

Saltwater News

A Monthly Newsletter for UNH Marine Program Faculty, Staff and Students
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Faculty in the News

Major Gift Launches Visibility, Global Monitoring of Seagrass—By Beth Potier UNH Media Relations

Thanks to international efforts centered at the University of New Hampshire, “Save the Seagrass” might be the next gear in conservation-minded T-shirts and bumper stickers.

SeagrassNet, a global monitoring program founded and directed by UNH research professor **Fred Short**, aims to provide a global assessment of coastal marine seagrasses while increasing government and public awareness of the importance of seagrass habitat.

Now a multi-million dollar give from the Otto Fund of the New Hampshire Charitable Foundation is forging an innovative partnership between SeagrassNet and Conservation International, expanding SeagrassNet’s worldwide reach as well as funding a series of workshops globally, to evaluate seagrasses for possible “red listing” as threatened or endangered.

“The university greatly appreciates the support for SeagrassNet by the Otto Fund of the New Hampshire Charitable Foundation,” said UNH President Mark Huddleston, “and we share Dr. Short’s enthusiasm for this expansion of his global seagrass initiative.”



“Seagrasses are a barometer of the health of the coastal system,” said Short. “Although they’re mostly submerged, they require light. And most things we do to the ocean decrease the amount of light that reaches them. Seagrasses are an indicator of how things are doing in the coastal zone.”

Among the most productive plant communities on the planet, seagrass beds serve as protective nurseries for juvenile fish and shellfish, a habitat for many marine species, and a feeding ground for predatory fish, waterfowl and large sea creatures like manatees and sea turtles. The root and rhizome system of these flowering plants stabilizes sediments, protecting the coastline from currents and weather-related erosion. Seagrass is an effective filter of nutrients and particulates, and it is the basis of a detrital food chain that feeds fish and shellfish.

Providing tools and training to local teams at 70 monitoring sites in 23 countries, SeagrassNet has evaluated two-thirds of the global species of seagrass and compiled a global report card reflecting the health of seagrass worldwide. With SeagrassNet and other data, seagrasses are now being considered for red-listing by the Global Marine Species Assessment, a joint initiative of the International Union for the Conservation of Nature and Natural Resources (IUCN) and Conservation International.

Short hopes that the SeagrassNet program will bring to seagrasses the attention that whales, manatees, or even coral reefs have enjoyed. “Lack of visibility has been a real problem for seagrass,” said Short. “Yet seagrasses are equally or maybe more important and more widely distributed than coral reefs.”

The gift has been crucial to expanding SeagrassNet’s global reach. “When you start working globally, there is no federal funding available, only private,” said Short. “The beauty of this gift is that there are no geographic restrictions.” Indeed, the gift has allowed SeagrassNet to expand its work into the Indian Ocean, Africa, and the Middle East.

Short also credits the partnership between The New Hampshire Charitable Foundation and the Otto Fund with bringing SeagrassNet and Conservation International together in what has become a fruitful collaboration. “That’s an impressive thing for a benefactor to do,” said Short.

For more information on SeagrassNet global monitoring, go to www.SeagrassNet.org.

Large Pelagics News

Students and Parents Succeed in Scientific Treasure

Hunt~By Irene Nolan~Island Free Press Newspaper

Science, a storm, and school children came together on the morning of Valentine's Day to rescue a special electronic tag from the flotsam and jetsam on a Frisco beach. It was a tag that popped off a bluefin tuna and that contained valuable information about the travels and habits of the big migratory fish.

Here's the way it happened.

On Wednesday night, Feb. 13, **Dr. Molly Lutcavage**, director of the Large Pelagics Research Lab at the University of New Hampshire, e-mailed some local boat captains, asking them to help recover a small, black pop-up satellite tag that had apparently come off a bluefin tuna.

"The tag came off the fish a day or so ago," her e-mail said, "and it looks like it got blown onshore. It may be on the beach by now unless the tide or wind takes it out again."

The juvenile, 48-inch bluefin was tagged in a special project last August off Cape Cod.

