



Department of Marine Sciences Fall 2018 Newsletter

GREETINGS FROM THE DEPARTMENT HEAD

Welcome to the fall edition of our Department's newsletter. This past summer was filled with manifold research and educational activities, some of which are highlighted in this edition. You will also find the beginning of a multi-part series on the history of UConn Marine Sciences, which should be of interest to current students, alumni, and those old enough to remember life without cell phones. I encourage everyone to further explore our Department's ongoing cutting-edge research by visiting our website and joining the Partners of Marine Sciences.

Have a wonderful fall,

J. Evan Ward

PROFESSOR AND HEAD, DEPARTMENT OF MARINE SCIENCES

UConn R/V Connecticut Recommissioned

POSTED ON
OCTOBER 29,
2018 BY KAYLA
MLADINICH

DEPARTMENT NEWS

The UConn Avery Point Campus was a buzz on Thursday as the university celebrated the recommissioning of its 19-year-old research vessel, the R/V Connecticut. In attendance were key faculty and staff from the Avery Point campus along with President Susan Herbst, Provost Craig Kennedy and local state representatives.

Over the last year, the R/V Connecticut was decommissioned and underwent extensive work which included increasing its length from 76 feet to 90 feet. This expansion allowed for a doubling of laboratory and storage space and an increase in the number of sleeping quarters from 12 to 18. Due to these renovations, the ship can now undertake missions lasting up to two weeks.

As noted by President Herbst, these improvements are significant as the R/V Connecticut not only serves the university's research needs but is essential to marine research operations for many state and regional organizations. As one of the few vessels of its kind on the east coast, the R/V Connecticut boasts a charter list that includes the U.S. Navy, the Woods Hole Oceanographic Institution and the National Oceanic and Atmospheric Administration (NOAA).

The R/V Connecticut is also an essential part of the research community at Avery Point. The vessel has been key to fulfilling the department of Marine Sciences' commitment to quality oceanographic research. Over the last 18 months, faculty from the department have received over \$10 million in federal and state funding, making the department one of the most successfully funded at the university. Head of the Department, Dr. Evan Ward emphasised that the improvements to the R/V Connecticut will further the growth and excellence of undergraduate and graduate research within the department.

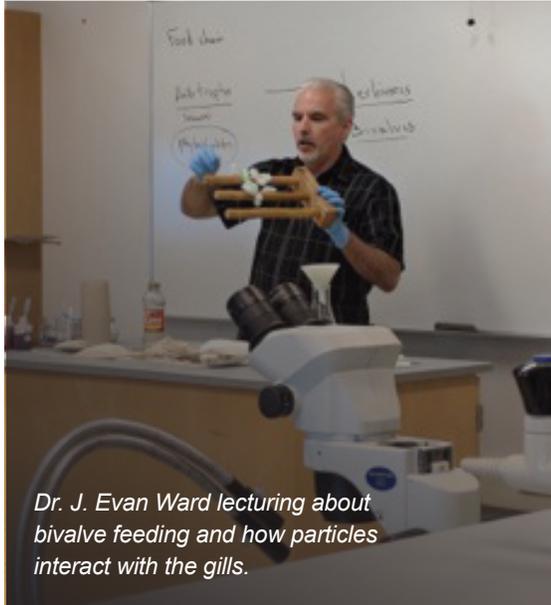
Students at the Avery Point campus will not have to wait long to benefit from the upgrades. A new interdisciplinary graduate course began this fall and included a three-day, two-night cruise out on Long Island Sound. The expedition will provide a hands-on, integral research experience and is just a glimpse into the exciting opportunities that lie ahead with the improved Research Vessel Connecticut.



*A porthole view of the recommissioning ceremony
(Peter Morenus/UConn Photo)*



*The R/V Connecticut at the Avery Point campus on Sept. 13, 2018.
(Peter Morenus/UConn Photo)*



Dr. J. Evan Ward lecturing about bivalve feeding and how particles interact with the gills.



A student from Tyrell Middle School observing phytoplankton with a dissecting microscope.

Marine Science Day: Another Successful Year!

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The 15th annual Marine Science Day was hosted on May 9th, 2018 at the Connecticut River Museum in Essex, New England Science and Sailing in Stonington, and our very own, Avery Point campus. In a combined effort, staff from the Mystic Aquarium, Project Oceanology and Department of Marine Sciences pulled together a day of exciting marine topics. Students in grades 4 through 8 from Ethel Walker in Simsbury, Washington Middle school in Meriden and Tyrell Middle School in Wolcott were welcomed to the Avery Point Campus to learn about the diverse marine life of Long Island Sound.

