

## STELLWAGEN BANK E-NOTES: sanctuary news & events

Sept. 2012

### Front Row Seats for Nature's Show

Researchers get a close-up view of a breaching humpback calf during the sanctuary's summer humpback whale tagging mission.

See related article on page 2.



Photo: SBNMS file photo by Ari Friedlaender, Duke Univ. taken under NOAA Fisheries Permit #14245

Right Whale Photo: SBNMS file photo taken under NOAA Fisheries Permit



## Underwater Noise Decreases Right Whale Communications in Stellwagen Bank Sanctuary

High levels of background noise, mainly due to ships, have reduced the ability of critically endangered North Atlantic right whales to communicate with each other by about two-thirds according to a NOAA-led paper published in the most recent issue of the journal *Conservation Biology*,

From 2007 until 2010, scientists from Stellwagen Bank National Marine Sanctuary, Cornell Lab of Ornithology, NOAA Fisheries Northeast Fisheries Science Center, and Marine Acoustics Inc. used an array of acoustic recorders to monitor noise levels, measure levels of sound associated with vessels, and to record distinctive sounds made by multiple species of endangered baleen whales, including “[up-calls](#)” made by right whales to maintain contact with each other.

*continued on page 2*



[www.facebook.com/SBNMS](http://www.facebook.com/SBNMS)

### In This Issue:

Humpback Tagging Mission	p.2
Provincetown Kiosk Installed	p.3
Sanctuary in the News	p.3
College Course Offered	p.3
Educator Conference Planned	p.3
Graham Nash Award	p.4
Sanctuary Calendar	p.4

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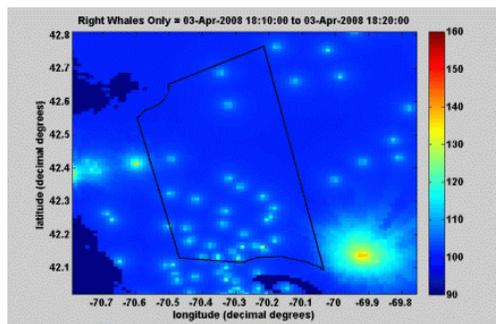
## Whale Communications continued from page 1

Vessel-tracking data from the U.S. Coast Guard's Automatic Identification System was used to [identify the various ships whose noise was calculated inside and outside the sanctuary] calculate noise from vessels inside and outside the sanctuary. By further comparing noise levels from commercial ships today with historically lower noise conditions nearly a half-century ago, the authors estimate that right whales have lost, on average, 63 to 67 percent of their communication space in the sanctuary and surrounding waters.

"A good analogy would be a visually impaired person, who relies on hearing to move safely within their community, which is located near a noisy airport," said Leila Hatch, Ph.D., NOAA's Stellwagen Bank National Marine Sanctuary marine ecologist and lead author of the paper. "Large whales, such as right whales, rely on their ability to hear far more than their ability to see. Chronic noise is likely reducing their opportunities to gather and share vital information that helps them find food and mates, navigate, avoid predators and take care of their young.

An animated version of this image, showing calling right whales, large commercial ships and wind-dependent background noise within the study area (boundaries of the SBNMS outlined in black) calculated every 10-min over a 9-hr period can be viewed at this website.

[Download here](http://stellwagen.noaa.gov/science/passive_acoustics_current.html) or go to [http://stellwagen.noaa.gov/science/passive\\_acoustics\\_current.html](http://stellwagen.noaa.gov/science/passive_acoustics_current.html)



The Cornell Lab of Ornithology

North Atlantic right whales, which live along North America's east coast from Nova Scotia to Florida, are one of the world's rarest large animals and are on the brink of extinction. Recent estimates put the population of North Atlantic right whales at approximately 350 to 550 animals.

"We had already shown that the noise from an individual ship could make it nearly impossible for a right whale to be heard by other whales," said Christopher Clark, Ph.D., director of Cornell's bioacoustics research program and a co-author of the work. "What we've shown here is that in today's ocean off Boston, compared to 40 or 50 years ago, the cumulative noise from all the shipping traffic is making it difficult for all the right whales in the area to hear each other most of the time, not just once in a while. Basically, the whales off Boston now find themselves living in a world full of our acoustic smog."

The authors suggest that the impacts of chronic and wide-ranging noise should be incorporated into comprehensive plans that seek to manage the cumulative effects of offshore human activities on marine species and their habitats.

"We are starting to quantify the implication of chronic, human-created ocean noise for marine animals," said Holly Bamford, deputy assistant administrator of the [National Ocean Service](http://www.noaa.gov). "Now, we need to ask how we can adapt our management tools to better address these problems."

