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Nathan W. "Doc" Riser

Professor Emeritus of Marine Biology

1920 - 2006



1947



Doc Riser,
Kevin
Eckelbarger,
Charlie Ellis
2003



2005

The first Director of the MSC, Professor Nathan Wendell Riser, known to his colleagues as "Pete" and to his graduate students as "Doc", passed away at his home in Swampscott, Massachusetts on July 26, 2006 at the age of 86. In many ways an old school naturalist, he published on the biology and systematics of marine worms (nemerteans, polychaetes, turbellarians) from New England and elsewhere.

Doc Riser served in WWII as a Naval Corpsman in the Pacific and was present in the battles of Tarawa and Saipan. After the war, he did his Ph.D. (awarded 1949) on tapeworms with Prof. Tage Skogsberg at the Hopkins Marine Station (Stanford University) at a time when American marine biology was coming into full bloom. Ed Ricketts (made famous in John Steinbeck's book *Canary Row*) had recently published *"Between Pacific Tides"* (1939) and was still collecting invertebrates from local tide pools when Riser was a student. He held various teaching and research positions at the University of Pennsylvania, Fisk University (as Chair of Biology), Woods Hole Oceanographic Institution, the Marine Biological Lab, and the University of New Hampshire before assuming a faculty position at Northeastern University in Boston in 1957 where he served as Chair of Biology.

In 1967 he was appointed the founding Director of Northeastern University's Marine Science Institute (now Marine Science Center) in

Nahant, a position he held until his retirement in 1985. While Director, he hosted countless invertebrate zoologists from throughout the world who visited New England to collect specimens and attend conferences. Although worms were his first love, he had a general appreciation for biology so his friends and colleagues represented many diverse fields. Over the years, he influenced many undergraduate and graduate students who went on to professional careers in medicine and biology.

Doc was an advisor to the Stratton Commission on Marine Science, Engineering and Resources (<http://www.lib.noaa.gov/edocs/stratton/title.html>) in 1968 under the Johnson Administration. One of the outcomes of this Commission was the establishment of National Oceanic and Atmospheric Administration (NOAA).

After his retirement, Doc Riser continued to conduct his research at the Nahant lab until very recently and he maintained an active correspondence with his students and colleagues. It is appropriate that the Nahant lab is located a short distance from the private summer cottage and marine laboratory of Harvard Professor Louis Agassiz, the founder of American marine biology in the mid-19th century. Agassiz was a pioneer in marine science education and he promoted the formation of seaside laboratories where students could "Study nature, not books." Like Agassiz, Doc Riser was a teacher and he used the "Agassiz method" of instruction by introducing students to the beauty of living invertebrates

Director's Report



**Ed Jarroll,
MSC Director**

It is my pleasure to report to you that Northeastern University has a new President, Dr. Joseph Aoun, who came to us from the University of Southern California where he was Dean of the College of Letters, Arts and Sciences, which included the oversight of the Wrigley Marine Science Center. I am also please to report that President Aoun has already visited the NU MSC.

I am also pleased to report that we have had a successful hiring year. We have hired two new faculty members: Dr. Steven Vollmer, currently a postdoctoral fellow at the Smithsonian Tropical Research Institute, will join us in November, 2006, and Dr. Matt Bracken, currently a postdoctoral researcher at Bodega Bay Marine Laboratory at UC-Davis, will join us in Fall, 2007.

I am very sad to report that we lost our senior resident faculty member and first director of the MSC, Professor Nathan (Doc) Riser, this year. We will miss him greatly and try our best to carry on with traditions he established.

**MSC Welcomes Steven Vollmer & Matt Bracken
New Biology Faculty Members**



Steve Vollmer

Dr. Steve Vollmer is the newest member of the Biology Department Faculty and will join the MSC this November. Steve's research interests focus on evolutionary genetics and marine molecular ecology and he has also explored how coral colony size affects the physiology of scleractinian corals and other colonial modular organisms. He received his PhD in 2003 from Harvard University while working in Steve Palumbi's (now at Stanford) lab and has just completed his Postdoctoral studies at the Smithsonian Tropical Research Institute in Panama.



