

Winter
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Ecosystems Quarterly

NOAA Ecosystems Goal Team

About the Ecosystems Goal Team

The mission of the Ecosystems Goal Team (EGT) is to protect, restore, and manage the use of coastal and ocean resources through an ecosystem approach to management.

EGT has nine programs, each of which furthers the understanding and protection of our natural ecosystems.

The Coastal and Marine Resources Program (CMRP) works to maintain and improve coastal and marine habitats through research, management, and education aimed to protect ecosystem health while promoting coastal uses.



Image: K. Sardi, Whale Center of New England

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Ecosystem Spotlights

Setting a New Course: Shipping Lane Shift Helps Mariners Steer Clear of Whales - Coastal and Marine Resources Program (CMRP)

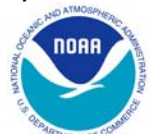
A small change to Port of Boston shipping traffic is expected to play a big role in protecting endangered whales off the coast of Massachusetts, thanks to an innovative coastal and marine spatial planning effort by [Stellwagen Bank National Marine Sanctuary](#) and partners.

Vessels from around the world funnel through the shipping lanes in and out of Boston Harbor thousands of times every year. The shipping routes into the Port of Boston passed through waters where significant numbers of federally protected humpback and northern right whales were found. This situation placed both the whales and ships at risk of dangerous collisions. To reduce the potential for such accidents, the [U.N. International Maritime Organization \(IMO\)](#) shifted the shipping lanes in 2007 at the Sanctuary's request, redirecting vessel traffic to an area known to have fewer whales present.

"This effort was a triumph of marine spatial planning," said sanctuary superintendent Craig MacDonald. "The vessel traffic shift not only helps save the lives of endangered whales, it provides a safer environment for ships traveling through this vital waterway."

The project began in 2003 when Stellwagen Bank Sanctuary researchers found that the Boston shipping lanes ran through a part of the Sanctuary with high numbers of whale sightings, next to an area with few sightings. The scientists studied whale behavior and seafloor maps to confirm their findings.

Armed with solid data, the Sanctuary team, [NOAA Fisheries](#) and [NOAA General Counsel](#) collaborated with the [U.S. Coast Guard](#) to propose a change to the shipping lanes that would protect whales without disrupting



vessel traffic. The resulting plan increased travel time for ships by 10–22 minutes, but reduced the risk of collisions with endangered northern right whales by an estimated 58 percent and with other whales by 81 percent.

In December 2007, the IMO approved the shift of the shipping lane to reduce the likelihood of collisions. The IMO decision was based on a combination of scientific evidence, effective interagency coordination, and support from the shipping industry.

For more information on this and other work under the Coastal and Marine Resources Program, please visit this [website](#).

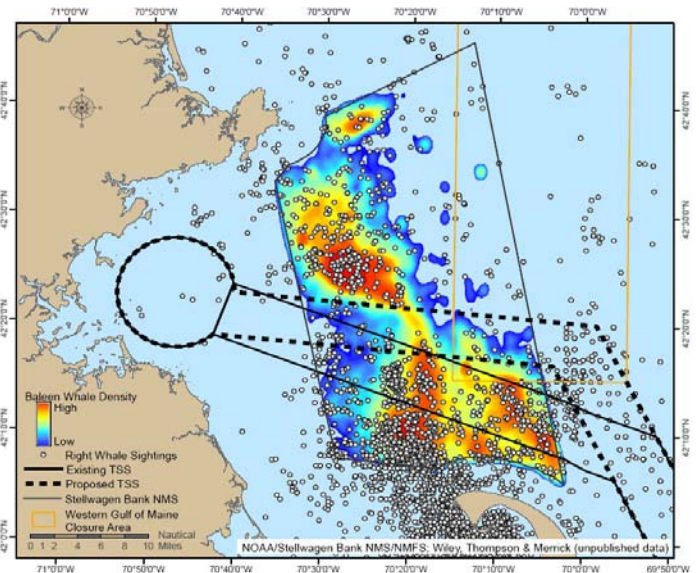


Image: Right whale sightings & shipping lane shift - NOAA

Multi-Agency Coral Reef Ecosystem Conservation in Puerto Rico

The [Coral Reef Conservation Program \(CRCP\)](#) is participating in a comprehensive multi-agency watershed restoration effort addressing the impacts of land-based sources of pollution on adjacent reef areas in Puerto Rico. The [partnership initiative](#) was announced by the [U.S. Department of Agriculture \(USDA\)](#) during the [22nd U.S. Coral Reef Task Force meeting \(USCRTF\)](#). This three-year initiative will focus on the restoration of the Guánica Bay watershed, which will benefit the offshore reefs in that region.

