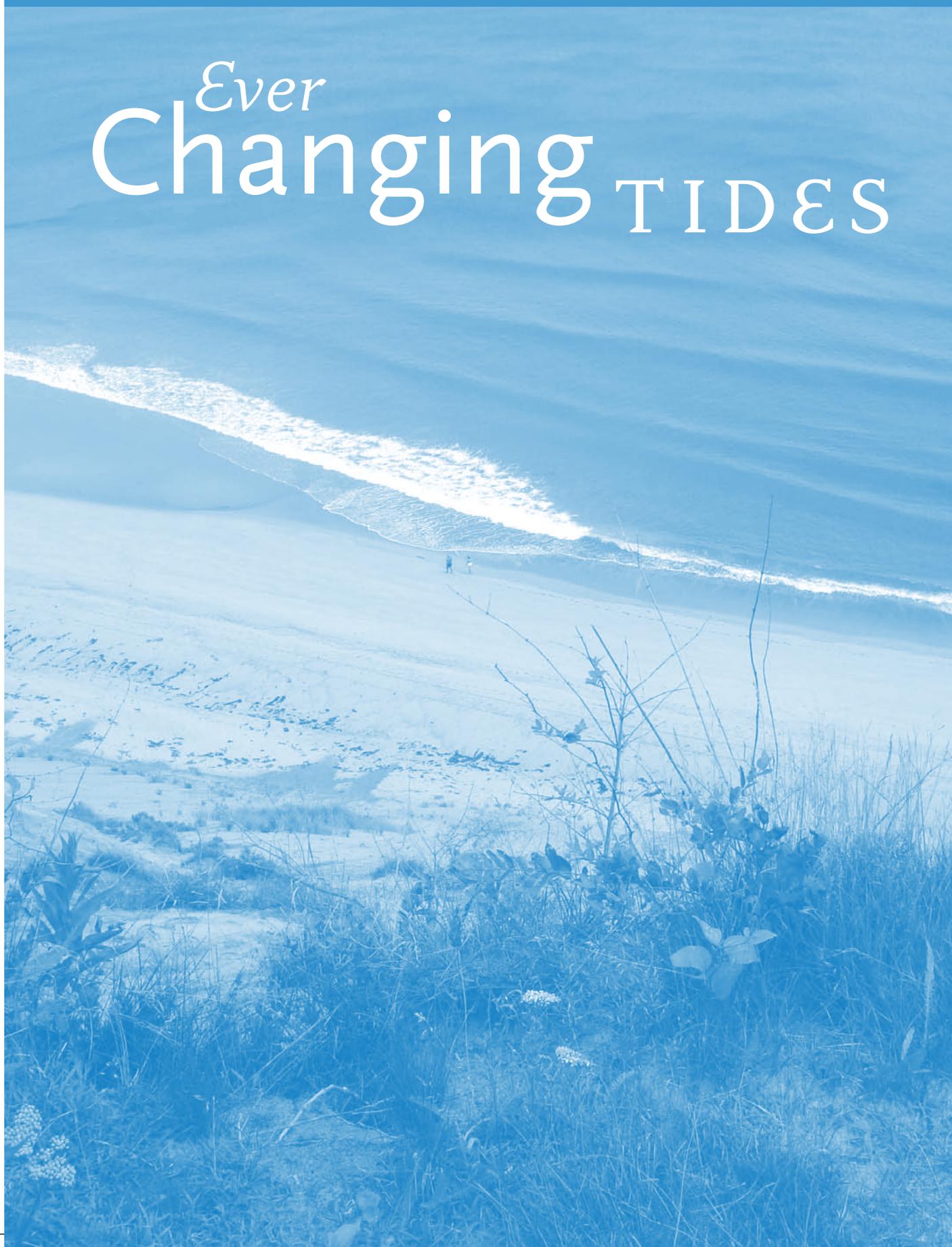
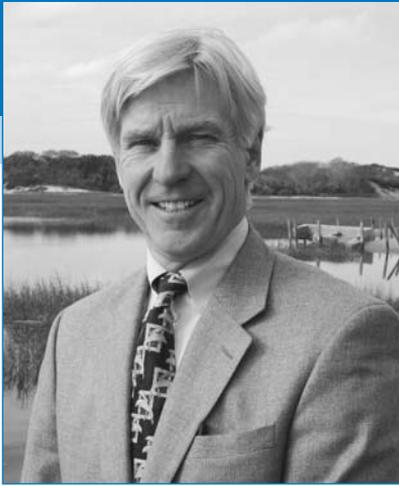


COASTWATCH

Provincetown Center for Coastal Studies • Massachusetts • 2010 • Volume 34 Issue 1

Ever Changing TIDES





LETTER FROM THE DIRECTOR

For thirty-four years, the Provincetown Center for Coastal Studies has been an unwavering voice for the world's ocean and coastal ecosystems, and especially for the majestic marine mammals who have resided there for eons. We have compiled cetacean data bases on humpback whales that are unmatched in ocean conservation work. And we have developed a comprehensive understanding of the complex and dynamic coastal geological processes that constantly shape our home base of Cape Cod.