Matthew Bracken

Dr. Matthew Bracken delivered the first lecture in the Fall 2006 Three Seas Program Seminar Series, titled: *Top-Down Modification of Bottom-Up Processes in Intertidal Communities*. Matt will be joining the faculty in the Department of Biology at Northeastern University as an Assistant Professor next fall, with his lab located at the Marine Science Center.

Matt is currently a postdoctoral research associate at the University of California at Davis, working on NSF-funded research at the Bodega Marine Lab. Matt received his Ph.D. from Oregon State University, in the laboratory of Bruce Menge and Jane Lubchenco. Matt's arrival next fall as their academic offspring, and his ensuing intertidal research program will bring the legacy of Lubchenco and Menge's classic work conducted steps from our front door over 25 years ago to full circle.



Introducing Andrew Altieri

Post-Doctoral Researcher & Instructor for Three Seas Program

Ph.D., Brown University

I work primarily in marine systems to experimentally examine general ecological concepts, often in an applied context. Three themes that run through my research are: (1) the paramount role of foundation species in community structure and function, (2) the influence of environmental stress on community interactions, and (3) oceanographic features as large-scale drivers of community pattern. My work consists primarily of field surveys and manipulative experiments, often coupled with laboratory experiments in which I have developed an ecophysiology perspective. Throughout my research, I have actively sought opportunities to mentor and collaborate with undergraduates. I have recently joined the Marine Science Center of Northeastern University where I will be collaborating with Geoff Trussell, Sal Genovese, and members of the Trussell Lab to explore interactions between habitat and food-web structure in the shallow subtidal of the New England shoreline. While at Northeastern University, I will also be teaching the Invertebrate Zoology course for the Three Seas Program. Summarized below are three lines of ongoing research.



Hypoxia is a threat to marine systems worldwide on par with over-fishing, yet there is little known about the impacts of hypoxia aside from widely recognized mass-mortality events and dead zones. I have focused on the implications of mortality events across levels of ecological organization from the individual to ecosystem. I have also explored the sublethal effects of hypoxia on community dynamics, which often occur in a predictable way. The implication of my research is that the full impact of hypoxia has been largely underestimated.

Beds of the cordgrass *Spartina alterniflora* can ameliorate solar stress and substrate instability on cobble beaches of New England, and allow marine organisms to establish that would otherwise be excluded from the mid-intertidal. Within that community established by the primary foundation species *Spartina*, other interactions also play a role. An example of this hierarchical organization is the secondary facilitation of marine invertebrates by the ribbed mussel *Geukensia demissa*, a foundation species that is itself dependent on *Spartina*. Interestingly, an invasive species also benefits from this hierarchical facilitation.

The slate-pencil urchin *Eucidaris galapagensis* is an abundant member of the subtidal rock wall community of the Galapagos Marine Reserve. A diverse assemblage of encrusting organisms (e.g. corals, bryozoans, ascidians) inhabits the urchin spines. Dozens of species can be found on a single urchin. The urchins clearly play an important role in the provision of substrate, and I currently exploring whether urchins provide a refuge from predation for the organisms encrusting their spines.



Geoffrey Trussell Lab



Geoffrey C. Trussell

My work on the nature and strength of indirect effects in rocky intertidal food chains continues as we explore how resource levels and prey state influence their foraging decisions under predation risk.

Our experiments on trait-mediated indirect interactions (TMIs) between invasive crabs (the green crab, *Carcinus maenas*), intermediate consumers (*Nucella lapillus*) and basal resources (the barnacle, *Semibalanus balanoides* and the mussel, *Mytilus edulis*) focused on how variable risk cue levels may influence the strength of TMIs. We manipulated variability in the intensity of predation risk by exposing prey to green crab risk cues for different amount of time (0%, 25%, 50%, 75%, or 100%) each week for ~42 days. The experiment generated several interesting results, but perhaps the most compelling was that exposure to green crab risk cues 25% of the time had the same effect on the *Nucella* foraging rates as 100% exposure. Hence, it appears that even relatively episodic exposure to risk cues can have profound effects in these communities.

