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Rhode Island news

URI wins $20-million federal grant for study of marine life

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The University of Rhode Island holds a ceremony at the Center for Biotechnology and Life Sciences to announce a $20-million award from the National Science Foundation .

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SOUTH KINGSTOWN — David R. Nelson sees a future in which Rhode Island will supply the necessary means for aquaculture around the world — everything from vaccines to low-cost fish food.

But right now, Nelson, a molecular biologist at the University of Rhode Island, is trying to better understand the way certain microscopic organisms make fish sick in the first place.

His efforts just got a big shot in the arm. The National Science Foundation has awarded $20 million to URI over the next five years to lead a partnership involving virtually every public and private college and university in Rhode Island in stepping up the pace of research in marine life sciences.

The announcement came Tuesday from a roster of dignitaries, including Governor Carcieri, U.S. Sen. Jack Reed, U.S. Sen. Sheldon Whitehouse, URI President David Dooley and others, in the Center for Biotechnology and Life Sciences. The four-story building is a showcase for the university's commitment to science and research and also is home to URI's gene sequencing center started by Nelson in 2002.

To help secure the award, the state has agreed to provide an additional $4 million over the next five years.

Part of the NSF's $20-million grant will pay for new equipment that will expand exponentially the capacity of the Genomics and Sequencing Center to analyze DNA, a key step in understanding how organisms behave.

Nelson compared the upcoming enhancements with putting the existing equipment "on steroids."

Similarly, the NSF award will upgrade research facilities at the Center for Marine Life Science at URI's Bay Campus in Narragansett, and the Proteomics Center at Brown University, while supporting 37 graduate students and 165 undergraduates, according to Peter Alfonso, URI's vice president for research and economic development.

The Proteomics Center at Brown studies proteins and the way they behave in organisms under varying conditions.

The NSF grant for new equipment means the Proteomics Center and the two URI labs will encourage research on climate change in Narragansett Bay, where a rise in temperature has depressed the lobster population and spawned an increase in predators of the crustaceans and other species that are staples of the fishing industry.

The new equipment will generate enormous amounts of data — literally millions of bits of information for each batch of samples fed into a single machine, according to Nelson.

The NSF grant also provides for more computer power and expertise at Brown in the specialized field of bioinformatics, the application of high-tech data analysis to the life sciences.

Moreover, Brown will get a separate $1-million grant to upgrade high-speed connections and computer networking to its buildings in the Jewelry District. That will ultimately benefit all the colleges and universities using the NSF-supported research facilities, as well as an outreach effort to elementary and secondary schools to encourage more students to pursue careers in the sciences.

The cyber connectivity is critical, said Dr. Edward J. Wing, Dean of Medicine and Biological Sciences at Brown University.

Wing, Reed, and others emphasized the collaborative aspects of the nine-school partnership, which has one unusual but key player in fostering better communication — the Rhode Island School of Design.

RISD believes that the addition of art and design to science and technology will enable scientists to engage the widest audience, according to David Bogen, associate provost for academic affairs. RISD Prof. John Dunnigan said RISD hopes to develop visual techniques for scientists to communicate with each other and with the general public.

The school also plans to organize nine semester-long conversations to help scientists figure out how to work together using a process that already has been applied to address other issues, Dunnigan said.

One such "innovation studio" a couple of years ago generated some 30 displays which captured ways that individuals and governments can address the problems posed by climate change.

Dooley credited Reed with providing invaluable legislative support that enabled Rhode Island to qualify for the funding from NSF's Office of Experimental Program to Stimulate Competitive Research. Rhode Island first won $6 million in EPSCoR funding in 2006. The latest award builds on the earlier work.

And while the grant encourages research in marine life sciences in particular, it has broad implications for life sciences in general, according to Alfonso, the principal investigator. The same tools can be used to look at human diseases as well as diseases in aquatic creatures, he said.

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