The study was funded under the National Oceanographic Partnership Program. The paper published in *Conservation Biology* can be found [online](http://www.onlinelibrary.wiley.com/doi/10.1111/j.1523-1739.2012.01908.x/abstract) at <http://www.onlinelibrary.wiley.com/doi/10.1111/j.1523-1739.2012.01908.x/abstract>

More information on the study is available [online](http://stellwagen.noaa.gov/science/passive_acoustics_current.html) at [http://stellwagen.noaa.gov/science/passive\\_acoustics\\_current.html](http://stellwagen.noaa.gov/science/passive_acoustics_current.html)

## Dtags, Crittercam and the 2012 Humpback Whale Tagging Season

Humpback whales were once again the stars of the summer research cruise, as a consortium of researchers placed digital recorders and cameras on the backs of humpback whales to learn about their underwater behaviors. A total of 27 tags were placed during the two-week mission.

Using National Geographic Society's Crittercam and Dtags (digital recording tags) developed at Woods Hole Oceanographic Institution, the researchers were able to track 21 different humpback whales. Some of the whales carried both tags. Due to a shift in their sand lance prey, most of the humpbacks were studied outside of the sanctuary off Cape Cod (Chatham/Orleans area), although most of these whales are regular visitors to Stellwagen Bank.

National Geographic will be using some of the Crittercam footage for a documentary on whale behavior that is planned for next year. For the science team, the underwater video footage provides additional insights into newly discovered behaviors. To see a short video from the cruise, go to the online New York Times article listed on page 3.



A humpback whale breaches during the 2012 whale tagging cruise. Credit: Elliott Hezen/SBNMS file photo. Photo taken under NOAA Fisheries Permit #14245.

### Tagged Whales

Ampersand  
Anchor  
Anvil  
Aswan  
Binary  
Calderas  
Canopy  
Division  
Dropzone  
Entropy  
Eruption  
Ganesh  
Gumdrop  
Iota  
I-vee calf '08  
Oreo  
Springboard  
Stub  
Tracer  
Touche  
Zeppelin

## Sanctuary Kiosk Garners Attention on Provincetown Wharf

A new sanctuary outdoor interpretive kiosk was installed on MacMillian Wharf in Provincetown, Mass. in late August. The unit replaces a similar unit that had been in place since the mid-1990s. The kiosk provides information about sanctuary resources, including whales, fishes and seabirds, the sanctuary's marine mammal research efforts, and the local shift from whaling in centuries past to the area's fame as the birthplace of East Coast whale watching. Provincetown is a gateway city to the sanctuary and whale watching is an important ecotourism activity for both locals and tourists alike. The kiosk is positioned near the departure point for several whale watch vessels as well as along the path for arriving or departing passengers for the ferries from Boston and Plymouth,



Sanctuary kiosk in Provincetown. Photo: Deborah Marx. NOAA

### Stellwagen Sanctuary in the News

#### Editorial: Whales: I've gotta be me

The Boston Globe-Aug 27

<http://bostonglobe.com/opinion/editorials/2012/08/26/stellwagen-research-whales-unique-personalities-shows-urgency-protecting-them/zlBeFqbtKueL4VDmUeFTvO/story.html>

#### New data recast whale studies

Cape Cod Times-Aug 27

<http://www.capecodonline.com/apps/pbcs.dll/article?AID=20120827/NEWS/208270314>

#### Close to shore, humpbacks are far from safe

New York Times-Aug 20, 2012

<http://nytimes.com/2012/08/21/science/earth/close-to-cape-cod-shore-humpback-whales-are-far-from-safe.html?pagewanted=all>

#### Ships' noise hinders whale communication

Boston Globe-Aug 15, 2012

[http://articles.boston.com/2012-08-16/metro/33216499\\_1\\_whales-stellwagen-bank-underwater-sound](http://articles.boston.com/2012-08-16/metro/33216499_1_whales-stellwagen-bank-underwater-sound)

#### Stellwagen Bank sanctuary volunteer receives national award

The Patriot Ledger-July 26, 2012

<http://www.patriotledger.com/news/x120979315/Stellwagen-Bank-sanctuary-volunteer-receives-national-award>

## Teachers Invited to Expand their Sanctuary Horizons

Sharks, whales and a whole lot more! In honor of Stellwagen Bank National Marine Sanctuary's 20<sup>th</sup> anniversary, the Boston Harbor Educators Conference's 2012 theme is "Celebrating 20 years of Discovery: Stellwagen Bank National Marine Sanctuary." The conference will be held on Saturday, Sept. 29 at UMass/Boston. From art to physics, a wide range of topics touching on sanctuary resources and research will be offered. Acclaimed author Deborah Cramer, author of *Great Waters: An Atlantic Passage* and *Smithsonian Ocean: Our Water Our World* – a companion book to the Smithsonian Institution's new Sant Ocean Hall will be the morning's keynote speaker. Sanctuary superintendent Craig MacDonald offers an exciting tour of 20 years of newsworthy science accomplishments, highlighted by recent whale tagging work. The afternoon keynote speaker is Massachusetts' own shark expert – Greg Skomal. The conference is sponsored by Massachusetts Marine Educators with co-sponsorship from the sanctuary, MWRA, Boston Harbor Islands National Park Area and UMass/Boston. The non-MME member pre-registration rate is \$45 and includes all talks and workshops, lunch, bag and half year membership to MME (the MME rate is \$35). Walk-in registration is \$50. There are special rates for students and morning session only participants. This year, parking will be free for those who pre-register courtesy of the Urban Harbors Institute. Those taking public transportation will be reimbursed if they have a valid receipt. Visit the MME website ([www.massmarineeducators.org](http://www.massmarineeducators.org)) for more information about the conference.