In addition to conducting experiments, I also co-organized and co-chaired and Organized Oral Session (with E. Preisser and E. Werner) on TMIs at this year's Ecological Society of America annual meeting in Memphis Tennessee. The title of the Session was "Does Fear Matter? A road map to the implications of trait-mediated effects to ecology". In addition, the following papers are currently in press.

Selected Publications

Trussell, G.C., P.J. Ewanchuk. In press. Predator avoidance. In M.W. Denny, S.D. Gaines, editors, Encyclopedia of the Rocky Intertidal, University of California Press.

Trussell, G.C., P.J. Ewanchuk, C.M. Matassa. In press. Habitat effects on the relative importance of trait and density mediated indirect interactions. *Ecology Letters*.

Trussell, G.C., P.J. Ewanchuk, C.M. Matassa. In press. The fear of being eaten reduces energy transfer in a simple food chain. *Ecology*.

Long, J.D., **G.C. Trussell**. In press. Geographic variation in seaweed induced responses to herbivory. *Marine Ecology Progress Series*.

-Geoffrey C. Trussell, Assistant Professor of Biology



Green crab - Snail predation experiment



Dr. Jeremy Long Post-Doctoral Research Associate, Trussell Lab



Dr. Jeremy Long with undergraduate research assistant, Jocelyn Mitchell

I received an extension on my National Parks Fellowship that will allow me to remain as a postdoctoral researcher here through the summer of 2007. For this fellowship, I study the marine and terrestrial plants of two national parks: Boston Harbor Islands and Acadia. My topics of interest include how plants defend themselves from attack, how plant-herbivore interactions vary across space, and the distribution of exotic vs. native plant species. In addition to conducting research, I created educational activities about rocky shores. In May, I led a public tour of one of my Acadian field sites where we collected data on snail densities. My fellowship extension will allow me to continue to interact with our awesome faculty and staff.

I supported a Northeastern undergraduate, Jocelyn Mitchell, this summer. Jocelyn's enthusiasm for the job stood out at her hire and persisted despite 4 am wakeup calls to drive to Maine and her stressful, "first ever" airplane flight. She presented an excellent seminar at the MSC about our work in salt marshes.

I was awarded a Visiting Investigator Award from the Baruch Marine Field Laboratory in Georgetown, SC to study how marsh plants respond to attack by snails and insects. With Jocelyn's help, we built 240 PVC cages and deployed them in Maine and South Carolina. My colleagues and I are presently preparing these data for publication. While in South Carolina, I enjoyed typical southern treats (sweet tea, wide beaches, cute southern accents, etc.) and I narrowly avoided the strike of a venomous copperhead snake.

A manuscript submitted by myself and my advisor, Geoff Trussell, entitled, "Geographic variation in seaweed induced responses to herbivory," is in press at Marine Ecology Progress Series. Building off this paper, Geoff and I submitted a grant proposal to explore this topic in more detail. My phytoplankton research is almost fully published - three manuscripts are in press and two others are currently in review.

Bigelow Laboratory for Ocean Sciences, the Baruch Lab, and U. Maine at Orono invited me to present seminars on my research. Finally, I shake, rattled, and rolled to Memphis with Geoff where we presented talks at the annual Ecological Society of America meeting.



*Seaweed transplant -
Plant-herbivore interactions*



Students at the Trussell Lab



*Patriot's Day 2006:
 "We were here, where were you?"
 Trussell Lab (from left to right):
 Genevieve Bernatchez, Elizabeth
 Bryson, Tim Dwyer, Meredith
 Doellman, and Catherine Matassa*



Genevieve Bernatchez, pursuing Ph.D. in Biology

This past summer, I continued my research on behaviorally-mediated trophic cascades in salt marsh habitats located at the Wells National Estuarine Research Reserve in southern Maine. So far, my results suggest that the presence of the green crab have a positive indirect effect on the macroinfaunal community.

