

Saltwater News

A Monthly Newsletter for UNH Marine Program Faculty, Staff and Students
November/December 2007, Volume 6, Number 8

Faculty in the News

Professor Honored For Service

Courtesy of Campus Journal



Dr. John Aber, right, UNH professor of natural resources, was honored Nov. 30 for his service to the New Hampshire Innovation Research Center. Aber was a member of the NHIRC Oversight Committee from 2004 to 2007, representing

UNH in his role as vice president for research during a time of strategic planning for the NHIRC.

Serving concurrently as chair of the statewide committee for the NH EPSCoR program, Aber guided the development of joint funding for research and commercialization partnerships. Presenting a commemorative plaque is Robert Gyurik, vice president for scientific innovation at Bentley Pharmaceuticals, Inc., of Exeter, and chair of the NHIRC Oversight Committee.

~~~~~

### Library hosts zoological presentation

By Lorraine Morong-Foster's Daily Democrat

More than a dozen people know a lot more than they did about marine worms, after attending **Marianne Litvaitis'** presentation at the Madbury Library on Nov. 28.

Litvaitis, a professor of zoology at the University of New Hampshire and a Madbury resident, not only described the marine worms she studies but had slides of the colorful creatures, some of which were 7-year-old Jae Fletcher's favorite colors: red, orange, purplish — all in a single little worm. They sport black, white and yellow, too.

There are a thousand kinds of marine flatworms, the speaker said, and they come in many body shapes - ribbon, ovoid, ruffled - and can range from very tiny to hand-sized. They come striped, spotted, and banded.

The colorful worms are tropical and are toxic to fish and mammals. Fish have learned to avoid these colorful enemies, which Litvaitis said have evolved these colors

precisely to warn about their toxicity. They absorb their poisons from sponges.

The toxins are being studied for use as anti-cancer, anti-fungal, and anti-hypertensive medicine.

These worms are carnivores: they can destroy the shells of oysters, mussels, barnacles and such hard-shelled marine creatures.

Litvaitis' pictures included a quick survey of the work she and others do in the Caribbean, where "the sun is brutally hot," as they forage on the shore, turning over rocks to find worms. Some diving is done, too. The lab work involves preservation for DNA and histological analysis. The work crew call themselves "The Flat Worm Wranglers."

~~~~~

Faculty Excellence

Out of the 18 award winners for this year's Faculty Excellence, the marine community can claim 5!

James Byers- Teaching Excellence

Larry Hamilton- Excellence in International Engagement

Larry Mayer- Award for Excellence in Research

M. Robinson Swift- Teaching Excellence

Charles Walker- The Jean Brierley Award for Excellence in Teaching

Congratulations to all for these well deserved awards!

Student News

Inga Potter, a PhD candidate in Zoology under faculty advisor **Hunt Howell**, received honorable mention in the best student presentation for her oral presentation entitled "**Movement and behavior of ocean sunfish, *Mola mola*, in the northwest Atlantic**" at the Second International Symposium on Tagging and Tracking of Marine Fish with Electronic Devices, held in San Sebastian, Spain on Oct 8-11, 2007.

The Symposium was co-hosted by the UNH Large Pelagics Research Center, University of Hawaii's PFRP

(Pelagics Fisheries Research Program) and local host Azti-Technalia.

Inga's research is funded by the Large Pelagics Research Center Extramural Program. Also attending the meeting were **Molly Lutcavage, Hunt Howell, Elizabeth Fairchild, Laughlin Siceloff, Michelle (Mic) Walsh** and **Nuno Fragoso**.

Well done Inga!