In 2009, numerous scientific papers and reports, including the second report from the Cape Cod Bay Monitoring Program, *State of the Bay 2009*, were published; and our increasingly frequent use of the internet and email helped continue to increase our visibility and effectiveness throughout the year.

Occasionally feeling like we were working alone in the ocean wilderness, it seems that just this past year, political and business leadership and the general public have begun to “rediscover” the global oceans and all of their beauty, bounty and awe.

Part of this renewed interest, unfortunately, is driven by the growing acknowledgement that our world's oceans are in a very precarious state and that the toughest challenges may lie just ahead as the impacts of climate change are felt by these huge, but in many ways, fragile natural systems.

Although the Copenhagen Treaty talks ended without many specifics nor sufficient reference to oceans, many world leaders underscored the centrality of oceans and marine resources. H.S.H. Prince Albert II of Monaco noted that “[Oceans] are sources of food, industry, energy. When you protect the oceans you protect the planet.” And Jane Lubchenco, US Administrator of the National Oceanic and Atmospheric Administration emphasized that “Today, as never before, we better comprehend the connections between healthy oceans and healthy people, and the myriad interactions among land, air, fresh water, ocean, ice, and human activities.”

Both statements inspire, and hopefully you, as members of the Center for Coastal Studies, will continue your commitment as we move forward with an important and ambitious agenda for 2010. Thank you for being there with us.

Thank you,


Richard Delaney
Executive Director

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Cover Photo: The bluff, taken from the Wave Lab in Truro. Image courtesy of Pam French.

The UMASS-Boston Connection

WITH A MERE SWIPE OF THE PEN, A NEW CHAPTER WAS INAUGURATED BETWEEN PCCS AND UMASS-BOSTON



when Executive Director Rich Delaney signed an Agreement of Cooperation and Exchange on July 24, 2009.

“The agreement establishes a framework for the development of future cooperative initiatives which include opportunities for both organizations,” said Rich Delaney.

These cooperative initiatives include faculty and student exchanges, collaborative research activities, joint curriculum and course development. But also, this agreement reaches beyond the Boston campus—it opens the door to other campuses in the University of Massachusetts system.

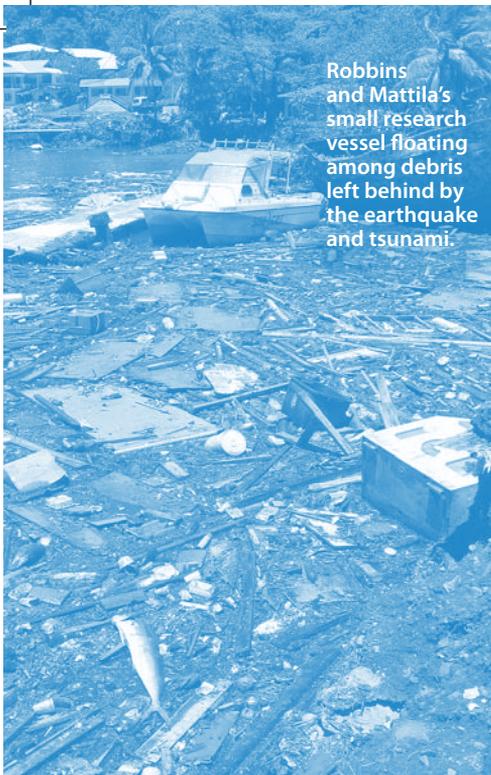
The event was attended by the Center’s Executive Director, Richard Delaney, and Chancellor of UMASS – Boston, Keith Motley, PhD; and representatives from the university’s College of Science and Mathematics (CSM), Urban Harbors Institute (UHI), and McCormack Graduate School of Policy (MGS).

Are humpback whale populations still endangered?