Elizabeth Bryson, pursuing Ph.D. in Biology

I am continuing my research investigating latitudinal variation in rocky shore communities throughout the Gulf of Maine. My long-term experiment addressing the roles of disturbance size and temperature stress on rocky intertidal succession has begun to show some promising results. Although both temperature stress and disturbance size appear to be driving forces affecting Southern Gulf of Maine succession patterns, only disturbance size seems to affect succession patterns in the Northern Gulf. Preliminary observations suggest that importance of temperature in the South may be due mobile grazers (herbivorous and predatory snails) in the South that are more responsive to changes in temperature than their Northern counterparts.



Trussell Lab (Cont.)

Meredith Doellman, pursuing M.S. in Biology

This summer I am running a lab experiment investigating the effects of predator presence and prey density on prey feeding habits. First, I hope to gain a better understanding of how per capita feeding rate of the snail *Nucella lapillus* changes as its density increases. Second, the results should show how the presence of the green crab (*Carcinus maenas*) affects this relationship between density and feeding rate. Finally, via monitoring the growth of *Nucella*, I will determine whether the efficiency of *Nucella* in converting food to body mass varies with these parameters.

**Tim Dwyer, pursuing M.S. in Biology****Maggie Johnson, pursuing M.S.P. in Marine Biology**

Invasive species have emerged as a major threat to biodiversity the world over. Introduced into habitats in which they are not known, they too often wreak havoc among native species. There are, however, strong signs that communities of organisms and even entire ecosystems can withstand or repel invasions based on their cumulative diversity. However, whether diversity drives invasion resistance (an important ecosystem function) at the scale of landscapes, functional groups, species or genotypes remains unclear. Tim Dwyer and Maggie Johnson (Three Seas professional Master's student) spent the summer investigating the role that genotypic diversity may play in influencing invasion resistance among communities of tunicates, a type of colonial invertebrate. Using animals collected from genetically separate populations of native tunicates along the Damariscotta River, Maine, they built experimental communities (made, from all things, Lego blocks) into which they introduced an invasive tunicate species. In theory, if genotypic diversity of native species plays a role in resisting invasions, then invasive tunicates should have slower growth and greater mortality in communities with many native genotypes. Throughout the autumn, Tim will periodically return to the Darling Marine Center to monitor growth rates in this ongoing study.

**Catherine Matassa, pursuing Ph.D. in Biology**

As a technician in the Trussell Lab I worked on several projects this summer investigating the responses of two intertidal snails in response to cues from green crabs. We found that dogwhelks (*N. lapillus*) respond similarly when exposed to a low (25%) or high (100%) dose of risk cues. We also found that phenotypic plasticity in response to risk cues varies among populations of *L. obtusata* with snails from Maine coasts being the most plastic, snails from around Nahant being less plastic, and those from Europe, where the green crab is indigenous, the least plastic.



Slava Epstein Lab



Slava Epstein

I am interested in the diversity of microbial life in the ocean, and I came to see microbial communities as exquisitely "designed" living organisms. Specific projects in my lab include the search for novel forms of microbial life, growing and characterization of previously unknown microbes, research on the nature of their interactions in the environment, and ecology, geography, and evolution of selected groups of marine protists.

Selected Publications

Stoeck T., Hayward B., Taylor G.T., Varela R., Epstein S.S. (2006) A multiple PCR-primer approach to access the microeukaryotic diversity in environmental samples. *Protist in press*.

