog.neaq.org/. Other names include “Mantis” for Catalog #1620, “Wolf” for Catalog #1703, “Legato” for Catalog #1802, “Silk” for Catalog #1817, “Celeste” for Catalog #2330, “Insignia” for Catalog #2645, “Binary” for Catalog #3010, “Giza” for Catalog #3020, “Harmony” for Catalog #3115, “Panama” for Catalog #3190, “Infinity” for Catalog #3230 and “Orion” for Catalog #3240. Check out the Catalog web site to see if you can guess why these whales were given these names. We plan to continue the naming process next year and increase the number of whales on the list to be named.

Do you want to try your hand at naming a whale? Then enter our whale-naming contest (see Help Us Name a Whale!) and submit a name for Catalog #3250!

Help Us Name a Whale!

As you read our newsletter, you may wonder why some right whales have a name and others only have a catalog number. When a whale is incorporated into the North Atlantic Right Whale Catalog, it is given a four-digit ID number, and the majority of the whales in the Catalog have only an ID number. Occasionally, though, a scar or distinctive trait reminds us of something else, so the whale gets named for that. For example, one of our sponsorship whales is named Snowball for the round white scar on the side of his head. Another of our whales is named Van Halen for a guitar-shaped callosity pattern (apologies to Eric Clapton!).

Catalog #3250 is crying out to be given a name! This whale has only been seen in Great South Channel east of Cape Cod, and we know very little about it. It has two white dots on the right side of the head with a white line going between the dots (see photo). See if you can come up with a good name that is based on those three marks. To see the names already in use, go to the Catalog website at www.neaq.org/rwcatalog click, on “Search the Catalog” at the top of the page, then “Search for Individual Whales.” At the next screen, you’ll see a “Whale Name” window that you can scroll through.

Send your ideas to radata@neaq.org or to this address:
Right Whale Sponsorship Program, Right Whale Research
New England Aquarium
Central Wharf
Boston, MA 02110

Please write “Naming Contest” on the envelope or in the subject line of the e-mail. The winner will get a right whale T-shirt and be announced in the spring newsletter!
Sponsored Whale Update

By Yan Guibault

During the past months, the right whale team has been busy with photo-analysis and cataloging all the photographs from the summer field season and from our contributors. Currently, it appears that a least five of our six sponsored whales were seen in 2008.

On April 8 and 9, Shackleton (Catalog #2440) was seen in Cape Cod Bay by the Provincetown Center for Coastal Studies (PCCS) aerial survey team. He is easily identifiable from the air because of the propeller cuts on his left flank acquired during his escapade up the Delaware River in 1995. Piper (Catalog #2320) was spotted during these spring aerial surveys on March 18. Her condition is slowly improving after she was able to shed fishing gear that was wrapped around her head and through her mouth for nearly four years (2002 through 2006). Piper could be pregnant, as she had her first documented calf in 2006, and the minimum calving interval is three years. However, not all females are able to calve on that interval, so we will have to wait to see if she is observed this winter with a new calf. Researchers at PCCS have been conducting right whale vessel surveys since 1984 and winter/spring aerial surveys since 1998. Those surveys provide important information on the biology of the species. Photo-identification has shown that many individual right whales are consistently seen in the Cape Cod Bay feeding habitat year after year.

On July 29, the aerial survey team from the Northeast Fisheries Science Center, part of the National Marine Fisheries Service, sighted Phoenix (Catalog #1705) in the Gulf of Maine. Since these data have not yet been analyzed by the Aquarium team, there are no details at this time about her behavior. We will report more about this sighting in the next newsletter. Since Phoenix had her last calf in 2007, she would not be pregnant this year, but she is probably busily feeding to replenish her blubber stores after nursing her calf for about one year.

We sighted two of the other sponsored whales during our Bay of Fundy field season. On September 23 and 24, Calvin (Catalog #2223) arrived in the Bay, where she was observed logging (resting at the surface) in between deep feeding dives. We are hoping that Calvin is pregnant. She had her first known calf in 2005, so if she gives birth this winter, it would be a four-year calving interval. Stay tuned—the calving season is just about to begin! Calvin's inspiring life has been the source of several projects in the Adam's School in Castine, Maine. Check out The Calvin Project at adamsschool.com to learn more about the great work by the Adam's School students.

We also sighted Starry Night (Catalog #1028) during our surveys in the Bay. He was observed twice, on September 21 and
October 12, in Surface Active Groups. Starry Night was first seen and photographed twenty-eight years ago in the Bay of Fundy.

Unfortunately, Snowball (Catalog #1131) has not been seen in 2008—yet. We hope to see Snowball before the end of the year, since he has been photographed by the Whale Center of New England on Jeffrey's Ledge, east of Cape Ann, MA., in late November in 2003, 2004 and 2007.