Educational workshops discussed topics from food chains in Long Island Sound to the unforgiving ecosystem that is the rocky intertidal zone. The activities worked to emphasize the importance of our oceans, particularly our local marine systems. Both students and teachers were engaged in the activities, asking questions and participating in events throughout the workshops. Members of the marine sciences department hosted workshops on plankton, DNA and the benthic food chain. The Mystic aquarium team dissected squid with the students, while an intertidal-zone exploration and a trip out on the R/V Envirolab was led by Project Oceanology. In the “Meet the Plankton” workshop hosted by Drs. George McManus and Michael Finiguerra, the students watched phytoplankton and zooplankton scurry and bounce around under a dissecting microscope and learned about the importance of these tiny critters in marine ecosystems. Dr. J. Evan Ward and his laboratory group hosted a workshop titled “Clams, Crabs and You” where students learned about particle selection in oysters (pictured below) and watched the food chain in action as crabs gobbled up mussels with the aid of their chelae. Dr. Senjie Lin’s laboratory group extracted DNA from strawberries, which the students converted into trendy necklaces, marching onto the next workshop in style.

The variety of workshops available allowed many opportunities for the students and their teachers to be engaged in hands-on marine education. The day was a filled with adventures and will be continually hosted at Avery Point to instill curiosity for the marine environment in our local school programs.

Mystic Aquarium-UConn Research Experience for Undergraduates

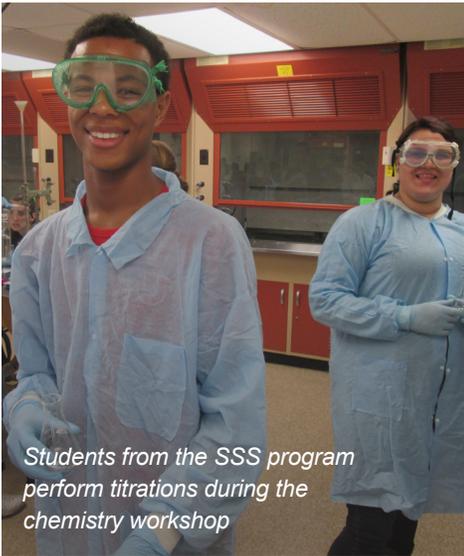
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This summer, we completed the second year of our new Research Experience for Undergraduate program (REU), funded by the National Science Foundation. This program is an exciting partnership between the Mystic Aquarium and the Department of Marine Sciences (DMS) at Avery Point; co-directed by the aquarium's chief scientist Dr. Tracy Romano and DMS alumni and collaborator Dr. Michael Finiguerra. The goal of the REU program is to immerse underrepresented students and students that do not have access to research to the scientific process. REU students are mentored by DMS faculty and aquarium scientists over ten weeks during the summer, while participating in behind-the-scenes professional development activities at the aquarium. Students presented their projects at a scientific symposium on campus and to the public at the aquarium.



The REU students from this past summer (2018)



Students from the SSS program perform titrations during the chemistry workshop



STEM Success at Avery Point

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STEM Success is a new undergraduate retention program that began this past summer.

The initiative targets incoming first-generation students, students from low-income households, minority students, and those in need of extra academic support. The goal of the program is to increase undergraduate retention and graduation rates, as well as aid in the students' transition from high school to college.

Eighteen students were enrolled in the STEM Success program and experienced eight workshops, twice a week for four weeks. The workshops were designed to promote dialogue and discussion amongst peers and with graduate students, who led the workshops, on STEM subjects. Activities ranged from performing titrations, carrying out plankton tows, learning how to use a microscope and touring the R/V Connecticut. Incoming undergraduates thereby became familiar with basic scientific concepts and exposed to STEM resources on campus such as the laboratories and research vessels. The primary goal was to build a student support network for these incoming freshmen by connecting the students to their peers and future teaching assistants here at Avery Point.

The STEM Success program was designed by Dr. Emma Cross and Dr. Alejandro Cifuentes-Lorenzen, two Postdoctoral Associates in the Marine Sciences department, alongside Elizabeth Kading (previous Continuing Education Counselor) as a new initiative for the Student Support Services (SSS) summer program, directed by Aaron Collins. Marine Science graduate students Molly James, Kayla Mladinich, Emily Seelen, Gunnar Hansen, Vena Haynes, Matt Sasaki, Jimmy deMayo, Sue Smith, Lingjie Zhou and Brittany Sprecher contributed time and expertise. Undergraduate participants responded enthusiastically to the program, thus ensuring that the STEM Success initiative will become a regular aspect of the SSS summer program!