The Large Pelagic Research Lab initiated its Tag a Tiny program in the summer of 2005. The goal is to study the annual migration paths and habits of juvenile bluefin tuna in order to better understand and conserve this highly sought after gigantic tuna whose populations are threatened by overfishing.

A total of 98 juvenile fish were implanted with archival tags in 2005, and another 25 tags were implanted in 2006 – all off the coast of Cape Cod or Virginia. Last summer, the scientists began attaching a new archival tag, the X-tag. It is smaller than the standard tag with some extra features.

According to Lutcavage, the tag is manufactured by Microwave Telemetry, Inc., of Columbia, Md.

"We deployed 32 X-tags on juvenile bluefin in 2007," Lutcavage said in an e-mail, "and eight more on giant bluefin (in Canadian waters). They're programmed to report after 12 months. Sometimes the tags release early from the fish, and they are programmed to transmit their data if they do. This was an early release. We've had three reports in the past few weeks -- two near Cape Hatteras and one northeast of Bermuda."

And now one of the \$4,000 tags was off the fish and floating toward land. The messages being received from the satellite tag indicated that it was bobbing around in the rough seas off Hatteras Island. All day Wednesday, heavy

winds had whipped up large waves and high tides along the island.

On Thursday, Feb. 14, the morning after Lutcavage sent her e-mail to local captains, **Nuno Fragoso** of the Large Pelagics Research Lab, contacted Tracy Shisler, a science teacher at the Cape Hatteras Secondary School of Coastal Studies, and asked her for help. He asked if parents of the students might go the beach, to the area from which the tag was transmitting a radio signal and search for the tag before it got washed out again in the tide. If the tag wasn't found by the end of the school day, he asked if students might join the search. Lutcavage could see, using Google Earth, that the tag seemed to be located on the beach, near the airport.

"We get data via satellite for about 30 days," Fragoso said in an e-mail to Shisler, "then our migration path modelers do their magic and we get a track. Because of transmission schedules, we don't get 100 percent data recovery. Having the tag allows us to get 100 percent recovery, which is why we are so eager to get it back."



Ashley Hodges, 13, a seventh grader at Cape Hatteras Secondary School of Coastal Studies, and her mother, Alex, show off the satellite tag that Alex recovered the morning of Feb. 14 from a Frisco beach.

Recovering the tag would guarantee not only 100 percent recovery of the data, but the costly tag can also be refurbished and implanted on another juvenile bluefin this summer.

Fragoso e-mailed Shisler a picture of the tag, Google maps, and GPS coordinates for the location of the tag on Thursday morning. He also noted that there was a \$250 reward for the return of the tag. The students got on the phone with their parents, and

Shisler sent the information to all of them with e-mail accounts.

Ashley Hodges, 13, a seventh grader in Shisler's class was one of the students who called her parents. She reached her mother, Alex, who was on her way from Buxton to Hatteras after having delivered another child to school.

The GPS coordinates put the tag on the beach very near Ramp 49 in Frisco. Alex Hodges has a GPS unit in her vehicle, so she turned off the highway and headed to the beach. She's a parent who is supportive of the school and its new coastal studies mission, and she picked up on her daughter's excitement about the hunt for the tag.

Hodges says she drove the beach for almost a half hour and saw nothing. She was ready to leave when she thought about getting out and walking a while on the sunny but cool morning. In just a few minutes, she noticed the debris line up near the dunes from the storm's high tides. She walked up and started poking around.

And there it was – the elusive satellite tag.



The X-tag that Alex Hodges found on the Frisco beach is the smaller of these two models.

Hodges took it to school for Ashley and her classmates to see.

“The students were very excited about the parent finding the tag,” says Tracy Shisler. “Alex Hodges brought the tag in and the kids were thrilled to be able to see what the tag looked like. I was e-mailing back and forth with Nuno, and I

would read them the emails. They thought of it as an adventure unfolding before their eyes.