The pilot project will protect coastal and stream water quality, improve wildlife habitat, and enhance near-shore coastal and coral reef health through land-based management. [USDA's Natural Resources Conservation Service \(NRCS\)](#) will assist land-based pollution producers in voluntarily establishing systems of conservation practices specifically tailored to their operations.

The USDA initiated the effort by pledging \$1 million from their Environmental Quality Incentives Program for best management practices in the watershed's headwaters, and an additional \$250,000 for competitive grants to local community organizations. The USDA challenged the other federal members of the

USCRTF to contribute to the effort. NOAA was the only federal member able to affirmatively respond to the USDA's challenge during the meeting, pledging at least \$450,000 in technical assistance and \$100,000 for community grants this fiscal year. NOAA's effort is an internal partnership among the CRCP, [NOAA Restoration Center](#), the [National Centers for Coastal Ocean Science](#), and [Coastal Services Center](#), and is an example of the CRCP's commitment to direct its funding to address the three threats and goals outlined in the [NOAA Coral Reef Conservation Program Goals & Objectives 2010-2015](#).



Image: River mouth & sediment plume - NOAA Restoration Center



Rigs, Wrecks, and Reefs: Office of Ocean Exploration and Research teams with Minerals Management Service to Explore the Gulf of Mexico Depths

Tree-like *Lophelia pertusa* corals growing in the ocean's dark depths and on undiscovered shipwrecks predictably interested NOAA and its [Office of Ocean Exploration and Research \(OER\)](#), but why would [Minerals Management Service \(MMS\)](#) be concerned with such other-worldly finds?

MMS, the agency with authority to issue gas and oil leases, is aiming to ensure that sensitive natural or historic resources are not imperiled simply because these resources and their location are not identified and mapped. MMS and OER completed the third year of its four-year partnership to locate and predict the location of *Lophelia* and other deep-sea corals, based on presence/absence data in the Gulf of Mexico.

Unlike tropical shallow-water corals, deep-sea *Lophelia* is white, lacking zooxanthellae, the symbiotic alga that provide color to corals. Typically *Lophelia*, which can be found between 100 and 3,000 meters (~300-10,000 feet), grow on hard substrate. Hard substrate is limited in the Gulf of Mexico, consequently providing limited habitat for *Lophelia*. Scientists elsewhere studying *Lophelia* estimate that individuals can live for up to 1,000 years with growth rates as little as 1 millimeter a year. *Lophelia* reefs are estimated to exist up to 40,000 years.

Gulf shipwrecks provide ideal habitat for *Lophelia*. Therefore, the age of the wrecks provide a valuable reference to assist scientists in dating and calculating growth rates of the coral. Additional questions remain: what are substrate preferences for corals, and are growth rates there similar to those on other surfaces?

The 2009 mission uncovered a number of exciting findings that are expected to make headlines. A future NOAA news release will provide details and will be posted soon at noaa.gov/media.html. Read more at oceanexplorer.noaa.gov/explorations/09lophelia.

