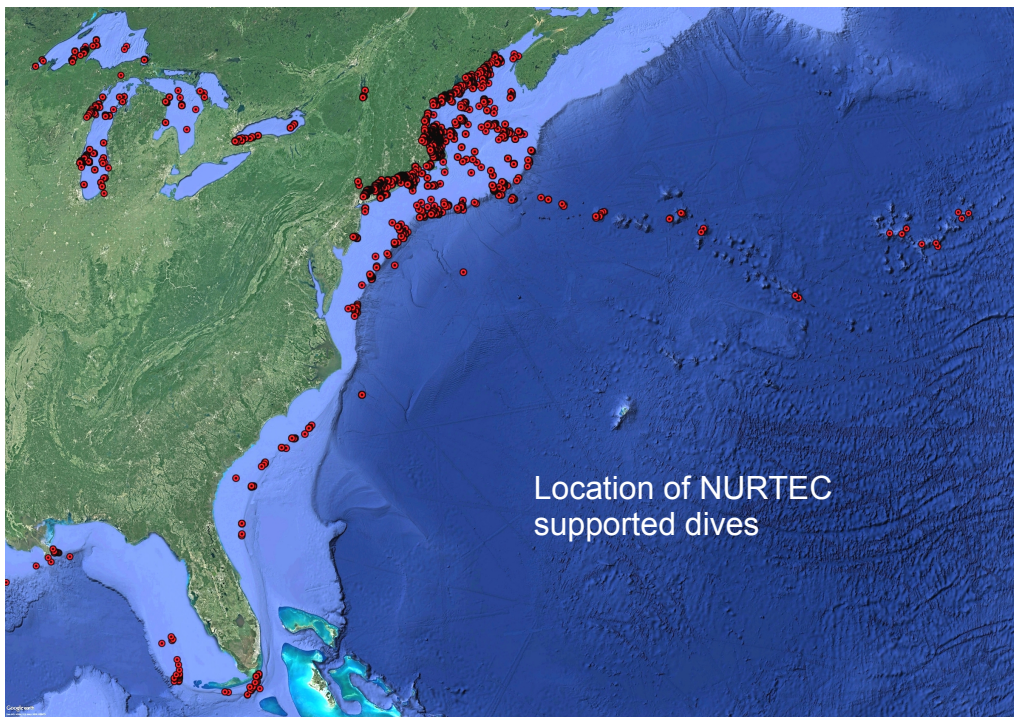


**UConn's Northeast Underwater Research
Technology and Education Center Closes**
Subtitle: Exploration and Research that Made a Difference

The University of Connecticut's Northeast Underwater Research, Technology and Education Center (NURTEC) officially closed on December 31, 2017 after 34 years of activities across the global ocean and large lakes of the world. Reduced funding and retirement of key personnel necessitated this action. The Center was established at UConn in 1983 with funding from the National Oceanic and Atmospheric Administration's (NOAA) National Undersea Research Program (NURP) and began fieldwork with research submersibles, remotely operated vehicles (ROVs) and advanced wet diving technologies in 1984. Over the next three decades the Center compiled a remarkable record of scientific accomplishment, technological advancement, and operational safety along with developing unique education and outreach programs. Using the scientific results generated by this work, the Center also influenced ocean policy and management. A brief retrospective of the Center recognizes that it was guided both by the mandates and mission of NOAA, focused on conservation and sustainable use of ocean and large lake resources and by the spirit of innovation and exploration that runs deep at UConn.

For the first 25 years NURTEC operated as one of six regional National Undersea Research Centers (NURC's), soliciting, reviewing and funding undersea research projects that required placing scientists directly, or virtually, underwater. After federal budget priorities shifted and NURP was eliminated, NURTEC operated as a University cost center for 11 more years, based on a diversity of grants and contracts. Over time, the Center used nine different occupied submersibles, ten different remotely operated vehicles, and multiple approaches for wet diving systems including surface supplied, mixed gas and rebreather technologies. The Center's annual request for proposals was based upon NOAA's national and related regional research priorities and was distributed to over 2500 scientists across the nation. Over this period the Center brought in over \$43 million of federal funds that supported 246 peer-reviewed undersea research and education projects. While research was focused primarily off the northeast and U.S. Great Lakes, projects also spanned the globe including Antarctica and U.S. Arctic waters, South China Sea, Eastern Tropical Pacific, African Rift Valley Lakes, Lake Baikal in Russia, Gulf of California, Mediterranean, Red Sea, and the northeast Atlantic off Portugal. Center supported scientists produced 213 peer reviewed publications with data collected from over 8750 dives.