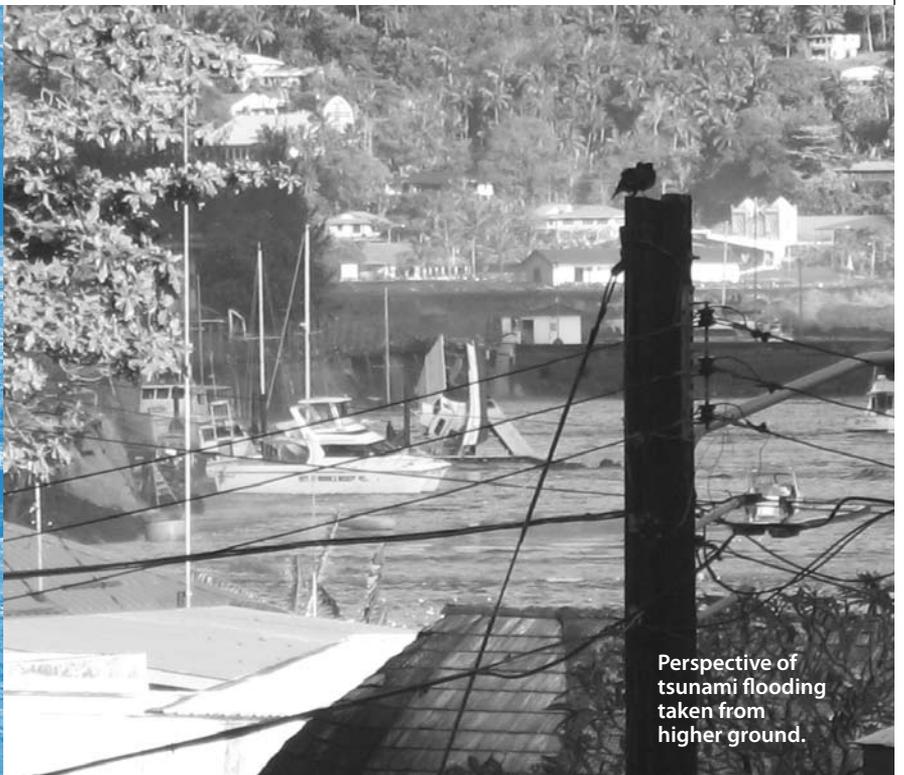
Decades have passed since the moratorium on commercial whaling, and many humpback whale populations now show signs of increase. Scientists and managers are trying to determine if they have recovered to the extent that this species should no longer be on the U.S. Endangered Species List.

Three large studies have been undertaken to examine the status of humpback whale populations in the Northern Hemisphere. The Years of the North Atlantic Humpback Whale (YONAH) project was performed in the North Atlantic from 1992-1993, and was the first systematic study of humpback whales across an ocean basin. The project clarified several questions about population structure and trend, and estimated the total number of North Atlantic humpback whales at 11,570. A similar project, Structure of Populations, Level of Abundance and Status of Humpbacks (SPLASH) was recently completed in the North Pacific. Like YONAH, the project has helped to clarify North Pacific population structure and has produced an abundance estimate of approximately 20,000 whales. Finally, a follow-up study to YONAH is underway; the project is called More of North Atlantic Humpbacks (MoNAH). MoNAH is a follow-up to YONAH, but this project focuses on the North Atlantic population.

MoNAH involved a major field effort off the coast of New England, as well as on the breeding ground of the West Indies. The study uses detailed molecular genetic analyses to update estimates of North Atlantic humpback whale population size since the YONAH study. PCCS scientists played important roles in both North Atlantic studies. MoNAH results will be back in the next few months and will contribute to the upcoming federal status review of this species.



Robbins and Mattila's small research vessel floating among debris left behind by the earthquake and tsunami.



Perspective of tsunami flooding taken from higher ground.

SCIENTISTS SURVIVE TRAGEDY IN SOUTH PACIFIC

In September, an earthquake measuring 8.1, and a terrifying tsunami, struck during the field season of Dr. Jooke Robbins at American Samoa, a U.S. territory in the South Pacific Ocean.

Robbins was there with collaborator David Mattila (Hawaiian Islands Humpback Whale National Marine Sanctuary) to study the only U.S. humpback whale population in the Southern Hemisphere.

Though most humpback whale populations world-wide have shown signs of increase since the end of commercial whaling, the trend of populations in the South Pacific remains unclear. American Samoa is one breeding site for humpback whales in this region. Robbins and Mattila have spent the past seven years working to define the local population, to determine its relationship to other breeding and feeding areas in the Southern Hemisphere and to clarify its recovery status.

