



Provincetown Center for Coastal Studies
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We wish to address an omission from last month's CoastWatch. The Center and the Massachusetts Sea Turtle Disentanglement Network would like to thank the Massachusetts Division of Marine Fisheries for their continued financial and logistical support. Without that support the Network would not be possible.

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The following individuals and organizations made gifts to the Center's marine education internship in memory of Phillip Kibler, a longstanding and dedicated member of the right whale survey team:

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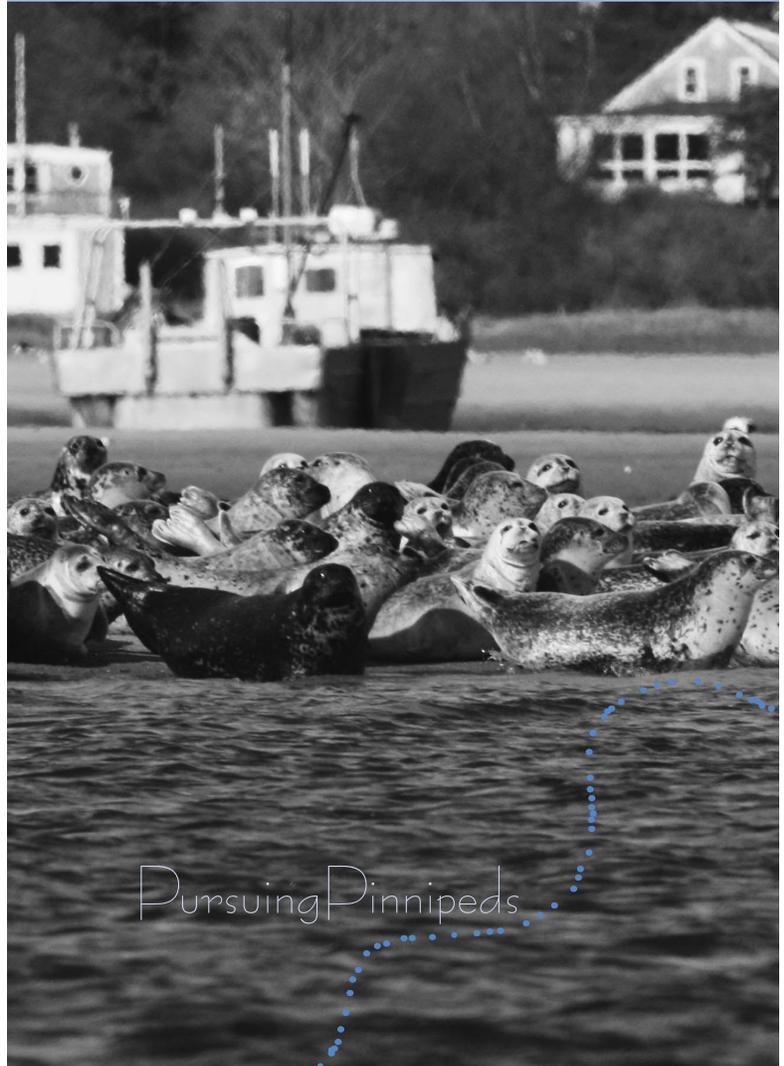
Many thanks to all of our Centered people, including you, our readers and supporters.

PASS ON A GIFT TO THE OCEANS

You can help ensure that the marine environment will be productive and beautiful for coming generations by making a bequest through your estate. Past bequests from our members and friends have helped to refit a research vessel, and build the marine laboratory. One of our greatest challenges for the coming years will be to build a permanent endowment to support marine science research, conservation and education programs. For more information contact Jan Young at 508-487-3622, ext. 104 (jeyoung@coastalstudies.org)

COASTWATCH

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LETTER FROM THE DIRECTOR

Making Headlines and Making a Difference

While the Japanese whalers in Antarctica made headlines around the world, reviving public interest in whales, it is equally important to understand and support the larger, more comprehensive efforts that are being made every day on behalf of the survival of the majestic whale species.

Yes, Japan's very questionable "research" plan to kill as many as 1,000 whales is onerous; yet many times that number of marine mammals face equally harrowing threats every day in all of the world's oceans. Unfortunately, these

stories are not as headline-grabbing and even worse, the many organizations and deeply committed individuals who work to protect marine mammals are chronically underfunded and often unknown.