Marine Sciences History: Building the Foundation

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SPOTLIGHT

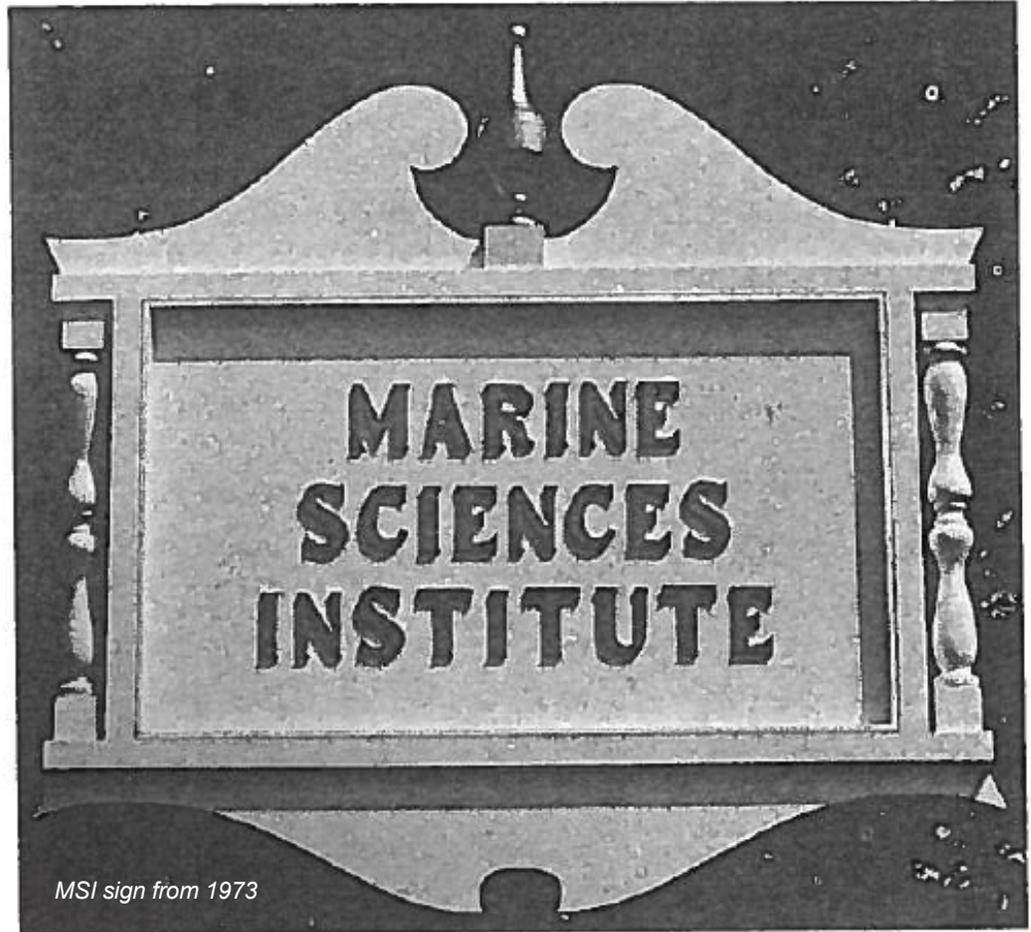
The Department of Marine Sciences (DMS) is home to a diverse interdisciplinary faculty, staff and students. It is one of the most successfully funded departments at UConn with a rich history of international collaborations and oceanographic research. This article is the first in a series of articles discussing how the department was formed and the accomplishments that shaped DMS as we know it. The story of the department begins in 1957 when UConn first established a formal marine science effort with the formation of the Marine Research Laboratory in Noank under the Directorship of John S. Rankin.

The Marine Research Laboratory replaced a lobster hatchery on the Mystic River and was largely a summer program until 1960, when resident UConn staff and students moved in and the program became more year-round. From the beginning, State agencies like the Connecticut Board of Fish and Game and the U.S. Geological Survey program worked in the laboratory alongside faculty and staff. In 1967, the University established the Marine Sciences Institute (MSI) based on the Avery Point campus. Dr. Peter Dehlinger, a geophysicist, was hired as the first Director of the Institute in 1968. MSI was appealing to young scientists in the 70s and showed promise to become a renowned oceanographic research center. There were many resources available including the R/V UCONN, small boat access, specialized staff and developing laboratories which provided support for an expanding range of relevant marine research. Drs. W. Frank Bohlen and William F. Fitzgerald, two of our valued and active emeritus faculty, were among those young scientists. They started at MSI as assistant professors in the Geology Department in 1969 and 1970, respectively, after obtaining their doctorates through the MIT-Woods Hole Joint Program in Oceanography. Dr. Fitzgerald established one of the first clean laboratories in the nation, making it possible to study trace metal biogeochemistry (e.g. mercury) without external contamination. Other research at the time included finfish and lobster surveys, benthic and water column ecological work, geophysical studies, physical/chemical oceanographic and sediment transport investigations.