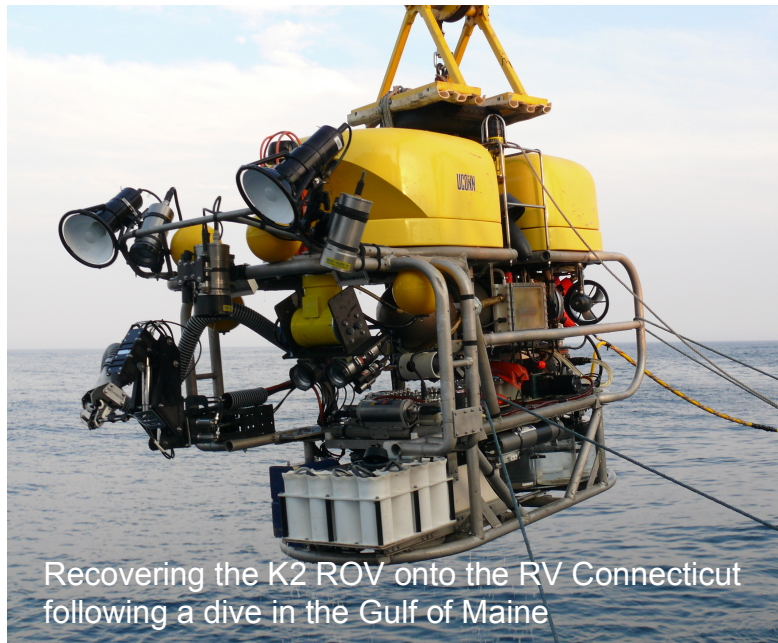


Staff scientists at the Center and those supported at other institutions, often working with NOAA partners, made direct contributions to improve management and conservation of ocean resources. Center scientists took results from their underwater studies to State governments, regional Fishery Management Councils, the U.S. Congress, the United Nations, and even the White House. Some notable examples include the use of research results to significantly influence the development of essential fish habitat and deep sea coral provisions in national fisheries legislation, implementation of fisheries closed areas off the northeast US to enhance sustainable fisheries, identification of management plan alternatives for National Marine Sanctuaries, development of measures to protect vulnerable ecosystems on the high seas through the United Nations, and designation of the first Marine National Monument in the U.S. North Atlantic by President Obama. Such research also aided decisions about Long Island Sound in regards to assessing impacts of a proposed liquid natural gas terminal and impacts of the disposal of harbor dredge material on seafloor habitats.

Studies with other partners focused on the use of underwater technologies to explore our nation's rich maritime history. ROVs were used to identify and survey the remains of the steamship *Portland*, a sidewheel passenger steamer that sank in 1898 in a surprise storm with loss of 192 lives including crew and passengers. Called the "Titanic of the Gulf of Maine," the exploration was featured on Discovery's Science Channel. Thirty-five additional shipwrecks were surveyed while working with NOAA's National Marine Sanctuary program, four of which have been provided additional protection by placement on the National Register of Historic Places. Further, the Center surveyed the wreck of the Lightship LV-51 that sank at the mouth of the Connecticut River, resulting in its being designated as Connecticut's second submerged heritage site.

Since its inception the Center played a leading role in developing underwater sampling tools to meet the needs of sponsored researchers working on a variety of diving technologies. In 1987 the Center initiated its remotely operated vehicle (ROV) program with the purchase of the first commercially available low-cost vehicle, the *MiniRover*, capable of diving to 1000 feet and collecting samples using a simple manipulator arm. Over the next thirty years the Center acquired, operated and upgraded a number of ROVs to better serve the research community, culminating with the development of the 1000-meter *Kraken2 (K2)*. The *K2* is widely recognized as one of the most capable and affordable "science class" ROV's in the country and conducted a wide range of missions in support of ocean science and infrastructure. Over the past decade the *K2* has provided subsea maintenance to help keep the NSF Ocean Observatories Initiative's

Pioneer Array, located on the continental shelf south of Martha's Vineyard, operational; recovered NOAA's \$500K HabCam towed imaging system that was lost on the wreck of the *Bow Mariner*; supported numerous projects focused on deep sea corals in the Gulf of Maine, Atlantic seaboard, Gulf of Mexico and National Marine Sanctuaries off the coasts of Oregon and California; and surveyed over 65 nautical miles of subsea cables for the U.S. Navy operating from the Research Vessel *Connecticut*.



Recovering the K2 ROV onto the RV Connecticut following a dive in the Gulf of Maine

Ocean science education was an enduring mission of the Center with a focus on the unique contribution that underwater technologies make to the advancement of science and the engagement of students and teachers. The High School Aquanaut Program, conducted over the course of 20 years, engaged students and teachers in hands-on field science using submersibles, remotely operated vehicles and acoustic technologies. The NSF-funded Classroom of the Sea program developed innovative ocean science education approaches for deaf and hard of hearing students. Most recently, the Center led one of the 14 Centers for Ocean Sciences Education Excellence (COSEE) funded by the NSF - COSEE-TEK – Technology and Engineering for Knowledge that utilized ocean science and technology to provide professional development for high school teachers, and engage and expose students to ocean sciences and engineering career opportunities, including dozens of undergraduate students from the New England Louis Stokes Alliance for Minority Participation.

While NURTEC has ceased to operate, the legacy of excellence and innovation will continue within the Department of Marine Sciences. Former Center Director Ivar Babb is now a Research Scientist within the Department with a focus on science education and the broader impacts of ocean research. Research Professor Emeritus and former NURTEC Science Director Peter Auster, who has had a faculty appointment with the Department since 2002, continues his studies on the ecology and conservation of marine fishes, human impacts on the sea, and the use of marine protected areas as conservation tools. The Underwater Vehicles Laboratory and ROV operations, led by Kevin Joy, will now be directed by the Department's marine operations program.