But there is some progress. Last year, based largely on over 25 years of data from Provincetown Center for Coastal Studies scientists in collaboration with other colleagues, the International Maritime Organization rerouted the major shipping lanes into the Port of Boston. These lanes, which transected prime whale habitat on Stellwagen Bank, were shifted three and half miles to the northeast, thereby reducing the statistical chances of more ship strikes on whales in that area. Longtime supporters will recall that a similar shift of lanes in the Bay of Fundy was enacted several years ago, largely through the efforts of then Center scientist Moira Brown and her colleagues in right whale studies.

Center scientists have also worked with the Massachusetts lobstermen, government fisheries agencies and other groups in a great partnership through which more whale safe lobster and pot gear lines have been introduced and utilized by the state's lobstermen to further reduce the likelihood on deadly entanglements of marine mammals and fishing gear...a terrific example of collaboration rather than confrontation.

The point is that when the Japanese whale hunt has faded from the headlines, there will still be much more to be done to truly protect endangered whales. The Center plans to increase its cetacean research, education and policy development efforts in the coming years. I urge you to double your moral and financial support to help keep the campaign on track. Continued vigilance will be necessary. That is why it is so encouraging and exciting to see another group of young researchers join the Center on January 1.

Drs. Nathalie Jaquet and Stormy Mayo, respective directors of the right whale aerial survey and habitat programs, have assembled a superb crew of young research assistants and interns who will assist with the identification, analysis and research on the critically endangered Northern right whale from now through May when the whales move on. More on these dedicated individuals inside.

On January 12, during the survey's second flight of the season, the team spotted the first right whale in the Bay and as if to emphasize the critical nature of this work, it was dragging approximately 100 feet of rope from the right side of its mouth (see page 3). Our Rescue Team was immediately dispatched but darkness fell and the weather turned bad on the ensuing days. We know this whale and have studied and tracked it over previous years. As of this writing, we have not located it again, but this is where the daily preparedness and commitment comes in...please support sustained efforts to ensure the survival of these majestic animals.

Best regards,

Richard Delaney

Richard Delaney

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COVER PHOTO: Harbor seals lounge on a shoal just east of the Chatham Fish Pier during a February haul-out.

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THE RIGHT STUFF



Clockwise from top left: The survey aircraft, a Skymaster owned and flown by John Ambrault; other survey pilots are John Williams and Jack O'Brien. R/V Shearwater, captained by Marc Costa, marine ops manager. Team photo: David Osterberg, associate scientist; Dr. Charles "Stormy" Mayo, senior scientist; Dr. Ruth Leoney, aerial observer; Christin Khan, flight coordinator; Kathryn Langley, aerial observer (back row, left to right); Dr. Nathalie Jaquet, senior scientist; Sarah Adams-Fortune, habitat intern; and Karen Stamieskin, habitat research assistant (kneeling, left to right). Cockpit GPS showing plot and survey track lines of Cape Cod Bay.

They can spend eight hours straight in the tiny cabin of a Skymaster aircraft, circling over the endless expanse of Cape Cod Bay; others of them spend twelve-hour days aboard a 40-foot research vessel, in sub-freezing temperatures, trawling for whale food. These are the individuals who make up the Center's right whale research team—field researchers who must learn how to ditch an aircraft or handle a man overboard—in addition to all the techniques and skills required to conduct population and habitat studies of an endangered large whale species.

According to Nathalie Jaquet, director of the survey, her aerialists must have excellent observational skills, because right whales spend most of their time underwater, and when they do surface, only a fraction of their bodies are visible. Jaquet said, "You have to take good pictures, not easy at 750 feet on a plane that is circling [over water] at 100 miles per hour. Once you spot the whale, you have less than one second to take a picture [on that turn of the aircraft]."

Back at the lab, photographs are matched against the New England Aquarium's right whale catalog of about 360 active individuals (the catalog contains a total of over 470 whales that include all known fatalities), a painstaking and time-consuming process.

Aboard R/V Shearwater, the routine is no less rigorous, where in order to collect not only samples of the whale's prey but information about the environment it prefers, crew members lower a heavy device called a CTD (Conductivity, Temperature, Depth recorder) to the bottom at each sampling station in the bay. Samples are also strained for plankton, which are then laboriously counted back at the lab, sample by sample.

Detailed field notes from flights and cruises can be found at coastalstudies.org. Simply click on "Right Whale Field Notes" under Whale Research on the home page.

How to save an ocean: education, education, education.