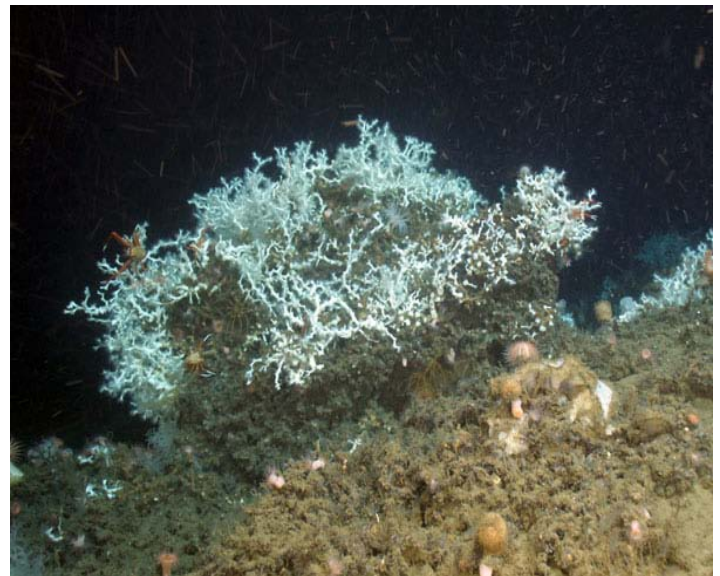


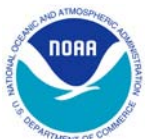
Image: Newly discovered live *Lophelia pertusa* growing on dead coral structure - Ian MacDonald

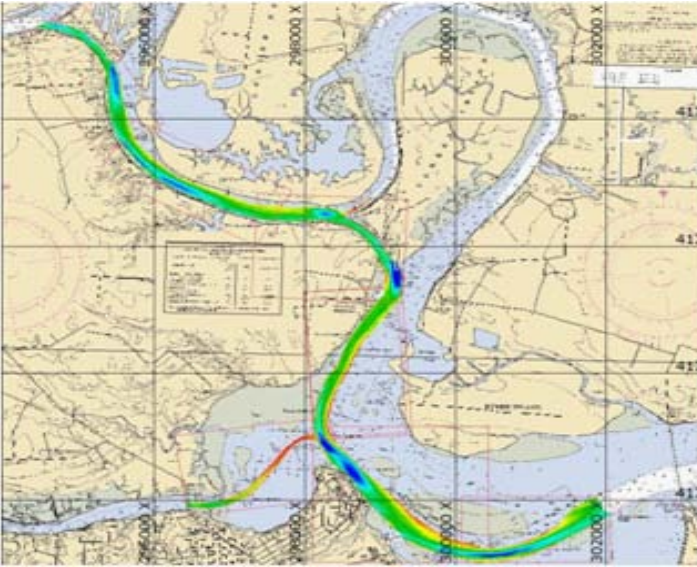
Technology Use In Ecosystems

NOAA Assessments Could Help Restore Sturgeon Habitat

NOAA scientists are identifying habitat in Virginia's James River that could be enhanced for James River sturgeon. In 2009, the [NOAA Chesapeake Bay Office](#) used a side-scan sonar bathymetry system to survey 16 linear kilometers of the river. To map areas that are likely candidates for successful sturgeon habitat restoration efforts, the team used acoustic

sensors near Hopewell, Virginia, to characterize benthic habitats. A number of habitat features were located, such as ledges and isolated gravel beds that sturgeon require during their lifecycle. The team used GPS-referenced underwater video and bottom sampling to visualize and document the bottom types. NOAA deployed an acoustic Doppler current





profiler to describe the hydrodynamics in areas being considered for restoration. This work will help identify essential fish habitat that will aid preservation and restoration of Atlantic sturgeon. Habitat maps will help identify locations for spawning habitat restoration efforts.

Image: James River upriver survey area -
NOAA Chesapeake Bay Office

BIOMapper: Providing User-Friendly Reef Data for Scientists & Reef Managers

[BIOMapper](#) is a new fully interactive, online tool designed to let users explore data from the [National Centers for Coastal Ocean Science's Benthic Habitat Mapping](#) of marine habitats within the St. John, U.S. Virgin Islands (USVI) National Park, and Virgin Islands Reef National Monument project site. It is a portal to a comprehensive collection of data that provides a detailed, contemporary evaluation on the status, abundance, and distribution of marine plants and animals. An objective of the project is to provide access to information for marine resource managers, scientists, and the general public. The project goal is to increase the knowledge and technical capacity to support the management

and stewardship of these important resources.

