



Lines from fishing gear entangle humpback whale. Photo courtesy of Center for Coastal Studies; photo taken under NOAA Permit #18786

Entanglement and White Shark Threaten Sanctuary Humpback

(story on page 3)

Research team uses hexacopter to study whales



Credit: Michael Moore, WHOI

The machine pictured here is not a toy helicopter, but an important research tool. The remotely operated six-rotor hexacopter was used during the month of July by a team from the Woods Hole Oceanographic Institution and NOAA to monitor the health of whales in the sanctuary. (story on page 8)

In This Issue:

Humpback Sightings	p.2
Double Trouble for Whale	p.3
NOAA Award to SB Staff	p.4
New Shipwreck Book	p.5
In Memoriam: Tom Freeman	p.6
Diving With a Purpose	p.7
Hexacopter Takes Flight	p.8

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2015 promises to be another great whale watching year in the sanctuary

Daily and weekly web blogs, Facebook posts and other communications from whale watch companies that visit Stellwagen Bank National Marine Sanctuary all consistently report that humpback whales have returned in large numbers. Of course, the whales are here because their food is here, and on days when the food (small prey fish, such as sand lance) moves elsewhere, the whales may be harder to find.

The list (at right) was gleaned from the whale watch company reports. Since late spring, more than 100 whales have been identified. Naturalists can ID individual whales from the unique black and white pattern of skin pigmentation and scarring on the underside of each tail. Additionally, a number of unnamed but known juveniles have been spotted. Occasionally, naturalists noted the impossibility of identifying every whale in large congregations or at a distance. Reports also mentioned sightings of fin and minke whales in sanctuary waters.

Sanctuary Classic fishing photo contest continues until September 7

This summer marks the return of the Sanctuary Classic, a fishing photo contest designed to promote recreational opportunities and reward conservation-minded recreational angling in the national marine sanctuaries. The contest opened on Friday, July 3 and ends on Labor Day, Monday, September 7.



Entrants register online and enter their fishing photos through the <http://sanctuaryclassic.org> website. Each week, one entrant will be awarded a pair of Costa sunglasses. At the end of the contest, the Guy Harvey Oceans Foundation will present up to 13 \$1,000 scholarships – one for each national marine sanctuary – for youth photos selected by a panel of judges, including marine artist Guy Harvey. Photos will be judged on how well they display one or more of the following criteria: Biggest (Looking) Fish; Smallest (Looking) Fish; Best Conservation Message; Best Display of Responsible Fishing Values; Guy Harvey Spirit; Most Family Oriented Photo; Most Unique Looking Fish; and Largest Fish Compared to Angler.

Sanctuary Classic is sponsored by the Office of National Marine Sanctuaries, the Guy Harvey Oceans Foundation and The Sportfishing Conservancy.

Known Humpbacks in the Sanctuary

Compiled from whale watch company reports, May-late July

Aerospace	Music
Apex & calf	Nile
A-plus	Northstar
Appaloosa & calf	Ouija
Ase	Palette & calf
Aswan	Parens
Bandit	Pele
Bayou	Peninsula
Bearclaw	Pepper & calf
Binary	Perseid
Blackbird	Phantom
Bramble	Pharos
Calderas	Pinpoint
Canopy	Pitcher
Cardhu & calf	Pixar
Cats Paw	Pleats
Centipede	Pregunta
Circuit	Prongs & calf
Citation	Putter
Conflux	Quercus & calf
Coral	Raccoon
Cygnus	Rapier & calf
Dancer	Reaper
Daffodil	Reflection
Degree	Release
Doric	Rocker
Draco	Salt
Dracula	Samara
Duckpin	Samovar
Echo	Sanchal
Ember	Scylla
Epee	Seal
Eruption	Shards
Etch-A-Sketch	Shuffleboard & calf
Evolution	Sirius
Falcon	Soot
Fulcrum & calf	Spike
Galactic	Spoon & calf
Geometry	Sprinkler
Giraffe	Storm
Glo	Strike
Glo-Stick	Stub
Glyph	Subterranean
Gunslinger	Sundown
Habanero & calf	Tear
Hippocampus	Tectonic
Jenga	Thalassa
Labyrinth	Thread
Lariat	Thumper
Lavalier	Timberline
Leukos	Tongs
Level	Tornado
Lilium	Tracer
Lutris	Treasure
Mars	Tunguska
Meerkat	Vector & calf
Mend	Venom
Midnight & calf	Ventisca
Milkweed	Vulture
Mira	Wizard
Moonlight	Zebra & calf

DOUBLE TROUBLE:

Entanglement and white shark threaten sanctuary humpback



Rescue team pulls up to an entangled whale. Photo courtesy of Center for Coastal Studies; taken under NOAA Fisheries Permit #18786

You would not think that a humpback whale, even a young one, would be threatened by much in its natural environment. But on July 11 in Stellwagen Bank National Marine Sanctuary, a whale faced two potentially lethal dangers: fishing gear and a white shark. Luckily for the whale, the day resulted in a happy ending.

