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FAU's Southeast National Marine Renewable Energy Center Receives $360,000 NSF Grant for 'Research Experiences for Undergraduates' Program

Intensive Summer Research Program to Attract Top Students Nationally and Broaden STEM Workforce

BOCA RATON, Fla. (March 23, 2017) — Florida Atlantic University's Southeast National Marine Renewable Energy Center (SNMREC), a United States Department of Energy designated center, has received a $360,000 grant from the National Science Foundation for a "Research Experiences for Undergraduates" (REU) project titled "Removing Barriers to Ocean Current Based Electricity through Undergraduate Research."

FAU's SNMREC is focused on advancing science and technology to recover energy from the oceans' renewable resources with special emphasis on those resources available to the southeastern U.S., initially focusing on ocean currents and thermal resources. SNMREC's REU site is designed to engage high-potential undergraduates in meaningful research activities in order to encourage their pursuit of graduate study in STEM (science-technology-engineering-math) disciplines, with an emphasis on interdisciplinary career paths. Projects will include three key focus areas: resources assessment; system design and reliability; and environmental interactions.

"We will engage a diverse group of students including women, underrepresented minorities, as well as veterans in our recruitment and selection process to help ensure that future professionals in the marine energy industry will bring a wide spectrum of perspectives and solutions," said James VanZwieten, Ph.D., principal investigator of the grant and an assistant research professor at FAU's SNMREC.

Student scholars of the SNMREC REU site will be integrated into existing research groups and will receive hands-on mentoring from FAU faculty members, and will have access to state-of-the-art facilities and platforms for their projects. They will play an integral role in advancing ocean current resource assessment science by helping to improve oceanic flow modeling techniques, developing autonomous underwater vehicle measurement techniques, and advancing wave and buoyancy-driven glider measurement capabilities. Projects related to system design and reliability will focus on increasing energy extraction efficiency and reducing equipment failures. Projects designed to understand and mitigate potential environmental effects will include

advancing a LiDAR imaging approach for underwater video of marine animals, improving automated animal identification algorithms for classifying marine species near underwater turbines as well as predicting their proximity to the turbines, and looking at the potential effects of electromagnetic fields on marine life. These measures will help scientists better understand marine environments where energy capture devices will be installed.

"We will have a total of 10 projects during each year of the award," said VanZwieten. "All of our REU student scholars will be instrumental in helping to progress the ocean industry by contributing knowledge in many different areas that are needed to responsibly and rapidly commercialize technology."

SNMREC's REU program will include seminars, research trainings, writing workshops and an entrepreneurial boot camp; career mentoring both during and after the students' REU experience; individualized research training in areas that emphasize interdisciplinary problem solving and collaboration; and a rich set of field trips, social events and post-REU follow-up activities.

"Undergraduate research at Florida Atlantic University is second-to-none and this latest grant from the National Science Foundation for 'Research Experiences for Undergraduates' is a testament to the exciting projects that are being conducted in the STEM fields as well as other disciplines across our University," said Daniel C. Flynn, Ph.D., FAU's vice president for research.

FAU's SNMREC is currently seeking 10 undergraduate researchers who will be engaged in the paid, 10-week program. Participants will be paid $500 per week along with a $150 meal allowance, and will typically work from 8 a.m. to 5 p.m. daily. REU scholars will be provided with housing in apartment-style dormitories on FAU's Boca Raton campus (six students) and FAU's Harbor Branch Oceanographic Institute campus (four students) based on their selected project, and travel funding available. There are two deadlines to apply for this program: a priority deadline of March 31 and a final deadline of April 15. For more information, visit www.fau.edu/research/dor-hboi/reu-ocean-current-home.php.

"Ocean science, which encompasses engineering and environmental sciences, is one of Florida Atlantic University's four areas of strength that define our institutional programs," said Anton Post, Ph.D., executive director of FAU's Harbor Branch who spearheads the ocean science pillar. "Harnessing energy from our oceans is an important contribution to our national energy needs and bringing undergraduate researchers into the fold will only help to enhance our efforts to create knowledge in this field that will benefit society."

FAU's SNMREC is a U.S. Department of Energy and a state of Florida designated research and development center focused on enabling the safe and responsible commercialization of marine renewables in the U.S., Florida, and the world. The center's initial focus has been on open-ocean currents like the Gulf Stream and how they might be harnessed for utility-scale power generation.

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About Florida Atlantic University:
Florida Atlantic University, established in 1961, officially opened its doors in 1964 as the fifth public university in Florida. Today, the University, with an annual economic impact of $6.3 billion, serves more than 30,000 undergraduate and graduate students at sites throughout its six-county service region in southeast Florida. FAU's world-class teaching and

research faculty serves students through 10 colleges: the Dorothy F. Schmidt College of Arts and Letters, the College of Business, the College for Design and Social Inquiry, the College of Education, the College of Engineering and Computer Science, the Graduate College, the Harriet L. Wilkes Honors College, the Charles E. Schmidt College of Medicine, the Christine E. Lynn College of Nursing and the Charles E. Schmidt College of Science. FAU is ranked as a High Research Activity institution by the Carnegie Foundation for the Advancement of Teaching. The University is placing special focus on the rapid development of critical areas that form the basis of its strategic plan: Healthy aging, biotech, coastal and marine issues, neuroscience, regenerative medicine, informatics, lifespan and the environment. These areas provide opportunities for faculty and students to build upon FAU's existing strengths in research and scholarship. For more information, visit www.fau.edu.