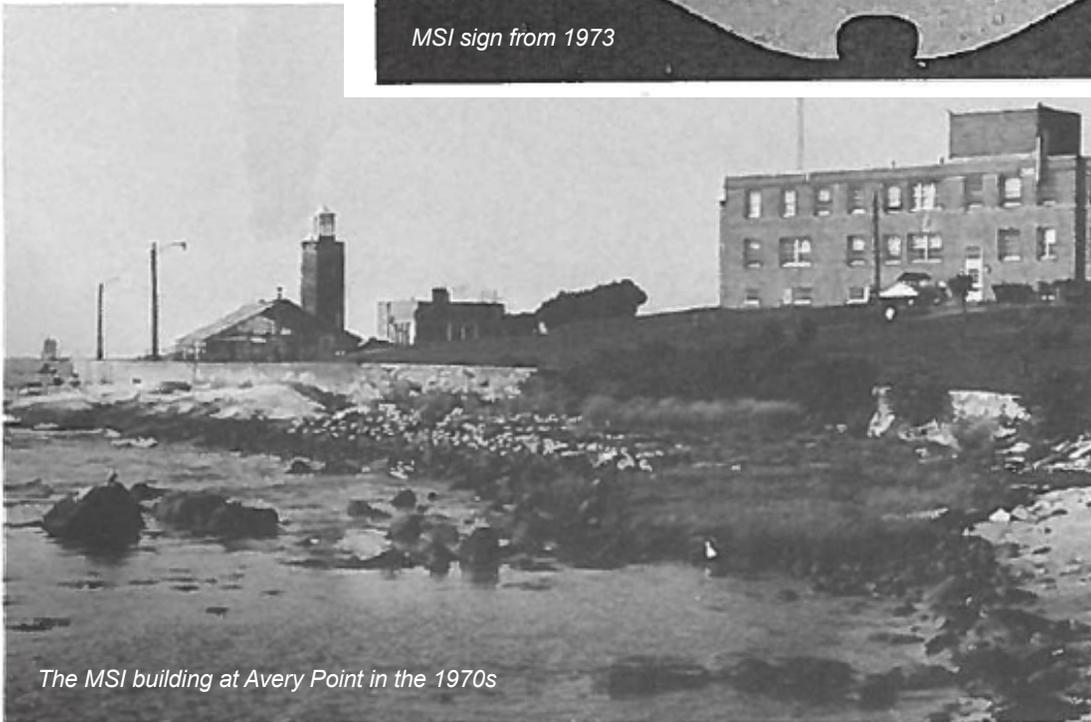
While the institute structure was valuable for graduate student and faculty research, the faculty at MSI were separate from the departments to which they were appointed. This situation created problems because the faculty at MSI were often not conducting research that directly supported the associated department's focus. To allow the oceanographic research program to grow further, the director at the time, Dr. Sung Feng, along with MSI faculty and graduate students convinced the administration to establish the Department of Marine Sciences in 1979. The Department of Marine Sciences was founded with the graduate program housed at Avery Point and some research laboratories remaining at the Noank facility. In the years to come faculty and staff would develop DMS into a top-tier program with a wide range of interdisciplinary research, particularly focused on coastal waters.



*Boats on the
MSI dock*



MSI sign from 1973



The MSI building at Avery Point in the 1970s

Achievement Highlights

Assistant Research Scientist **Kaylan Randolph** was awarded a grant from NASA Ocean Biology and Biogeochemistry for her project, "A Measurement-Based Characterization of the Hyperspectral Reflectance of Breaking Waves, Subsurface Turbulent Kinetic Energy Dissipation Rates, and Air Entrainment as a Function of Physical Forcing."

Assistant Professor **Catherine Matassa** was awarded a Westport River Watershed Alliance Grant for her project, "Identifying the Drivers of Marsh Loss in the Westport River."

Assistant Professor **Samantha Siedlecki** received funding from NOAA and the University of Washington for two projects: "Enhancement of an Existing Ocean Forecast System to Include Ocean Acidification" and "Downscaled Seasonal Forecasts for Living Marine Resource Management off the US West Coast."



marinesciences.uconn.edu/partners-of-marine-sciences/

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