Alex and Ashley had their picture taken with the tag, a photo that is now posted on the Large Pelagic Research Lab Web site. Alex and her husband, Dr. Al Hodges, donated the \$250 reward for the tag to the school for a trip the middle school students plan to the Smithsonian Institution in Washington, D.C. Other parents, Dan and Jennifer Johnson, arranged for special FedEx packing to

send the tag back to Microwave Telemetry in Maryland, the company that makes the tags and will recover the data.

In another interesting twist to the great tuna-tag hunt, the inventor and head of Microwave Telemetry, Inc., is Dr. Paul Howey, who has a vacation home in Hatteras village and knows Tracy Shisler and her family.

“The process of recovering this tag has been a great interactive learning opportunity for the Large Pelagics lab and the Hatteras students and their parents, Molly Lutcavage wrote in an e-mail. “The tag finders now know more about their local marine resources and have had a first hand look at the very latest technologies that fisheries scientists use to track marine animals.”

The students in Shisler's sixth- and seventh-grade are involved in a fish and oyster hatchery program. Shisler says they are raising black sea bass, which will be tagged and released this spring. They are getting ready to stip spawn oysters to help with the oyster reef restoration project.

“A major theme of my teaching,” Shisler says, “is that we need to be better stewards of our planet Earth. I am hoping that they realize that whenever they get the opportunity to help care for the Earth, they should step forward and help. I also want them to realize that science is exciting, fun, and interactive.”

MORE ABOUT X-TAGS AND THE RESEARCH PROGRAM

From Dr. Molly Lutcavage, director of the Large Pelagics Research Center at the University of New Hampshire:

The X-tags record depth and temperature every 15 minutes and light levels more frequently. We attach them to the fish via a nylon dart and a monofilament tether. At the programmed time, the nose cone of the tag releases from the tether, the tag pops up to the surface, and its radio transmitter sends the logged data to a receiver on a NOAA satellite. The data is then relayed to me (and Microwave Telemetry, Inc., in Maryland) via a French company, Service Argos, Inc., which distributes data from ocean buoys and satellite tags.

If the dart pulls out of the fish and the tag is prematurely released, or if a fish dies, it will start transmitting the data. The tags transmit the logged data for about 30 days. We use the light data to reconstruct the migration path of the fish, as well as its depth and temperature for the entire time the tag was on the fish. Our collaborator, Dr. Greg Skomal, of the Massachusetts Division of Marine Fisheries, was the tagger for this particular fish- which

was about 48 inches and released on August 13, 2007.

With these early releases, we know that none of the fish died, but that the tag detached from the fish. Keeping tags on any marine animal is a challenge, and usually only a portion of the tags remain attached for up to a full year. Actually, we were pretty happy to have data coming in early, because this is the first time anyone has been able to put a popup satellite tag on juvenile bluefin, and we were anxious to learn where they would go after leaving New England waters in the fall. Very little is known about where they go after leaving coastal waters in the summer and fall until they show up again the next season.

We start tagging juveniles off Wachapreague, Va., in late June and July and finish farther north, off Cape Cod and other areas of New England later in the season. From conventional tagging conducted by fishermen over the past decades, we know that some of these juvenile bluefin tuna cross the Atlantic and visit areas such as the Bay of Biscay off Spain.



Photo by Molly Lutcavage, LARGE PELAGIC RESEARCH LAB
Bluefin tuna are among the largest and most valuable fish in the sea.

Since 1997, we've used Microwave Telemetry's full-size PSAT tag for giant bluefin in New England and Canadian regions. Until they produced the miniature pop-up, or X-tag, we were required to use implanted data loggers for juveniles. With our collaborators, we released 127 juvenile bluefin with tags placed in the belly cavity of fish. These types of data loggers must be recovered along with the fish, so they are dependent on a fishermen catching the fish and returning the tag to us. The PSAT tag does its work without any intervention, so we get the data back when the tag is released from the fish.

Bluefin tuna are an extremely valuable fisheries resource that has been in the news for months. They are heavily overfished in the Mediterranean Sea and East Atlantic and by pirate fleets. The fish that we see in our coastal waters live up to 30 years, and may travel back and forth across

the Atlantic many times, where unregulated fishing may occur.