Hong S.-H., Bunge J., Jeon, S.-O., and S.S. Epstein. (2006) Predicting microbial species richness. *PNAS* 103: 117-122

-Slava Epstein, Associate Professor of Microbiology

Students at the Epstein Lab

Sandra Buerger, Dominica Nichols, Alexander Schering, all pursuing a Ph.D. in Biology

Marine Microbial Consortia as Models to Study the Nature of 'Microbial Uncultivability'

As the vast majority of microorganisms do not grow in the laboratory, the phenomenon of microbial uncultivability poses a significant challenge in environmental microbiology. Broadly, the goal of this project is to investigate the nature of this phenomenon using marine sediment bacteria as model organisms. Our contention is that the Petri dish may lack the required complexity of growth components, signaling molecules, and pheromones present in nature, and as a result may not provide suitable conditions for the growth of most microorganisms.

On this basis, our laboratory developed a diffusion growth chamber for the *in situ* cultivation of environmental microorganisms (Kaeberlein et al. 2002 *Science* **296**: 1127-1129). It is from this chamber that several microorganisms were isolated that cannot be cultivated using the traditional approaches; yet grow very well in Petri dishes if paired with certain cultivable species we call 'helpers'. These consortia are ideal model systems for investigating the nature of microbial uncultivability because they are easily manipulated in the laboratory using standard cultivation techniques. They have allowed us to initiate a second stage of this project: identifying the chemicals whose absence is responsible for 'uncultivable' microorganisms remaining dormant in the laboratory.

(Continues on pg. 9)



A colony of a helper bacterium forms the center of a cluster of uncultivable colonies.



An uncultivable colony grows profusely under a colony of its cognate helper.

Epstein Lab (Cont.)

We are currently working with three model consortia. In each case, a cultivable 'helper' strain induces MSC33u, an uncultivable isolate (95% 16S sequence identity with *Psychrobacter faecalis*), to form micro colonies in Petri dishes. The spent medium from each of these 'helpers' is active and together with Dr. Orjala at the University of Illinois, we have succeeded in extracting active substances from each.

To us, the most interesting of these consortia is one between the uncultivable MSC33u and a cultivable variant, MSC33c, that was derived from the uncultivable parental strain. The cultivable variant can form colonies on the same minimal, yet complex, medium prohibitive to the uncultivable parental strain. As in our other consortia, the spent medium of MSC33c is capable of inducing micro colony formation by MSC33u and we have likewise been able to extract active materials from MSC33c's spent medium.



Scanning Electron Micrograph of MSC33
(Bill Fowle, Northeastern University)

We have isolated, via bioassay-directed fractionation of MSC33c spent medium, materials capable of inducing MSC33u to form micro colonies in Petri dishes. Of particular interest is an oligopeptide whose synthetic form is also an inducer. This molecule is active at 3.5nM and is thus likely to be a signal. Our observations of the MSC33 consortium suggest that the nature of uncultivability for MSC33 may be cell-cell signaling rather than cross-feeding.

We have also isolated a fraction present and active from the spent medium of both MSC33c and another 'helper' of the uncultivable strain MSC33u. This material, although we have not identified the specific molecule, has the potential to be a universal inducer as multiple 'helpers' produce it.

This research was presented at the International Symposium on Microbial Ecology in Vienna, Austria in August 2006 in two forums: an invited talk by Dr. Slava Epstein entitled *Taming 'Uncultivable' Microorganisms* and a poster by PhD candidate Dominica Nichols entitled *A General Method for Cultivating Microbial Consortia: In Vitro Access to 'Uncultivable' Microorganisms*.

Joseph Ayers Lab



Joseph Ayers

My research focuses on the neuroethology of motor systems in invertebrates and lower vertebrates. A developmental approach is directed toward establishing the adaptive mechanisms of simple action patterns and goal oriented behavior. In particular we are investigating the detailed kinematics of walking, navigation and investigation and the adaptation of lobsters to current and surge as well as the neuroethology of lamprey swimming. The overall goal of these projects is to develop biologically-based controllers for ambulatory lobster-based and undulatory lamprey-based robots. Currently we are focusing on developing electronic nervous systems for our robots based on chaotic electronic neurons. This neurotechnology will allow the generation of robots that can behave autonomously in unpredictable underwater environments.

Dr. Joseph Ayers, Associate Professor of Biology

Ayers Lab (Cont.)