Tagging of a *Mola Mola* – Picture by Josh Eldridge

~~~~~ **Alumni News~Desperately seeking Salinity**

By Tracey Bentley~writer for UNH Editorial & Creative Services

Dan O'Grady's life has changed since his days working at a Boston research hospital studying the neurobiology of the mammalian hearing system. It was a good job for the Colby College biology grad, but "five days a week in a lab with no windows" couldn't hold the appeal. As he studied the nerves that allow mammals to hear, he began hearing the call of the sea.

"I had always been interested in marine biology," says O'Grady. As the call grew louder, he indulged that interest, setting in motion a saltwater evolution that has taken him from New Hampshire's Great Bay to the Gulf of Maine, and far beyond.

And it all began at UNH.

Bye, bye big city

O'Grady traded the windowless lab in the city for the bright light of UNH coastal marine labs, working with **Professor Win Watson** on lobster studies as a graduate student in the department of zoology. He exposed the crustaceans to reduced salinity seawater and observed their behavior, heart, and breathing rates.

"They didn't like it," O'Grady says. "They're not as skilled as other animals at coping with reductions in salinity, so when it happens, they start walking to a higher-salinity situation."

After earning his masters from UNH in 2001, with a bunch of lobster experience behind him, he made a move that immersed him even deeper in the marine culture: he became an island fellow for the Island Institute in Rockland, Maine, where he assisted Maine's remote coastal communities with their research needs. After that, he went on to the Lobster Conservancy, just down the coast in Friendship, where for two years he tracked the behavior and movement of berried female lobsters.

Next came a three-year stint in the classroom, where O'Grady taught high school biology back on the New Hampshire Seacoast. "I enjoyed teaching and interacting with students," he says, but the more he taught oceanography and environmental science from the confines of four walls, the more he missed the hands on work.

The sea beckoned. And, just like those salinity-seeking lobsters back in the Jackson Lab, he returned to the open ocean in the summer after his third year.

Cod squad

He began working part time for UNH's Atlantic Marine Aquaculture Center, which provides research and development for the budding sustainable offshore aquaculture industry and operates a fish farm near the Isles of Shoals, just off New Hampshire's coast.

O'Grady would dive to the center's submerged cages, clean them, removed sick or dying fish, fix holes in the net, and perform other tasks to keep the cod healthy and thriving.

"I really enjoyed this," he recalls.

One day, center director **Rich Langan** asked, "How would you like to work in Hawaii?" Langan had been on the phone with a colleague, the president of Kona Blue Water Farms, which runs a sustainable fish farm off Hawaii's Kona coast. He was looking for help.

"It was snowing at Logan when we left," O'Grady said from his new Hawaiian home during a recent phone conversation. He started with the company in February. He works with another UNH grad, Fede Rotman, who is Kona Blue's hatchery manager.

Dream job?

Today, on an average day, O'Grady wakes up, eats breakfast from the papaya tree in his yard, and feeds a quarter million fish in the Pacific Ocean.

In six submerged tanks (with more on the way), Kona Blue raises and harvest sushi and sashimi-grade Kona Kampachi®, a Hawaiian yellowtail species sold to high-end restaurants and select fresh fish markets in Hawaii and on the U.S. mainland.

“It’s delicious and has a high percentage of Omega-3 fatty acids,” O’Grady says.

He is the lead hand for Kona Blue’s offshore crew, which nurtures the fish until they’re ready for harvest, and harvests the fish when the time comes.

Tonight he’ll dine on the fish he helped raise. “I like to soak it in soy sauce and then grill it,” he says.

Shoal Marine Lab

Cameron Brooks, a National Science Foundation REU (Research Experiences for Undergraduates) student from UNH at the Shoals Marine Laboratory (jointly run by UNH and Cornell University) was one of 18 REU students selected in a national competition for an award that pays all costs (airfare, hotel, per diem, registration fees) for attending the ASLO (American Society of Limnology and Oceanography) annual meeting in March in Florida: OCEAN SCIENCES 2007. In addition, Cameron received a one-year paid membership in ASLO. Cameron's project (mentored by **Jennifer Dijkstra**, UNH postdoc and REU coordinator at Shoals) was entitled "Temperature effect on heart rate in introduced and invasive colonial ascidians (*Botryllus schlosseri*, *Didemnum* sp., *Botrylloides violaceus* and *Diplosoma listerianum*) in the Gulf of Maine". Their goal was to see if increasing temperatures could facilitate the spread of warmer water ascidians into colder waters.