Despite being one of the most valuable fish in the sea, there are huge gaps in knowledge that need to be filled -- where do they spawn, how often, what do they eat, what makes them shift their distributions?

When these PSAT tags are recovered, more data that can't be transmitted to the satellite can be recovered, so we obtain more details about the fish. And finally, the best part is that the tag can be refurbished and deployed on another fish next season. At close to \$4,000 each, each tag is an extremely valuable resource for the LPRC.

Student News

UNH Graduate Student Receives Dean John A. Knauss Marine Policy Fellowship-by Rebecca Zeiber

University of New Hampshire graduate student **Aaron Kornbluth** has been awarded a Dean John A. Knauss Marine Policy Fellowship for 2008. Sponsored by the National Sea Grant College Program, the year-long fellowship matches current and recent graduate students with hosts in the legislative and executive branches of government.

"I've always been interested in environmental policy but it took a long time for me to realize that it was the perfect career choice," Kornbluth says.

Beginning in February, Kornbluth will spend one year in Washington, D.C. serving on the National Oceanic and Atmospheric Administration's Ecosystem Research Program Management Team to help coordinate ecosystem research.

"I have diverse interests, and my experiences in D.C. will no doubt help hone my skills and direction and assist me in building important connections in this field," he says.

Kornbluth, who hails from the small town of Hamilton, N.Y., received his undergraduate degree in biology and communication in the life sciences from Cornell University. His interest in environmental policy began when he studied abroad in New Zealand as part of the UNH EcoQuest Program, a 16-credit, semester-long course where ecological topics are taught in the classroom and outdoors. Kornbluth notes that this experience continues to drive his career interests and environmental philosophy.

"I like studying the big picture: the best way to solve real-world problems is to understand the links between people and their environment," he says.

Kornbluth is pursuing his master's degree at UNH with his advisor Mimi Larsen Becker, chair of the department of natural resources. His research will help determine how best management practices are employed in the restoration of the Cains Brook watershed in Seabrook.

In addition to his master's research, Kornbluth is involved in numerous volunteer organizations that utilize his skills in natural resources, citizen education and communications. His computer savvy allows him to be the web site designer for the Durham Neighborhoods Association and for the regional newspaper The Senior Times. Kornbluth is a co-director for The Yankee Coastal Rangers, a group dedicated to creating an intelligent public presence and watchfulness over New Hampshire's coast and estuaries. He is also on the executive board of LifeWise Community Projects, which advocates for citizen participation in numerous community activities.

"My scientific background prepared me to use that knowledge and go out into the world where politicians, journalists and the average layperson don't understand science but need to," Kornbluth adds. "Washington, D.C., will be the perfect place to learn how to put all that knowledge into action."

The Knauss Fellowship Program is named in honor of John A. Knauss, a former administrator of the National Oceanic and Atmospheric Administration and a founder of the Sea Grant program. Sea Grant is a national network of more than 30 programs that provide support, leadership and expertise for university-based marine research, extension and education.

Sea Grant is now accepting applications for the 2009 Knauss fellowship. The program is open to graduate and professional students in the marine- or aquatics-related fields. The deadline for applications is Feb. 28, 2008. For more information, visit <http://www.seagrants.unh.edu/fellowships.html>.

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Congratulations go out to two CCOM Graduates, **Nick Forfiniski** and **Lynn Morgan**, who completed their Master's degree programs in December. Best of Luck to them!

## CICEET News

### **Land use, habitat, and hazards top list of coastal management priorities**

Land use, habitat, and coastal hazards have emerged as the top three priorities for coastal resource managers, according to the recent report: "Strengthening the

Application of Science in Coastal Decision Making." The report is the product of a collaboration of the Coastal States Organization (CSO), the Coastal States Stewardship Foundation (CSSF), and the Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET).