The portal enables users to customize the content by overlaying geographic information, including: dive sites, boundary delineations, benthic structure, biological cover, coral cover or zone. Once customized the maps can be exported and printed as PDFs. The BIOMapper enables users to search, view, and download related publications, aerial photography, and underwater videos that are linked to the mapped sites. The tool uses ESRI's ArcGIS Server to provide map and imagery data and runs on any browser that has the Adobe Flash plug-in.

Toxin Detection Technology Transferred to the French National Shellfish Monitoring Program

At the request of the French government, scientists from the [National Centers for Coastal Ocean Science \(NCCOS\)](#) trained members of the [French Research Institute for Exploitation of the Sea \(IFREMER\)](#) on how to incorporate the domoic acid detection kit into France's national shellfish monitoring system. Domoic acid is a potent neurotoxin produced by bloom-forming microalgae which accumulates in shellfish, causing amnesic shellfish poisoning. It is a major

problem in both the United States and France. The detection kit developed by NCCOS and commercialized by Mercury Science provides a rapid, accurate, cost-effective way to monitor for this toxin. Experiments were also conducted on adapting the detection technology into new sensors for offshore buoy systems that will provide early warning of impending domoic acid toxicity in shellfishing areas.



Announcements

CRCP Launches Redesigned Website

On November 5, at the [22nd U.S. Coral Reef Task Force meeting](#), the [Coral Reef Conservation Program \(CRCP\)](#) launched a significantly redesigned version of their program website. CRCP received input from various internal and external sources for the redesign. CRCP was encouraged to focus more on the resource — coral ecosystems — to better meet user needs. New website sections include: [coral biology, values, threats, conservation techniques, and deep-sea coral](#), while maintaining and expanding content in [news](#) and [programmatic information](#). Dive in for a visit soon!

JSOST Sponsors NRC Study on Ocean Infrastructure

The [Joint Subcommittee on Ocean Science and Technology \(JSOST\)](#) is sponsoring a [National Research Council \(NRC\)](#) study on ocean infrastructure, "An Ocean Infrastructure Strategy for U.S. Ocean Research in 2030." In the fall of 2009, the NRC assembled an expert committee. The study committee will provide advice and a perspective from the worldwide ocean community on the types of U.S. ocean infrastructure that will facilitate research in 2030, including advice as to what criteria may be most appropriate for setting priorities. The NRC hosted a study workshop in early February and additional committee meetings will be held during the first part of 2010. A final report is expected in early spring 2011.

Migrations

Temporary Change in Council Leadership

For the duration of David Kennedy's assignment as Acting Assistant Administrator for the [National Ocean Service \(NOS\)](#), Donna Wieting has assumed his duties as NOS Principal for the Coral Reef Conservation Program's Senior Management Council.

Coral Detailees

Beth Dieveney and Shannon Simpson are currently on details until early summer 2010. To cover some of their [U.S. Coral Reef Task Force](#), coral bill reauthorization, budget duties, as well as additional tasks, Greg Piniak is on detail to, and Liza Johnson has temporarily returned to, the Coral Reef Conservation Program headquarters office.

New Director for Great Lakes Environmental Research Laboratory

Dr. Marie Colton, who has been Acting Director since January 2009, became Director in October. While serving as acting [GLERL](#) director, Colton also continued serving as technical director for [NOAA's National Ocean Service](#).

New Acting Deputy for EGT

Congratulation to Kristen Koch, former Acting Deputy Goal Team Lead for [Ecosystems](#), who was selected to be the permanent Deputy Director of the [Southwest Fisheries Science Center](#) in La Jolla, California as of October 25, 2009. Upon Kristen's departure, Peg Brady, NOAA's [Aquatic Invasive Species \(AIS\) Policy Liaison](#) and former [Habitat Program](#) Coordinator, was named Acting Deputy Goal Lead. Peg continues to represent the agency on AIS interagency committees while serving as EGT's Acting Deputy. We wish Kristen the best in her move while welcoming Peg to her new position.



Images - Ecosystems Goal Team (EGT)

For Further Information Please Contact:

Laura Wittman
Communications Coordinator
Ecosystems Goal Team
Laura.Wittman@noaa.gov
<http://ecosystems.noaa.gov/>