Cameron Brooks and Governor Lynch at Shoals Marine Lab

New Hampshire Sea Grant

Rebecca Zieber

It’s 4 a.m. and the lights from the *F/V Lori B* are illuminating the Portsmouth Fishing Pier. Captain Mike Leary is wide awake, discussing the weather and the market price for fish as he pulls the boat away from the dock and down the Piscataqua River. As the lights from the city disappear into the darkness, the crew settles in for the long ride out to the Western Gulf of Maine (WGOM) closure area and Jeffreys Ledge.

Ray Grizzle, UNH research professor of zoology, and research technician **Krystin Ward** have been on the boat every day during the week conducting gill net research for a project funded by the Northeast Consortium. It is still early in the field work process, but Grizzle hopes this project will provide information about the groundfish stocks in the WGOM closure area versus outside the area. The three-hour ride out to the first gill net site of the day allows plenty of time for rest before the research begins.

By comparing the number and biomass of species collected in gill nets inside and outside the closure area, the researchers hope to determine the effects the closure area is having on fish use of rocky habitats. Gill nets are set in three types of rocky habitat, including low, medium and high relief rocks. Grizzle explains the size differences are similar to gravel, basketball-sized rocks and large boulders. The rocky substrate was chosen because it represents a significant amount of the seafloor in the WGOM and because nearly all available fish data are from trawl surveys that are largely restricted to soft-bottomed areas.

So far, Grizzle and Ward have been out in the WGOM for 14 sampling days. The gill netting will continue year-round until they reach 60 sampling days, which should happen sometime next year. The weather will dictate when sampling can occur, although the captain and crew do not appear to be affected by the wave height. However, consecutive sampling days could be grueling depending on conditions.

The orange and pink sunrise over the waves helped to light up the sky, and one look around showed no sign of any boats or land. The boat approaches the buoys and tall markers from the nets while the crew dons their brightly colored Grundens and move onto the deck. As the nets are hauled up, the crew picks haddock and dogfish out while Grizzle weighs and measures the fish and Ward records the data.

Although not all of the data has been collected, Grizzle has gotten some interesting findings. In particular, he says they

have caught very few juvenile groundfish either inside or out of the closed area, which is unexpected but may be related to the gill net mesh sizes (two-, four-, and eight-inch) being used in the study.

Of the cod they have caught, the largest in size have been found inside the closure area, he says. However, the differences in fish sizes between the two areas are not as pronounced as during his preliminary sampling. His previous studies suggested the WGOM closure area resulted in significant recovery of rocky habitats, which would positively impact groundfish populations.

“What was also surprising to me, although not surprising to Mike and his crew, was the amount of dogfish we have caught,” Grizzle adds. “It’s just incredible. In one 100-ft. gill net panel we caught 400 pounds of dogfish, which is about 100-120 fish. That’s an average of one fish per foot of net, and it took about an hour to get them all out of the net.”



Krystin Ward and Ray Grizzle taking measurements of fish for the WGOM closure area gill net project. Picture by Chris Manning.

Although the raw numbers show more dogfish inside the closed area, Grizzle plans to use statistical analyses to determine if the differences are statistically significant. He hopes to present the findings from this project at a conference next year and to the Northeast Consortium as well.

By the time the *F/V Lori B* pulls back into the dock in the early afternoon, Grizzle and Ward have already glanced at the data collected from the morning to see how it relates to previous sampling days. Tomorrow they will be back out at the dock at 4 a.m. for another round of field work to see what the gill nets and underwater video provide.

For more information on this project, please contact Ray Grizzle at 603.862.5130 or ray.grizzle@unh.edu.