Biomimetic Underwater Robot Program (www.neurotechnology.neu.edu)

This program is developing neurotechnology based on the neurophysiology and behavior of animal models. We have developed two classes of biomimetic autonomous underwater vehicles.



The first is an 8-legged ambulatory vehicle that is based on the lobster and is intended for autonomous remote-sensing operations in rivers and/or the littoral zone ocean bottom with robust adaptations to irregular bottom contours, current and surge. The second vehicle is an undulatory system that is based on the lamprey and is intended for remote sensing operations in the water column with robust depth/altitude control and high maneuverability.

These vehicles are based on a common biomimetic control, actuator and sensor architecture that features highly modularized components and low cost per vehicle. Operating in concert, they can conduct autonomous investigation of both the bottom and water column of the littoral zone or rivers.

These systems represent a new class of autonomous underwater vehicles that may be adapted to operations in a variety of habitat. We are also developing neuronal circuit based controllers for both robots and neurorehabilitative devices. These controllers are based on UCSD Electronic Neurons

Outreach Activities



Outreach Staff, Summer 2006

Summer is always a busy time for the Outreach Program and this year was no exception. In addition to summer camps and programs visiting the Marine Science Center, the Outreach Program hosted two Summer Science Academies and worked with two afterschool programs throughout the entire summer.

The Marine Science Center Outreach Program held its third MYSIS Academy this summer. The Academy is a three-week intensive marine science program for students from Boston Latin Academy and the J.D. O'Bryant School of Math and Science. Students who are entering the Academy for the first time spend three weeks between the Marine Science Center and Northeastern Campus studying such topics as local coastal environments, physical, biological and chemical oceanography, scientific writing, and GIS/GPS. Students can also return each summer to build upon knowledge learned in year one. The students who returned for the second summer conducted a survey of the local rocky intertidal at the Marine Science Center following an international



(Continues on pg.11)

Outreach (Cont.)

coastal biodiversity surveying protocol. Students who have now participated for three years used their knowledge attained from the previous two summers to help mentor and guide the new students as well as acquire additional field experience. Other school year activities that the MYSIS Academy students participate in at the Marine Science Center include volunteering at the MSC Open House and participating in a Marine Science Symposium at UMass Dartmouth. The program is free for all participating students due to a three-year grant awarded from the FleetBoston Foundation.

Coastal Ocean Science Academy

The first annual Coastal Ocean Science Academy was held for two weeks in August at the Marine Science Center. This Academy was open to local students entering 9th or 10th grade in the fall. Students spent two weeks learning about local coastal ecosystems, took multiple oceanographic cruises aboard Northeastern's 50' research vessel, Mysis, and spent time at the Marine Science Center. Students will also be volunteering at the Marine Science Center Open House in September.



Lynn Economic Opportunity

This summer the Marine Science Center Outreach Program teamed up with two after school/summer programs involved with the Lynn Economic Opportunity (LEO). LEO is Lynn's only anti-poverty organization that strives to improve the quality of life for all Lynn residents. The two schools came to the Marine Science Center for eight consecutive weeks. During this time the students (K-5) were introduced to the local marine environment and completed a comprehensive eight-week curriculum on the local ocean environment.

To handle all of the activity this summer, the Outreach Program staff, **Emily Blume** and **Tracy Hajduk**, needed some additional hands. **Nicole MacRae** was hired as an Outreach Assistant. Nicole was a former co-op student and work-study student with Outreach prior to graduating from Northeastern this spring. **Eddie Baker** also worked with the Outreach Program for the months of July and August. Eddie was completing a required internship as part of his Master's degree through the Three Seas Program. Two new coop students started in June, **Jacqueline Rosa** and **Bryan Comey**. Jacqueline is an Environmental Geology/Secondary Education major and Bryan is working toward an Environmental Geology degree. **Lauren Crystal**, a Secondary Education History English major did a partial coop during July and August to assist with the MYSIS and COSA Academies. **Renee Dolecal**, who had just completed a coop with the Outreach Program, stayed on and was a work-study employee for July and August.