A team from the Center for Coastal Studies (CCS), while undertaking research on humpback whales, spotted a small whale that appeared to be resting at the surface. A closer inspection revealed a “hogtied” humpback, with line running through the mouth and wrapped multiple times around the tail. The animal was essentially immobile at the surface and especially vulnerable since it could not fully use its tail for swimming or defense. The entangling lines forced the animal’s body into a virtual letter “C.”

Even worse, the research team observed a large cut on the whale’s left flank and dorsal fin. The wound became a bloody lure, enticing a 15 foot white shark to establish a circling patrol.

The incident occurred about five miles north of Provincetown on the southern edge of Stellwagen Bank and within sanctuary boundaries. This area is popular for both whales feeding on sand lance (a small schooling fish that prefers a sandy habitat) and for fishermen and lobstermen, who set gill nets and strings of lobster traps. The wider region, particularly the Outer Cape down to Monomoy Island, increasingly attracts white sharks,

which prey on the growing populations of gray and harbor seals.

According to Greg Skomal, shark specialist with the Massachusetts Division of Marine Fisheries, the white shark’s presence was not a surprise. “The shark was obviously drawn in by the blood and was waiting for its moment when the whale died or was close to death,” he said. These sharks, although active predators on smaller mammals, usually scavenge on large whale carcasses. Nonetheless, Greg noted the exception that “we believe that white sharks can also attack whales, such as right whale calves off the Florida coast where the calving grounds are located.”

The live whale, white shark interaction was a first for Stellwagen Bank observers. “I’ve only seen a shark attack a live whale once before, and that was a case in Hawaii of a humpback calf that became separated from its mother,” said Dr. Jooke Robbins, director of humpback whale research at the Center for Coastal Studies and leader of the research team. .

After observing the entanglement, the research team called in the CCS’s Marine Animal Entanglement Response team to undertake a rescue. The team began the disentanglement operation from aboard its 35-foot vessel, *Ibis*, named after the first whale the organization freed in 1984. “We were definitely concerned about the proximity of the white shark and the blood in the water,” said Scott Landry, director of the response team.

continued on next page

Double Trouble (continued from page 3)

The team was able to cut the rope from the mouth of the whale, which gave the animal the ability to move more freely, despite the rope wrapped around its tail. “With its prey now more maneuverable, the shark gave up on this potential meal and moved out of the area. We could now deploy our small inflatable boat and hook on to the entangling gear,” said Landry.

As whalers did in years past, the small boat team had the whale pull them along — thereby tiring itself out. “We were then able to move closer to the animal and use a hook-shaped knife at the end of a long pole to make a series of cuts that freed the tail,” he said. Once free of the burdensome rope, the whale swam quickly away.

“This whale was very lucky,” said Landry. “It probably would have died from the entanglement or been killed by the shark if we had not freed it.”

The sanctuary, NOAA Fisheries and the Center for Coastal Studies urge boaters to report any entanglement sightings of whales, sea turtles and other marine animals to the Marine Animal Entanglement Response Hotline (1-800-900-3622) or the U.S. Coast Guard, and to stand by the animal at a safe distance until trained responders arrive. Boaters should not attempt to disentangle animals on their own.

CCS disentanglement work is conducted under a federal permit authorized by NOAA and is supported by grants from the National Marine Fisheries Service, the Massachusetts Division of Marine Fisheries, the Massachusetts Environmental Trust, a number of private foundations and individual contributions. For more information about CCS disentanglement activities, or to view videos of this exciting whale rescue, visit <http://coastalstudies.org>.



White sharks are known to scavenge for whale carcasses (photo from South Africa). Credit: Wikimedia Commons.

Sanctuary staff among team winning 2015 NOAA award

On June 21, Kathryn D. Sullivan, Ph.D., the Under Secretary of Commerce for Oceans and Atmosphere, announced the winners of the 2015 NOAA Administrator's Awards. Among the recipients, the Under Secretary honored a team composed of staff at Stellwagen Bank National Marine Sanctuary and national marine sanctuary headquarters in Silver Spring, Maryland.