~~~~~

## Available Fellowships:

**1. John A. Knauss Marine Policy Fellowship:** National Sea Grant College Federal Fellows Program was established in 1979 to provide a unique educational experience to students who have an interest in marine/ocean/Great Lakes resources and in the national

policy decisions affecting those resources. It is open to all students enrolled in a graduate or professional program in a marine-or aquatic-related field at a U.S.-accredited institution of higher learning. The fellowship allows students to share their expertise with policy makers in Washington, D.C., and provides a first-hand look at how science is used in the policy arena and how decisions are made. For more information go to <http://marine.unh.edu> and click on “for more information” under the 2009 John Knauss announcement at the bottom of the page.

**2. Ernest F. Hollings Undergraduate Scholarship Program:** The two-year scholarships enable undergraduate college students to receive training in oceanic and atmospheric science, research, technology, and education and foster multidisciplinary training opportunities; prepare students for public service careers with NOAA and other natural resource and science agencies at the Federal, state and local levels of government; prepare students for careers as teachers and educators; and improve environmental literacy. Each year, approximately 100 two-year scholarships are awarded to eligible college sophomores. For more information go to [www.oesd.noaa.gov/hollings\\_uspa/index.html](http://www.oesd.noaa.gov/hollings_uspa/index.html).

**3. 2008 Coastal Management Graduate Fellowship:** The Coastal Management Fellowship was established in 1996 to provide on-the-job education and training opportunities in coastal resource management and policy for postgraduate students and to provide project assistance to state coastal zone management programs. The program matches postgraduate students with state coastal zone programs to work on projects proposed by the state and selected by the fellowship sponsor, the National Oceanic and Atmospheric Administration (NOAA) Coastal Services Center. This two-year opportunity offers a competitive salary, medical benefits, and travel and relocation expense reimbursement. For more information go to [www.csc.noaa.gov/cms/fellows.html](http://www.csc.noaa.gov/cms/fellows.html).

**4. NASA Earth and Space Science Graduate Fellowships:** The NASA Science Mission Directorate solicits graduate fellowship proposals from individuals pursuing Masters or Doctoral (Ph.D.) degrees from accredited U.S. universities. For the 2008-2009 academic year, the Fellowships allow and encourage submissions from individuals pursuing interdisciplinary degrees linking NASA Earth science research with policy and management studies. This interdisciplinary aspect of the Fellowships targets both scholars in the physical and natural sciences with a management or policy aspect to their work and scholars in environmental and natural resource management areas applying Earth observations and Earth system model capabilities in their work. For

more information go to <http://nspires.nasaprs.com/external> (click on Solicitations-Open Solicitations-NESSF08).

**5. NOAA Fisheries/Sea Grant Graduate Fellowship Program:** In 1999, NOAA National Sea Grant Office and NOAA Fisheries established a Graduate Fellowship Program in two specialized areas: population dynamics and marine resource economics. Population dynamics is the study of fish populations as affected by fishing mortality, growth, recruitment and natural mortality. Ph.D. candidates interested in the population dynamics of living marine resources and the development and implementation of quantitative methods for assessing their status can receive up to three years of funding. Ph.D. students in marine resource economics, concentrating on the conservation and management of living marine resources, can receive 2 years of funding. For more information go to [www.seagrant.noaa.gov/funding/fisheriesgradfellow.html](http://www.seagrant.noaa.gov/funding/fisheriesgradfellow.html).

## RV Gulf Challenger

### **GC Proves her Metal (pun intended)**

By Paul Pelletier~Captain of the R/V Gulf Challenger

As a result of an agreement coordinated for the mapping group by Lloyd Huff, we recently were required to install a unique survey system on the ship. The system, produced in France by IXSEA, consisted of a 2600 pound winch to be secured on deck and powered by the ship's hydraulic system, a large towfish weighing approximately 700 pounds, a 220 volt uninterrupted power supply, and several large servers and laptop computers. A film crew was on board with their equipment to document the installation.



Paul Pelletier with new equipment (pictures courtesy of Deb Brewitt)



Nearly fifteen years ago we put together a list of specifications to meet existing requirements and also to meet predicted needs. It was very gratifying to me personally to have the R/V Gulf Challenger meet and succeed at a challenge for which she was designed. Design details such as cable pass-throughs for temporary installations, quick-disconnect hydraulic fittings on deck, a 220 volt outlet on deck, and threaded sockets on deck enabled the system to be installed and secured aboard the vessel.

The boat and crew provided one ingredient, the IXSEA system was the second ingredient, and Glen McGillicuddy was the catalyst that completed the process. We would not have been able to complete the mission on time without his being willing to work long and strange hours, and to drive many miles getting the required valves, fittings, hoses, etc.



Glenn McGillicuddy on the Gulf Challenger

## Marine Program Potpourri

The building isn't the only thing expanding over at CCOM! Congratulations go out to **Mashkoor Malik** and **Tom Weber** of CCOM on their impending fatherhood!

~~~~~

**HAVE A WONDERFUL HOLIDAY
SEASON AND A SAFE AND
HAPPY NEW YEAR EVERYONE!**

FROM JON, LINDA & JENN