Jacqueline Rosa, Bryan Comey, Nicole MacRae

Three Seas Program



Three Seas XXIII Students

The Three Seas Program began last week as the students in EW XXIII arrived at the Marine Science Center. Twelve students are enrolled in this year's program, with 7 of 9 undergraduates from Northeastern University, and 3 graduate students participate the Three Seas Program as part of the Professional MS in Marine Biology curriculum.

After spending the fall semester in residence here at the Marine Science Center, students will be headed to the island of Moorea in French Polynesia, on January 4th for 10 weeks at UC Berkeley's Gump Field Station. Finally, on March 30th, students will depart for the University of Southern California's Wrigley Marine Science Center on Catalina Island, CA to complete their academic year.

The MS in Marine Biology Program associated with the Three Seas Program is now entering its third year. A new website for this program can be found at: www.marinebioms.neu.edu. Our first students graduated in June 2006: Lauren Czarnecki is now the Lab Manager at the Wrigley Marine Science Center on Catalina Island; Catherine Matassa entered the Ph.D. program here at Northeastern University, working in Geoff Trussell's lab; Karen Riccadonna is working in Cambridge, MA for a start-up company called GreenFuel Technologies. This company is working on a process that uses algae to clean smokestack emissions and produce biofuel. Congratulations to our first graduating class, and good luck in all your future endeavors.

Meanwhile, the Professional MS in Marine Biology students from EW XXII are well into their internships: Eddie Baker spent his summer working for the Outreach Program here at the Marine Science Center, and will be splitting his time this fall as a Teaching Assistant for the Biology Department, and working as a research technician for Three Seas Program director, Sal Genovese, on a project funded by the Northeast Consortium; Maggie Johnson spent her summer as a research assistant at the Darling Marine Center, funded by Geoff Trussell and working with his graduate student, Tim Dwyer. This fall she joins Eddie Baker as a Teaching Assistant on campus, and will provide logistical support to the Three Seas Program; Vincent Moriarty is the Lab Assistant at the Wrigley Marine Science Center on Catalina Island, working for former MSP student and current lab manager, Lauren Czarnecki; Jon Onyfryk is working as a research intern for Dr. Kim Ritchie at the Mote Marine Laboratory in Sarasota, FL, conducting coral research.

Finally, the undergraduates in last year's program enjoyed their summer pursuing a variety of opportunities in marine biology: Dalal Al-Abdulrazak spent her summer working at the Monterey Bay Aquarium, Liz Bentley and Nate Formel remained on Catalina Island as instructors at the Catalina Island Marine Institute; Will Goldenheim spent his summer as a research assistant for Dr. Mark Bertness in Rhode Island and Dr. Peter Edmunds on St John USVI; Sam Herman worked as an intern for the North Carolina Aquariums; John Lyons returned to Boston to the New England Aquarium. And for the students in EW XXIII, the journey has just begun!



Three Seas...East West...Which one is it?

Many of you long associated with the Marine Science Center may have noticed the name change associated with the experience formerly known as the *East West Marine Biology Program*. While we chose to return to our roots several years ago, once again using the more descriptive *Three Seas* name originally associated with this program, we've kept the *East West Marine Biology* tag embedded in our logo during this transition period. We will however, continue to refer to each class by an East West number, which is traditionally written in roman numerals, for reasons unbeknownst to the program historian. For instance, the students in EW XXIII just arrived this past week.

Flotsam and Jetsam

Doug O'Leary retired from NU in July. We wish Doug has a long and healthy retirement

John McDonough has been promoted to Facilities and Marine Operations Supervisor.

We have hired a new Marine Operation and Facilities Technician, **Jim Baginski** who will be the primary captain for the RV Mysis

Did you know...?

Traditionally, **flotsam** and **jetsam** are words that describe goods of potential value that have been thrown into the ocean. There is a technical difference between the two: *jetsam* has been voluntarily cast into the sea (jettisoned) by the crew of a ship, usually in order to lighten it in an emergency; while *flotsam* describes goods that are floating on the water without having been thrown in deliberately, often after a shipwreck.