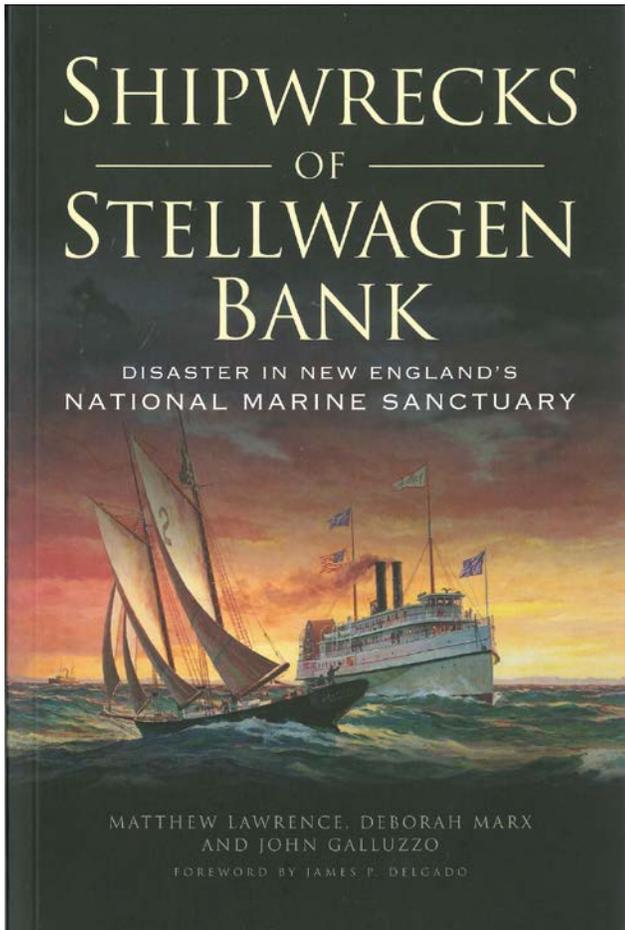
NOAA Administrator's Awards recognize employees who have demonstrated exceptional leadership, skill and ingenuity in their significant, unique and original contributions that bring unusual credit to NOAA, the Department of Commerce and the federal government.

The national marine sanctuaries group was cited for “leveraging a unique partnership to showcase NOAA during the 38th voyage of the *Charles W. Morgan*, the world's last surviving wooden whaleship.”



The whaleship *Charles W. Morgan* lowers a whaleboat in Stellwagen Bank National Marine Sanctuary with Provincetown in the distance. Painting by Tom Freeman (see page 6)

The team included Stellwagen Bank sanctuary staff members Ben Cowie-Haskell, Anne Smrcina, Matthew Lawrence, Leila Hatch, David Wiley, Dave Slocum, Alan Collette, Alice Stratton, Craig MacDonald, and Anne-Marie Runfola along with Office of National Marine Sanctuaries staff members Kate Thompson, Vernon Smith, Robert Brock, Cheryl Oliver, Catherine Marzin, and Matthew Stout.



Explore sanctuary shipwrecks in newly published book

Sanctuary maritime archaeologists Matthew Lawrence and Deborah Marx and Sanctuary Advisory Council At-Large member John Galluzzo wrote a book that reveals some of the exciting stories of maritime disasters that occurred in the waters of what is now Stellwagen Bank National Marine Sanctuary.

The 144-page book covers the ill-fated last voyage of the coastal steamship *Portland*, the loss of coal and granite schooners, workhorses of maritime trade, and other captivating tales of maritime tragedies and recent investigations of these sunken vessels.

The book is available online through the National Marine Sanctuary Foundation at https://store.nmsfocean.org/category_s/2.htm.

All proceeds from the sale of the book will go to Stellwagen Bank National Marine Sanctuary maritime heritage conservation efforts.

You Said It!

"You Said It!" – is your chance to contribute to the sanctuary newsletter.

1. Readers are invited to submit their captions for the selected photo of the month. The caption can reflect the "real" description of the item, event or place or the caption can be a "humorous" interpretation of the image.
2. Please refrain from crude, sexist or other inappropriate language. Sanctuary staff will vote for their favorite selection; the winning entry will be posted in the next issue of "Stellwagen Bank E-Notes." Winners in each category get a sanctuary poster.

August 2015 Photo



Photo by David Wiley, SBNMS; taken under NOAA Fisheries Permit #14245.