If knowledge is power, then aspiring stewards of the marine environment should flock to enroll at the Provincetown Center for Coastal Studies, which has been providing award-winning marine education programs since 1976.

Center programs are designed to provide authentic interaction with the natural worlds and inhabitants of the dunes, the beach, the marsh, the harbor, and the seas beyond.

Upcoming educational offerings are shown below. Schedules are subject to change, so please check our website regularly. You are also invited to contact Marine Education Director Joanne Jarzowski directly (508-487-3623, ext. 107; whalewatch@coastalstudies.org).



Beach cleanup

Join the Center's staff and volunteers as they conduct beach clean-ups throughout Provincetown at the beginning and end of the season. Balloons, six-pack rings, lines, nets, cigarette butts, and other items can be dangerous and even deadly to marine animals and birds. Help us to remove these items from our local beaches, which are most heavily littered in the spring and fall. Dates are Earth Day, April 22; and during CoastSweep, September 20.

Whale rescue talks

Every Monday at noon, the Center's large whale and sea turtle rescue team will provide an eye-witness account of what it is like to find yourself adrift in a rubber dinghy, eyeball to eyeball with a 60 ton right whale ensnared in lobster gear. See what it takes in terms of manpower and equipment to get that gear off of that whale so that it may live long enough to ensure the species' survival. MacMillan Pier.

World Ocean Day

Finally, Sunday, June 8, is World Ocean Day. The Center will be celebrating with a book-reading and signing by Karen Romano Young, author of the fascinating and beautiful children's book *Across the Wide Ocean*.

Stay tuned and keep in touch to find out what else there is to do and learn with the Center's educational programs. There is so much to explore!



Lisa Sette photographing seals in Chatham Harbor

Gray seals and harbor seals are visible to almost anyone on Cape Cod. They seem so familiar—in the water, "hauled out" on beaches—that one might assume there is no mystery left to them. But basic questions remain about their lives. Do the seals move between haul out locations or are they loyal to certain spots? Are there more grey seals than harbor seals at a given beach? What is the ratio of males to females at a haul-out? Biologist Lisa Sette is looking for answers.

The genesis of this project is recent. In October of 2007, when Sette was assisting Gordon Waring from the Northeast Fisheries Science Center in Woods Hole and Meghann Murray from Northeastern University with photo-documentation of haul-out interactions between gray and harbor seals, a lightning bolt struck:

"At the end of the day, reviewing the photos, we noticed that there were a number of animals that had unique markings," says Sette. "I realized that all these markings—scars, entanglements, pigment patterns in their coats, brands from other biologists' studies—act like the markings on the underside of a humpback's fluke. They identify individual animals and could allow us to track seals over time. Wouldn't it be interesting to put together a catalogue of these animals and follow them over the next few years? What kind of story would emerge?"

In the UK, Australia, Alaska, Canada and California photo identification projects of seals and sea lions are already underway and are proving quite successful. Based on their success, Sette has begun to develop a catalogue of photos of seals, but she's not going it alone: "I love collaboration. Meeting other people, talking, sharing information, and collaborating with other organizations is one of the best parts of this project," says Sette. "It's inspiring."

To date, Sette has begun working with CCSN/IFAW and developing relationships and conversations with NEFSC, WHOI, CUNY, NU, NPS, USFWS and

Pursuing Pinnipeds

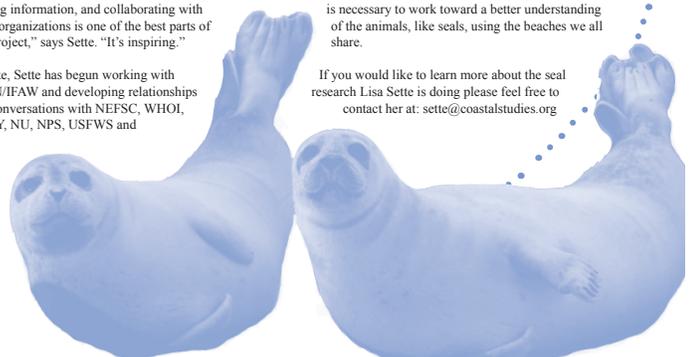
CCCHFA. (For those unfamiliar with the biological alphabet soup, that's the Cape Cod Stranding Network/ International Fund for Animal Welfare, New England Fisheries Science Center, Woods Hole Oceanographic Institute, City University of New York, Northeastern University, National Park Service, United States Fish and Wildlife Service, and Cape Cod Commercial Hook Fisherman's Associations).