The report is based on multiple surveys, focus groups, and workshops conducted in coastal regions around the United States. The results of these initiatives have been compiled for the coastal resource management community and the agencies that support it. A synopsis of findings and recommendations related to coastal land use, hazards, and habitat can be found at [http://ciceet.unh.edu/news/releases/cso\\_report/index.html](http://ciceet.unh.edu/news/releases/cso_report/index.html). The entire report is available in PDF format [http://ciceet.unh.edu/news/releases/cso\\_report/pdf/cso\\_report\\_07.pdf](http://ciceet.unh.edu/news/releases/cso_report/pdf/cso_report_07.pdf)

### **Coastal technology development in your region**

The UNH/NOAA Cooperative Institute for Coastal and Estuarine Environmental Technology (CICEET) has posted fall 2007 progress reports for its environmental technology development projects online. Each project addresses a priority challenge faced by natural resource managers in coastal states around the country. With support from CICEET, researchers from academia, industry, and the public sector are developing tools to monitor Harmful Algal Blooms (HABs) and coastal water quality, manage nutrient pollution, treat contaminated sediments, restore habitats, and support community resiliency.

These reports, submitted by the projects' investigators, detail their progress in gathering data, meeting research objectives, reaching out to coastal management, and soliciting feedback from potential end users. Browse projects in your area at [http://ciceet.unh.edu/news/releases/fall07\\_reports/index.html](http://ciceet.unh.edu/news/releases/fall07_reports/index.html)

## Great Bay Coastal Watch News

### **Great Bay Coast Watch 2008 Kickoff Meeting to Feature Gary "Creek Man" Sredzienski**

Are you interested in learning about the Great Bay Estuary? Volunteers for the Great Bay Coast Watch collect information about the health of the estuary while enjoying the scenery and wildlife that the NH coast has to offer.

The Great Bay Coast Watch will hold its annual kickoff meeting on Tuesday, March 11, from 5-8 p.m. at the Hugh Gregg Coastal Conservation Center, 89 Depot Road in

Greenland. This event encourages interested individuals to attend and mingle with long-time volunteers.

“People want to make a difference and protect their local environment and this is a great way to get involved,” says **Ann Reid**, coordinator for the Watch.

The meeting will include a potluck dinner and Gary “Creek Man” Sredzienski of Kittery, Maine, will be in attendance. Sredzienski, who regularly swims in the tidal backwaters of southern Maine, recently swam six miles from Odiorne Point in Rye to the Isles of Shoals to raise funds for SteppingStones, a Portsmouth-based post-rehabilitation program for individuals with traumatic brain injury. In addition to playing accordion music for the celebration, Sredzienski will speak about his experiences with the local waterways.

For more information about volunteering for the Watch or about the annual meeting, please contact Ann Reid at 603.749.1565 or [ann.reid@unh.edu](mailto:ann.reid@unh.edu).

## New Hampshire Sea Grant

### Con-Val High School Team Wins the Northern New England Regional Ocean Sciences Bowl



On Saturday, February 9th, fifteen teams of high schools students from Maine, New Hampshire and Vermont competed in the annual regional ocean sciences bowl, the Nor’easter Bowl held at the University of New Hampshire. Students from ConVal High School came out victorious in this regional academic competition focused on concepts in oceanography. The winning coach and team members include: Lily Beyer, Katherine Lantz, Terra Fletcher, Alice Hall, Mara Zrzavy, and Coach Ken Cloutier.

The National Ocean Sciences Bowl (NOSB<sup>®</sup>) is a program of the Consortium for Ocean Leadership located in

Washington, DC and currently supports 25 regional competitions across the country. ConVal High School will go on to compete against 24 other regional champions in the 11<sup>th</sup> Annual NOSB<sup>®</sup> April 24-27 in Seward, Alaska.

**Mark Wiley**, regional coordinator for the competition, remarked “Our oceans play a significant role in regulating our weather and climate along with sustainable life. I’m hoping that the interest and enthusiasm shown by these students, today, will begin to improve the awareness of our oceans in their daily lives and give them the momentum to move into the study of marine science, ultimately helping to advance the ocean challenges that lie ahead.”