The 2009 field season met with an untimely end on September 29, when an 8.1 magnitude earthquake rocked the island. The strong quake occurred early in the morning, as Robbins and Mattila were preparing for a routine day at sea. Only 10-15 minutes after riding out the quake, the team watched the ocean retreat and then surge, rushing up the street from both directions as they attempted to evacuate. Forced to abandon their vehicle, Robbins and Mattila quickly climbed a nearby slope and could only watch as several tsunami surges struck the main harbor of the island. The surges were particularly devastating just a few blocks away, where buildings were leveled and boats were plucked from the harbor and piled onto the land. The team's own research vessel was one of those torn from the dock and feared lost. Fortunately, it had managed to stay afloat and was later recovered from a large field of debris at the head of the harbor.

As many will know from news report of that time, there was considerable destruction and loss of life at American Samoa and the adjacent island of Independent Samoa. Had the tsunami occurred only 10 minutes later, Robbins and Mattila could have been among the most impacted at ground zero. Fortunately, they escaped this tragic event unscathed, and left the island with everything but a few precious days at sea.

Entanglement Response Year in Review

The Marine Animal Entanglement Response (MAER) team was extremely busy throughout 2009. Our toll free hotline (1-800-900-3622) received 130 emergency reports of marine animals along the East Coast of the US and Canada. The team confirmed a total of 55 live and dead entangled whales, seals and sea turtles. Within our response area of southern New England there were 36 confirmed entanglement cases. The MAER team disentangled two right whales, four humpback whales and nine leatherback sea turtles; the remaining animals were either lost or were not in need of intervention – MAER only engages in disentanglement if the entanglement is considered life threatening. All of the animals disentangled in 2009 belong to endangered populations. The following three examples highlight the strength of MAER's collaborative approach utilizing PCCS research and disentanglement expertise to rescue entangled marine animals.

On May 4, 2009 the entanglement response team disentangled a young humpback whale discovered by a Woods Hole Oceanographic Institution right whale research team. Forty-five miles east of Chatham and 60 miles southeast of Provincetown, the sighting was very near the edge of the operational range of the response vessel Ibis. With rope cutting deeply into its back and left flipper the whale had little chance of surviving its entanglement without intervention. By the end of the day all of the gear was removed and identifying photographs of the whale were taken (image, below, taken under NOAA permit 932-1489).



The PCCS humpback whale studies program identified this whale as the 2008 calf of Ravine. Like most humpbacks of its age it had been weaned from its mother and was on its own. Longtime supporters may recognize the name Ravine. During a hard-won disentanglement operation in 2003 Ravine was freed from deeply embedded lines encircling the



base of her flukes. This was her first known calf since that time.

On September 3, 2009 during a leatherback sea turtle survey in Nantucket Sound, the first turtle sighted by the team, composed of the Large Pelagics Research Center, New England Aquarium (NEAq) and PCCS, was heavily anchored in fishing gear. The large, male turtle was hauled aboard the research vessel, disentangled and given a complete medical evaluation. Before release the turtle was outfitted with a satellite tag (image, above, taken under the authority of the US ESA).

Soon after release the turtle, dubbed Bruce, made his way out of Nantucket Sound and began heading offshore and south, likely following shoals of jellyfish. As of February 2010, satellite telemetry analysis by Large Pelagics showed that he had traveled nearly 3,000 miles and was near the nesting beaches of Trinidad and Tobago. You can follow Bruce's progress at this URL: http://www.seaturtle.org/tracking/?project_id=423

On September 4, 2009 the MAER team responded to a report of an entangled whale on Jeffreys Ledge, 60 miles north of Provincetown and 25 miles east of Gloucester. Once on scene the team discovered a large right whale struggling with heavy gear. As the last of the lines were cut (see image, below, taken under NOAA permit 932-1905) the entangling gear sank away quickly and the whale sped off, gear-free. Identifying photos of this whale were sent to researchers at NEAq who quickly identified her as Mavynne.

Mavynne had been seen seven days before in the Bay of Fundy, Canada, with her calf at her side. Throughout the disentanglement operation no other whales were seen and the team feared the worst for the calf as it was early for weaning. But on December 26, 2009 an aerial survey team with the Florida Fish and Wildlife Conservation Commission sighted a young right whale traveling alone and in apparent good health. The whale was matched to the 2009 calf of Mavynne — a perfect way to round out 2009.





Below, Left to Right:
Dave Spange (Chief
Observer), Brian Kopp,
PhD (Chief Engineer), Pam
French, MD (Managing
Director), Graham Giese,
PhD (Chief Scientist)

Wishes Really Do Come True



height and wave frequency estimates can be made of how fast and in which direction sand moves along the shoreline at this location,” he added.