Sette will perform the primary work on the database and catalogue in conjunction with Sarah Herzig and Katie Touhey of the CCSN/IFAW. She will also visit popular seal haul-out sites on Cape Cod, survey for "marked" animals, and photograph them for the catalogue. Over time, the hope is that a good number of individual animals can be "recaptured" through photographs and tracked. Beyond this, the catalogue has the potential to provide a foundation for behavior studies, human interaction studies, and more.

Why this and why now? Sette has always been interested in the places where humans and marine mammals interface. She did her graduate work on manatees in the canals of Cocoa Beach, Florida and the Thousand Islands. She has worked for over twenty years as a naturalist around the globe, and her interactions with local cultures and people who make a living on the sea has instructed and inspired her.

"It makes you feel rich to live in close proximity to wildlife, as we do on the Cape," says Sette. That proximity is not without its complexity, but given that the Cape is almost all shoreline and that more and more people continue to discover its beauty, Sette feels that it is necessary to work toward a better understanding of the animals, like seals, using the beaches we all share.

If you would like to learn more about the seal research Lisa Sette is doing please feel free to contact her at: sette@coastalstudies.org



Right whales, right from the beach

Each winter and spring, the most endangered large whale in the world, the North Atlantic right whale, comes to Cape Cod Bay to feed. Join the Center's own researchers on a field walk to watch these magnificent and rare animals right from the water's edge. To sign up, e-mail whalewatch@coastalstudies.org and enter "right whale walk" in the subject line. Sighting right whales are kind of like sighting movie stars, so when they show up, you have to be ready to go!

Lecture series

Become part of the solution for your summer vacation. From Memorial Day to Labor Day, scientists, researchers and educators from the Center, as well as special guest lecturers, will present bi-weekly free public lectures on Thursday evenings at the Hiebert Marine Lab in Provincetown. Check the website for a full schedule later this spring.



FIRST RIGHT WHALE = ENTANGLED RIGHT WHALE

On January 12, the Center's right whale aerial survey spotted the first right whale of the season in Cape Cod Bay. And that first right whale was entangled.

In a scenario that has become distressingly familiar to right whale researchers all along the entire east coast, this whale was observed with green line exiting from the right side of its mouth that trailed alongside its flank and beyond for another three-quarters of its body length.

Although it was already late afternoon, a right whale observed engaged with any lines most likely means a rescue attempt at some level. That is the nature of the beast because there are fewer than 400 of these animals remaining, so any threat is considered a dire threat.

R/V Shearwater was dispatched to the scene and arrived at about 4:15 EST. In the meantime, the circling aircraft kept the whale in sight in spite of its taking several long dives. Once *Shearwater* arrived, Skymaster handed off the whale and headed in to land at twilight.

Shearwater remained with the whale in the gathering darkness, attempting several approaches that would allow team members to make a more detailed assessment and to tag the whale if necessary. But the whale proved elusive and they finally had to give up.

Back on land, the New England Aquarium and Center staff identified the whale as No. 2645, an adult female, with a long history of migration to the feeding grounds of Cape Cod Bay.

Researchers first sighted this whale in 1996 with her mother in the calving grounds of the Southeast region, before migrating to the bay later that same year. No. 2645 has been seen nearly every year since her birth. She lost her first calf in 2005 when she was just nine years old. But she was sighted again last year in the Bay of Fundy, with a new calf and gear-free.

No. 2645 could get lucky in several ways: the entanglement, which has since been assessed as relatively minor, could eventually work its way out of her mouth and baleen plates on its own.

Or, the whale might be spotted and reported again by trained or untrained individuals, and the Center's rescue team would be able to make a more thorough assessment depending on weather, time of day, the whale's location and behavior, and most of all, whether someone can stand by the whale until help arrives (see "The awful truth about entanglement reporting...and follow-up, next page).

As it happened, in this case, a report came in the very next morning by a private citizen in North Truro who was about a half-mile from the bay, and claimed to have seen a right whale. Center personnel investigated immediately by land and sea, and actually found a right whale—but not No. 2645.

In the meantime, the USCG and NOAA Fisheries are on alert. Because the population is so severely compromised, the loss of a breeding female like No. 2645 could threaten species survival. The majority of right whale deaths are the result of human activities including collisions with ships and entanglements in commercial fishing gear. If you spot an entangled whale, please call the Atlantic Large Whale Disentanglement Hotline at 1-800-900-3662.