The NOSB<sup>®</sup> competition includes Q&A “buzzer” rounds, team challenge questions, educational field trips and social activities that encourage interaction among student peers and with marine scientists. For more information on the competition or to view sample quiz questions, visit [www.nosb.org](http://www.nosb.org).

## Marine Program Potpourri

### High Bay Projection System in Chase OE Lab

By Andy McLeod

The High Bay has a new projection system that is intended for instructional and presentation use during hands-on events in the High Bay and specifically targeted for projects in the Tow and Engineering tanks. A wireless projection system is installed between the Sanyo projector and the user’s computer.

This system will allow for the presentation of real-time data or graphic intensive presentations to large groups of people. This solution allows the user to project a laptop display from the VGA output onto one of two wall screens of the High Bay. This system does not require software to be loaded on to the user’s computer, instead it merely requires the user to plug in the transmitter module and select fn-f8 until the projector responds. As this is a wireless transmitter option, be aware that the display resolution is limited to 1024x768, but supports 30 frames per second transmission rate of video.

Stop on by and try it out!

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Our deepest condolences go out to **Dave Monahan** from CCOM, whose wife lost her battle with cancer in December. Dave is the Program Director for the GEBCO training program in oceanic bathymetry and an Affiliate Professor for CCOM.

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Congratulations go out to **Judson** & Amanda **DeCew** on the birth of their first child, a son, Oliver Judson DeCew. He was born on Monday, February 18, 2008, 3 ½ weeks before his due date (starting early keeping Mom & Dad on their toes!) at 6 lbs 3 oz, 17 inches long.



Mom and baby are fine.

Jud works as a Research Project Engineer for Ocean Engineering/Open Ocean Aquaculture at the Jere Chase OE Laboratory.

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This year the UNH Undergraduate Research Conference (URC) Interdisciplinary Science & Engineering Symposium (ISE) will be held on Wednesday, April 23, in the Kingsbury Hall Courtyard and surrounding area. Faculty and students are encouraged to take advantage of this opportunity to present their research projects in a professional forum, and for all attendees to gain information on the related research activities and opportunities at UNH. Register today by visiting the URC web site at www.unh.edu/urc.

The symposium features student research with science and engineering perspectives.

Students have an opportunity to interact with peers and gain professional experience presenting research. The program includes a poster session, remarks from University leaders, and an awards ceremony. Cash awards are supported this year by CEPS, CEPS Alumni Society, COLSA, EOS, ERG, and NH Space Grant.

URC ISE Committee Members: Radim Bartos (CS), Erin Bell (Civil), Bobby Braswell (CSRC/EOS), Ihab Farag

(Chem Eng), Frank Hludik (ECE), **Debra JohnnyBear** (DO), Brad Kinsey (ME), Joe Licciardi (Earth Science), **Jeff Melton** (Env Eng), Karsten Pohl (Physics), Marianna Shubov (MATH), **Doug Vandemark** (OPAL/EOS), and Ruth Varner (CCRC/EOS).

Last year 46 faculty and 179 students from Chemical Engineering, Chemistry, Civil Engineering, Computer Engineering, Computer Science, Earth Sciences, Electrical Engineering, Environmental Engineering, Geography, Mathematics & Statistics, Mechanical Engineering, and Physics were featured.

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Condolences go out to **Jaimie Wolf** from Jackson Estuarine Lab on the passing of her father on January 6, 2008. Jaimie is a Research Tech III for JEL.

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New Hampshire Estuaries Project welcomes a new Project Coordinator, **Derek Sowers**, to their group. Derek's contact information is 862-3403 and e-mail is derek.sowers@unh.edu

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FYI- Effective January 1, 2008, the reimbursement rate for personal vehicle use is \$0.505 per mile. You can find the most current reimbursement form by following this link: [http://www.finadmin.unh.edu/pol\\_proc/chapter\\_07/reimburse\\_form\\_protect.xls](http://www.finadmin.unh.edu/pol_proc/chapter_07/reimburse_form_protect.xls)

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Come one, Come all, to the next Marine Program Social, scheduled for Friday, March 14th. A separate announcement with more particulars will be sent out soon.