Submit your entries to: stellwagen@noaa.gov. In the subject line of your email write: August 2015 (real or humorous) caption. Include your name and mailing address in the body of the email text along with your caption.

June 2015 Answers

REAL:

Great shearwaters usually fly over the tops of the waves in search of food, but they are also known to sit on the surface and dive for their meals. In this case, however, the bird was pre-occupied with tasty fish chunks dumped by the research team. With its head underwater, the bird was unaware of the hand-held net, like the ones used for butterflies, until it is too late to escape capture. The research team recorded size and weight, sampled blood and feathers, and attached a small satellite tag before releasing the bird back into the wild.



HUMOR: Yep – two feet. I bet I can hold my breath longer than you can!



Sanctuary system mourns loss of Tom Freeman

On June 16, one of the most respected painters of the American maritime experience, Tom Freeman, passed away. During the past two years, he served as the Artist-in-Residence for the National Marine Sanctuary Foundation. As the foundation's Artist-in-Residence, Tom created five paintings that depicted special historical moments and important sanctuary resources. Stellwagen Bank National Marine Sanctuary was exceptionally lucky to have been the beneficiary of two of his works: "A Sanctuary Protects Stellwagen Bank," showing a mother-calf humpback pair and sanctuary whale research operations, and "The *Charles W. Morgan's* 38th Voyage," depicting the whaleship lowering a whaleboat in the sanctuary with Provincetown in the distance.

Freeman's work hangs in galleries and museums across the nation, including the Smithsonian and the White House. In the recent movie "White House Down," the lead characters refer to one of his paintings showing the burning of the White House during the War of 1812. He was probably best known for his detailed portrayals of sailing ships and military vessels.

Freeman's connection to this sanctuary went beyond creating two wonderful paintings, as he also served as one of the judges for the 2014 Massachusetts Marine Educators marine art contest, which focuses on sanctuary species. He praised the students for their collective talent and offered words of advice and encouragement. Although he had had no formal art training, he cited practice and persistence as important elements of the craft, which he started as a child. His key guiding principle was "you are only as good as your research" and he suggested that when developing a work, young artists delve deep and "learn as much as they can about their subject." He also noted that artists can gain a better understanding of their subject and, accordingly, develop their own interpretations of the material, when they study detailed photographs and live specimens. With a touch of humor, he related that in painting naturally hydrodynamically-designed whales, he found similarities to submarines, which he had drawn in the past.

The sanctuary system will miss this generous and talented artist.



Images (top to bottom of page): Tom Freeman stands before two paintings prepared in advance of the 38th voyage of the whaleship *Charles W. Morgan* and its visit to Stellwagen Bank sanctuary; President George W. Bush signing the Executive Order creating Papahānaumokuākea Marine National Monument; underwater view of an entangled whale in Hawaiian Islands Humpback Whale National Marine Sanctuary; and President Abraham Lincoln meeting the crew of the U.S.S. *Monitor* (*Monitor* National Marine Sanctuary was the first site in the sanctuary system and this painting was the first in the Freeman collection for the foundation).

Diving With a Purpose wins national award

Matthew Lawrence, Stellwagen Bank National Marine Sanctuary's maritime archaeologist, dives to investigate and document shipwrecks on the Stellwagen Bank sanctuary seafloor. His expertise has been called upon to assist in expeditions in the Florida Keys, Thunder Bay (Lake Huron), American Samoa, and soon in Alaska. Over the past few years, he has also served as an archaeological advisor to *Diving With A Purpose* – a project that trains volunteer marine advocates to assist in the stewardship of heritage assets in national parks and national marine sanctuaries. The program recently received national recognition at an awards ceremony in Washington, D.C., where Matt was one of the representatives of the Office of National Marine Sanctuaries Maritime Heritage Program

Diving With a Purpose (DWP) received the Chairman's Award from the Advisory Council on Historic Preservation, an independent federal agency that advises President Obama and Congress on national historic preservation policy.

DWP partners with the National Park Service, NOAA's Office of National Marine Sanctuaries and the National Association of Black Scuba Divers, training a cadre of professionals who want to do more with their hobby than recreate. DWP also introduces

young people to maritime heritage careers through Youth DWP.

The program began in 2003 when Biscayne National Park resource managers realized they lacked enough trained divers to meet their mandate to protect heritage resources. An early project entailed the search for the pirate slave ship *Guerrero*, which sank in 1827. Its resting place has not yet been identified, although the general area in which it was wrecked, in the north end of Florida

Keys National Marine Sanctuary, continues to be searched.