The current use is imperative to research about sediment budget, according to Giese, solar panels will provide necessary power for communication between the station and instrumented offshore buoys and eventually acquiring the capability of uploading real time data to the internet. The long-term implications for use include the addition of AV equipment to capture sight and sound of environmental conditions and marine mammal migration activities. Such information could be of use to other PCCS research programs.

Providing solar power to the wave lab was truly a collaborative effort. Liebman Associates of Washington came through with 2,500 dollars, and Highlands Center Inc., provided the final 2,500 dollars to meet the budget to buy all of the equipment for installation. Roger Little of Spire Corp. donated two solar panels. And Brian Kopp flew in from Florida with tools in hand to help with the actual installation. Today the Wave Lab is off the grid!

The Provincetown Center for Coastal Studies was granted a large wish from the Center’s wish list recently when Brian Knopp owner of The Semaphore Group of Florida; Kim Kendall and husband Murray Liebman of Liebman Associates of Washington, DC; and Roger Little of Spire Corp. in Acton Mass, joined forces to provide off-the grid power to the Highlands Center Coastal Observation Station (Wave Lab)

operated by the Provincetown Center for Coastal Studies, Chief Scientist Dr. Graham Giese.

Acquiring solar panels will provide power to the Observation Station so shoaling wave and other environmental data can be directly recorded digitally onto a computer. “These data play an important role in the Center’s ongoing study, for the Cape Cod National Seashore, of the sediment budget of Outer Cape Cod,” explained Giese. “Using observations of the angle of wave approach, wave

PCCS Happenings

The Center released the State of the Bay 2009 Report including three years of comprehensive data collected by the Cape Cod Bay Monitoring program under the direction of Amy Costa, PhD. View the compelling report online at <http://www.coastalstudies.org/what-we-do/cc-bay-watch/index.htm>.

Coastsweep

PCCS staff and volunteers participated in the 22nd annual statewide beach clean-up called Coastsweep 2009, at Race Point in Provincetown. Coastsweep 2009 volunteers collected about 2 doz. bags of trash comprising about 350 pounds of debris. In addition (not bagged) found a beach chair, broken oar, toilet seat, Carnival beads, a pair of shoes, and the smokestack from a vessel!

Wellfleet Oyster Fest

PCCS was among the twenty-one non-profits, twenty food vendors and 100 arts and crafts vendors in the 2009 Wellfleet OysterFest on October 17th. Estimates of 12,000 visitors attended the festival on Saturday. PCCS booth visitors indulged in photo-ops with giant oysters created by the Center's own Pat Hughes and Karen Stamienzkin.

*** For information about upcoming events, please visit www.coastalstudies.org and check our calendar.*



As the tide rushes in, this year's intrepid group of Coastsweep volunteers poses for a group shot.



Visitors enjoy photo-op.

Mapping Cape Cod Bay

Dynamic nearshore changes beneath the waves of Cape Cod Bay in key portions including Provincetown, Truro, and Wellfleet, are being mapped by PCCS Coastal Geologist Marc Borrelli that will reveal critical information for resource managers.

“The data we collect will have implications for management and science-based issues ranging from coastal erosion and evolution, sea level rise, climate change and all of many other aspects of coastal ecosystems that come together at the coast,” Borrelli explained.

A larger deep water seafloor mapping project has been ongoing for several years by the Massachusetts Office of Coastal Zone Management, and the United States Geological Survey (USGS) in Woods Hole. The PCCS Seafloor Mapping Project is funded by mitigation monies from projects which impact resources on the seafloor in state waters, such as Liquefied Natural Gas, or, LNG, pipelines.

The majority of state waters have been mapped or are scheduled to be mapped.

According to Borrelli however, shallow water less than thirty feet near the coast was too costly and labor intensive to complete. “Imagine mapping in 10 feet of water and getting a 30 foot swath,” Borrelli adds, “In the last few years however a new technology has emerged that provides a 10:1 swath width to depth ratio.”

Advances in technology allowed for a cost effective solution to the original shallow water seafloor mapping dilemma. The Massachusetts Office of Coastal Zone Management has provided a three-year grant to the PCCS to purchase equipment, hire a project manager and develop methods to conduct sea floor mapping in very shallow water.





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Wish List

From sample vials for the Cape Cod Bay Monitoring program to a pick-up truck, our wish list reveals needs great and small. Costs associated with wish fulfillment range from two hundred fifty to thirty thousand dollars. We depend upon the generosity of our members, and now more than ever, the Center needs your help. Recently, our old reliable Ford pick-up truck hauled her last load. PCCS is seeking a truck to replace old reliable. Please contact Jan Young at 508-487-3622; ext. 104 for details and specs or to learn more about our wishes.