Yan Guilbault, Assistant Scientist
In 2003, Yan earned a B.S. in Biology from McGill University, Quebec, Canada. Shortly thereafter, he began working seasonally with the right whale team in the Bay of Fundy and Florida and joined the program full time in 2004. In addition to cataloging photographs, he maintains the North Atlantic Right Whale Consortium website. He also works with our Canadian colleagues from Quebec to collect right whale sightings in the Gulf of St. Lawrence.

New Right Whale Research Blog
By Jonathan Cunha

With the help of Jeff Ives, editor and web coordinator at the Aquarium, the Right Whale Research Program now has a fully functional webblog (or blog). A blog is really just an open journal or diary, and the entries are posted on a website for anyone to read. Our blog is a great new information tool written by members of the research team. It allows us to paint a picture for readers of what it is like to be a right whale researcher.

The blog originally started last March, during the final month of our 2008 southeast U.S. field season. Subsequently, the Aquarium launched a new website, and Jeff took over as web content manager. By working with Jeff, we were able to improve our blog to the standards you see today.

The official start of the new and improved blog was August 1, when our Bay of Fundy field season began. Our entries covered research updates, anecdotal stories of our days at sea and in the office, descriptions of our day-to-day life, candid photographs of researchers at work, and intriguing videos of right whale behaviors. We were able to post entries about all of these events within days or even hours of them happening!

The blog continues to run in the off-season to keep readers up-to-date on current events related to right whales, but the entries are less frequent. It will become much more active as we begin our next field season, the aerial surveys over the southeast U.S. calving ground. We will keep you posted on our adventures in the plane, describe what a typical day is like, report on our efforts to spread awareness and much more.

Although the blog allows us to share updates and highlights quickly, it's much less detailed and informative than Right Whale Research News, to which you subscribe. The articles in our newsletter are more comprehensive and allow us to take the long view—that is, look back over a six-month period and write from that perspective. Because of that, it has more in-depth information and includes full field season summaries, sponsored whale updates, and other articles that are not part of the blog. In addition, you're helping us out tremendously by sponsoring a whale (and we thank you for that!).

The main function of the blog is to raise awareness about right whales and to keep readers involved with our research on a more constant basis.

To access the Bay of Fundy blog: neaq.org/blogs

Jonathan Cunha, Research Assistant
Jonathan joined the right whale team in November 2006 as a part-time intern. He started working full-time in August 2007 during the Bay of Fundy field season. He flies aerial surveys in the southeast calving grounds during the winter months. Jon manages the right whale blog site and works on photo-analysis and matching whales to the Catalog. He recently earned a B.S. in Marine Science from Suffolk University, Boston. His research interests include social behaviors, marine ecology and conservation.

A New Look for our Sponsorship Package
By Amy Knowlton

Our right whale sponsorship package is going through a major facelift. Over the years we have slowly expanded and improved what we include in each package. However, since good researchers are not necessarily good designers, we wisely decided to let the Aquarium design team create a colorful and informative four-page pamphlet. The pamphlet has descriptions about the history of right whales and our long-term study and includes the life story, composite drawing and map of sightings of the specific sponsored whale. It also includes links to websites that allow you to keep track of right whales at all times. Sponsorships will also include a newly designed Sponsorship Certificate, as well as a copy of the small, informative book Disappearing Giants, written by Scott Kraus and Ken Mallory of the New England Aquarium.

We are very excited by the new look of the package and encourage you to consider giving it as a unique way to celebrate holidays and milestones. The lucky recipient will have the opportunity to learn about one of the most endangered species in the world, which lives not in some exotic, faraway place, but right in the coastal waters of the U.S. and Canada.

For more information

Visit neaq.org/get_involved/animal_sponsorship/right_whale_sponsorship.php, or go to the neaq.org homepage and click on “Get Involved” then “Sponsor an Animal” to find the right whale sponsorship page.
Thank you!

We would like to thank 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. We truly appreciate all of your efforts and commit to use these funds directly for the conservation of right whales.

In 2008, your generous donations helped support the following activities by the Aquarium’s right whale scientists:

- Participation in U.S. National Marine Fisheries Service-sponsored meetings, responsible for the recovery of right whales under the Endangered Species Act and for reducing entanglements of right whales in fishing gear
- Field studies and right whale monitoring
- Maintenance of the Right Whale Catalog
- Scientific review of Environmental Impact Statements and Proposed Regulations with regard to military operations in the right whale calving ground and fishing gear in the Gulf of Maine
- Testifying before a congressional subcommittee on the Ship Strike Rule and providing the Office of Management and Budget with scientific data supporting speed reduction in shipping as a conservation measure for right whales