DWP volunteers now work across the nation and occasionally internationally with the Department of State. An association with the Smithsonian's National Museum of African American History and Culture involves locating and documenting artifacts for its collections and public education efforts. An on-going effort includes the search for planes used by the Tuskegee Airmen lost in the Great Lakes.



Diving With a Purpose volunteers perform a systematic survey of a Florida Keys National Marine Sanctuary shipwreck. Their work helped identify the wreck of the steamship *Hannah M. Bell*, which sank in 1911. For more information about DWP, visit <http://www.divingwithapurpose.com>. Photo by Matthew Lawrence, NOAA/SBNMS



Whale SENSE, a voluntary education and recognition program developed by NOAA Fisheries, Stellwagen Bank National Marine Sanctuary and Whale and Dolphin Conservation, is offered to commercial whale watching companies. This year the program expanded to Alaska from its Atlantic region origins. Companies agree to follow regional whale watching guidelines, educate their naturalists, captains and passengers, notify appropriate networks of whales in distress, set an example for other boaters, and encourage ocean stewardship. Once evaluated and approved, businesses receive Whale SENSE educational materials and can display the logo (see newly redesigned logo at left). Visit <http://whalesense.org> to learn more.

2015 Whale SENSE companies that regularly visit Stellwagen Bank National Marine Sanctuary are: Dolphin Fleet, Provincetown Whale Watch and Sea Salt Charters (Provincetown); Hyannis Whale Watcher (Barnstable); Captain John Whale Watching and Plymouth Whale Watching (Plymouth); and Newburyport Whale Watch (Newburyport).

Whale Research Takes Flight in the Sanctuary

In July, a research team successfully demonstrated a new tool to obtain hard-to-get health measurements of large endangered whales in the wild. The tool is a small (32-inch diameter), remote controlled, unmanned hexacopter (a six-rotor airborne vehicle) that was used to collect breath samples from whales' spouts and take aerial photos of their body condition. The work took place in Stellwagen Bank National Marine Sanctuary.

Rigged with a specialized camera system, the hexacopter (nicknamed "whalecopter" by the media) flew 125 to 150 feet above sea level to get full-body photographs of 36 animals. It swooped down to 10 feet above sea level to collect 20 samples from the exhalations (spouts) of 16 humpback whales.

With breath samples, scientists can analyze whales' DNA, hormones and bacteria, which can provide insights into family history, stress levels and health. The high-resolution photos provide researchers with a way to assess general health and body condition, such as fat level and skin lesions.



Hexacopter flies through a humpback whale spout. Credit: Michael Moore, WHOI. All photos taken under NOAA Fisheries Permit #17355-01 and NOAA Class G flight authorization 2015-ESA-4-NOAA.

The scientific team included Michael Moore, director of the Woods Hole Oceanographic Institution's (WHOI) Marine Mammal Center, WHOI microbiologist Amy Apprill and post-doctoral scholar Carolyn Miller, biologists John Durban and Holly Fearnbach of NOAA's Southwest Fisheries Science Center, biologist Jamison Smith of NOAA's Greater Atlantic Regional Fisheries Office, and Stellwagen Bank National Marine Sanctuary research coordinator David Wiley.

The breath samples will be analyzed to find the assemblage of microorganisms in the whales' respiratory tracts, the most common source of cetacean disease. The scientists plan to use the hexacopter next winter to collect breath samples from humpbacks living near the Antarctic. They will compare the samples from animals living in relatively pristine conditions there with those from whales in the Stellwagen sanctuary, which has more ship traffic, fishing and pollution. Dr. Moore suggested "this will give us a new understanding of the relationship between whale body condition and health in the context of habitat quality."

Inset photos: (Top) Sterilized surface of hexacopter body collects whale exhalation. Credit: Michael Moore, WHOI. (Bottom) Camera captures whale behaviors, in addition to health factors. Credit: John Durban, NOAA and Michael Moore, WHOI.

NOTICE

The next Stellwagen Bank National Marine Sanctuary Advisory Council meeting will be October 7, 2015 at the Plymouth Yacht Club in Plymouth, Mass. Information about the meeting will be posted at <http://stellwagen.noaa.gov>.

National Oceanic and Atmospheric Administration

National Ocean Service

Office of National Marine Sanctuaries

Gerry E. Studds Stellwagen Bank National Marine Sanctuary

NATIONAL MARINE SANCTUARY SYSTEM



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



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