Flotsam and **Jetsam** were also the names of the eels that served Ursula, the sea witch, in Disney's *The Little Mermaid*.

Professor Edward Jarroll has been appointed Interim Chair of the Department of Biology, effective September 15. Professor Jarroll replaces Professor Susan Powers-Lee who has been appointed Interim Vice Provost for Undergraduate Education.

Professor Jarroll received his B.S., his M.S., and his Ph.D. in Biology from West Virginia University. He joined the Department of Biology in 1996 as Professor and Chair. Prior to his appointment at Northeastern, Professor Jarroll served as Professor and Chair of the Department of Biology at Cleveland State University. Professor Jarroll served as Associate Dean for Faculty Affairs in the College of Arts & Sciences and Director of the Graduate School of Arts & Sciences from 2002-2003 and then again from 2003-2006. He is also the Director of the Marine Science Center and has held this position since 2002.

Professor Jarroll's scholarly work includes dozens of articles in peer-reviewed journals such as the *Journal of Protozoology*, *Molecular and Biochemical Parasitology*, and the *Journal of Biological Chemistry*, to name just a few. He has been an invited speaker and participant at nearly a hundred national and international academic programs. He is a member of the Alpha Chi National Academic Honorary and the Tau Beta Pi National Engineering Honorary, and has been recognized by Who's Who in American Men and Women in Science, and Who's Who in Science and Engineering. He has served the University and the College as a member of the Advisory Board of the Barnett Institute and a member of the Faculty Senate. He is also a former member of the University Committee on Funding Priorities.



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The RV Mysis

Events

Evening Lecture Series

“Dead Zones: The New Scourge Of the Seas”

Dr. Andrew Altieri
Northeastern University Researcher
Tuesday, November 7th, 2006
7:00pm

21st Annual Riser Lecture Series

April 20, 2007

“Opportunity, geography, and innovation: lessons from shells”

Geerat J. Vermeij
Distinguished Professor of Geology
Department of Geology
University of California at Davis

Nathan W. Riser Memorial Scholarship Fund

A memorial fund has been established to support students studying marine invertebrate biology at Northeastern University. If you would like to contribute to this please send a check payable to Northeastern University and put Riser Memorial on the memo line.

About the Marine Science Center

The vision of the MSC consists of three principal components representing three interconnected goals:

RESEARCH- the MSC is an internationally recognized research institution that: a) focuses on the ocean environment, marine life and its diversity, ecology, and discovering biotechnological and medical potentials in the sea, and b) attracts scientists of the world to spend varying periods of time doing high quality research that will benefit the university’s students and enhance its reputation;

EDUCATION- the MSC is a first class teaching laboratory, a center for undergraduate and graduate education where the theory of marine sciences is as close to its practice as the sea to the station’s front door;

OUTREACH- the MSC is a learning center with outreach activities to the general public that will enhance the public’s awareness and knowledge of the oceans as a potential for scientific discovery and medical advances.

MSC Staff

Ed Jarroll
Director
Ted Maney
Lab Manager
Diving Safety Officer
Sal Genovese
Three Seas Program Director
Carlos Diaz
Administrative Officer
Emily Blume
Outreach Program Coordinator
Tracy Hajduk
Outreach Program Facilitator
John McDonough
Facilities and Marine Operations Supervisor
Jim Baginski
Marine Operations and Facilities Technician

MSC Faculty

Resident Faculty

Joseph Ayers
Neurophysiology and Behavior
Slava Epstein
Microbial Ecology; Biological Oceanography
Geoff Trussell
Evolutionary and Community Ecology
Steven Vollmer (November 2006)
Evolutionary and Ecological Genetics
Matt Bracken (August 2007)
Physiological Ecology

Associated Faculty

Gwil Jones
Vertebrate Systematics and Ecology
Don Cheney
Macroalgal Biotechnology and Marine Pollution Remediation