At press time there were ten, plausibly open right whale entanglement cases that have been identified. The disentanglement program keeps an updated list of these entanglement cases to reduce confusion when one of these animals is sighted in the field, by aerial observers for instance. The guide also prompts observers to look for specific aspects of a particular whales' entanglement. The list is not an actual count of right whales currently entangled—the actual number is likely higher but these are the ones that have been found to date. Some of these whales have been seen recently, others have not been seen since 2002. Whales are removed from the list once their entanglements have been resolved.

CENTER STUDY REVEALS LOW RATE OF ENTANGLEMENT REPORTING

Present and former Center researchers and rescuers Bob Bowman, Scott Landry, David Mattila and Jooke Robbins presented a report at the recent Biennial Conference on Marine Mammals in Capetown, South Africa in December entitled "Needle in a haystack: evidence of a low reporting rate of entangled whales." The abstract clarifies a disheartening reality of whale entanglement: entangled whales may not be rare but finding one is.

Large whale entanglement is a serious and chronic conservation issue, and mitigation measures are hampered by limited information. Scar-based studies of North Atlantic humpback and right whales indicate that many whales become entangled annually but only a small proportion of cases are reported. Although some whales may shed entanglements quickly, we investigated the hypothesis that many entangled whales are simply not seen and/or reported, even when carrying entanglements over extended periods and distances. We examined 15 entanglement cases on the East Coast of North America for which a telemetry buoy was attached to the entangling gear by the Atlantic Large Whale Disentanglement Network. Four humpback whales and 11 right whales were outfitted with a brightly painted 35cm diameter buoy, marked with a toll free number, trailing typically 12-23m behind the flukes. The number of days to tag removal or failure was calculated and compared to a database of entanglement reports within the same region and time span. The average elapsed time and minimum distance traveled per case was 13.5-days and 1,404km. During the 203 cumulative elapsed days of carrying buoys, only one of these whales was reported as entangled. This particular report followed broadcasted notices to mariners and news coverage regarding the entanglement, in addition to widespread and long-term education programs. In three other instances, mariners encountered an entangled whale and either intentionally or accidentally removed the telemetry buoys but did not report the events. One tagged whale traveled over 8,900km without being reported. Based on these results, the average reporting rate per known entangled whale was only 0.0077 reports per day per case (sd 0.02979). Furthermore, even when an entangled whale is seen, it is not necessarily reported. This low rate of entanglement reporting reaffirms the urgent need for significant entanglement reduction and continued outreach and research efforts.

The telemetry buoy affixed to whale entanglements is about the size of a basketball and is brightly marked. The buoy carries transponders for tracking the entangled whale. Positions from the buoy can be plotted to current charts and generate a clear image of where the whale has been. For a disentanglement attempt the rescue team will need to know where the whale is headed.



FOLLOW-UP OPPORTUNITIES ARE LIMITED

Just because a whale is "lucky enough" to be reported entangled does not mean it is automatically a candidate for a disentanglement effort. First, an assessment is made based on a number of factors including available field observations from the reporting entity, photographs, or obvious signs of injury or poor health. And unless the reporting vessel or aircraft can stand by until the team arrives, the chance of relocating the animal is nearly zero—unless its entanglement has anchored it in place. According to Greg Krutzikowsky, rescue program director, whales have been known to shed gear on their own; others seem able to live with their entanglement; for still others, the entanglement will ultimately kill them unless a rescue effort is successful. Krutzikowsky says, "Entanglement can lead

to infection, interfere with an animal's ability to feed and lead to death which will cause the carcass to sink, never seen again." When an entanglement is reported late in the day, or when bad weather and dangerous seas prevent rescuers from reaching the animal, "rescuers send out an alert to all Atlantic Large Whale Disentanglement Network (ALWDN) members, mariners and the USCG to be on the lookout for the whale, in hopes that the animal is spotted again and the opportunity to dispatch a team presents itself." The majority of right whale deaths are the result of human activities including collisions with ships and entanglements in commercial fishing gear. If you spot an entangled whale, please call the Atlantic Large Whale Disentanglement Hotline at 1-800-900-3662.

Above right: NOAA Fisheries image. Taken under NOAA permit 932-1489 with the authority of the US ESA.