### Content Areas

Art  
Archaeology  
Biology  
Chemistry  
Earth Science/Geology  
Engineering  
Technology  
Geography (GIS)  
Language Arts  
Maritime History  
Meteorology  
Oceanography  
Physics  
Photography  
Theater Arts

## Learn About the Sanctuary and Get College Credit, Too!

Have you ever wanted to explore the wonders of Stellwagen Bank National Marine Sanctuary and get credit for it, too? Well, now you can, through an undergraduate science course at Massasoit Community College. The course, entitled "A Coastal New England Marine Sanctuary" will cover the natural and cultural resources of the region and look at major resource conservation issues. Each week will offer an peak into a different subject area, providing students with introductions to ornithology (birds), ichthyology (fish), marine mammalogy (whales and seals), invertebrate zoology (lobsters, squid and a plethora of other species), meteorology, oceanography, geology, geography, archaeology and maritime history, and government as it relates to ocean and environmental legislation.

Individuals can register for the entire course (and receive three undergraduate science credits) or sign up for individual lectures through Massasoit Community College's Lifelong Learners Institute. If signing up for individual lectures, please contact the sanctuary or Massasoit to check on the exact lecture and time – as special guest lecturers may have to reschedule their talks due to outside commitments.

The sanctuary and college are discussing plans to evolve the course into an online offering that will be made available on a regular basis. For more information, contact the sanctuary at 781-545-8026 ext. 204 or Massasoit Community College at 508-588-1900.

#### SANCTUARY TRIVIA:

When was the National Marine Sanctuary Program created?

Legislation authorizing the sanctuary program was passed in 1972—40 years ago on October 23.

For a countdown of the Top 40 accomplishments in the sanctuaries, go to

<http://sanctuaries.noaa.gov/news/top40/welcome.html>

# 20<sup>th</sup> Anniversary Calendar

- Sept.-Dec. **A Coastal New England Marine Sanctuary** course at Massasoit Community College – beginning Sept. 11 and running through December. A 3-credit undergraduate basic sciences course offered by the college in cooperation with the sanctuary.
- Sept. 27-28 **Dolphin Fleet Special Whale Watch Ticket Program** in celebration of Stellwagen 20<sup>th</sup> Anniversary and Sister Sanctuary Partnerships.
- Sept. 29 **Stellwagen Bank Sanctuary Science and Education Symposium** – Boston Harbor Educators Conference – at UMass/Boston. Sponsored by Massachusetts Marine Educators, SBNMS, UMass/Boston, MWRA and Boston Harbor Islands.
- Oct. 19-20 Massachusetts Archaeology Month – sanctuary exhibit at Boston Museum of Science Archaeology Fair
- Nov. 1-2 NEOSEC (New England Ocean Science Education Consortium) Ocean Literacy Conference in Mystic, Conn. 20 Years of Stellwagen Bank Sanctuary session talk
- Nov. 4 Official 20<sup>th</sup> Anniversary of Gerry E. Studts Stellwagen Bank National Marine Sanctuary

## Singer/songwriter Graham Nash Receives Award from Sanctuary



Graham Nash, two-time inductee into the Rock and Roll Hall of Fame with Crosby, Stills and Nash and The Hollies, received a Conservation and Environmental Stewardship Award from Stellwagen Bank National Marine Sanctuary in July. The presentation of the award culminated a three-day celebration in Woods Hole of the sanctuary's 20<sup>th</sup> anniversary, which included panel discussions, staff talks about on-going research, a children's art exhibit and hands-on activities. Nash has been a long-time supporter of environmental protection efforts; his song "Wind on the Water" is a lament on whaling and a message for whale conservation. At the award ceremony, he sang both that song and "Teach Your Children Well." A crowd of approximately 400 individuals participated in the July 21 program.

## Sabine's Gull spotted in the sanctuary



Volunteer seabird spotters were treated to a rare sight during an August 9<sup>th</sup> research cruise when a Sabine's gull flew by the R/V *Auk*. This gull has never been listed on any sanctuary bird list, as the species is a rare fall migrant to the North American east coast. The bird's normal summer range is the Arctic (circumpolar), nesting on tundra, with winter migrations in the Pacific to Peru and the African coastline in the Atlantic. This individual is shifting into its winter plumage. Photo: Blair Nikula, SBNMS Volunteer Seabird Steward

## NATIONAL MARINE SANCTUARY SYSTEM



Scale varies in this perspective. Adapted from National Geographic Maps.

National Marine Sanctuaries  
1972-2012: Celebrating 40 Years

Gery E. Studts  
Stellwagen Bank  
National Marine Sanctuary  
1992-2012: Celebrating 20 Years



<http://stellwagen.noaa.gov/>