



The National Oceanic & Atmospheric Administration Environmental Cooperative Science Center

The Educational Partnership Program of NOAA's Office of Education funds the NOAA Environmental Cooperative Science Center (ECSC). Founded in 2001, the ECSC was awarded a new \$15 million, 5 Year Cooperative Agreement in 2011 following a nationwide, peer reviewed competition. The lead institution is Florida Agricultural and Mechanical University, located in Tallahassee FL, in collaboration with Creighton University, Delaware State University, Jackson State University, Texas A&M University-Corpus Christi and the University of Texas-Brownsville as partners.

The mission of the ECSC is to train a new generation of students, particularly from minorities underrepresented in the STEM (Science Technology, Engineering and Mathematics) disciplines, in NOAA-related natural and socioeconomic sciences and to conduct research aligned with NOAA's long term strategic plans for healthy oceans and resilient coastal communities. To accomplish this mission, the ECSC will 1) increase the number of well trained, highly qualified scientists and managers, particularly from under-represented minority groups, entering NOAA and the NOAA-related workforce; 2) enhance the scientific understanding of human interactions with the coastal environment in support of NOAA's mission; 3) improve the scientific basis for resource management by developing tools and research products to characterize, evaluate, and forecast coastal and marine ecosystem responses to natural and human induced stressors; and 4) facilitate community education and outreach relating to the function and relevance of coastal ecosystems and the services they provide to society.

Postsecondary education highlights:

"Over 7,500 undergraduate and graduate students trained in NOAA-related sciences.

- 282 students graduated to date in NOAA core science areas (54 Ph.D., 87 M.S., 4 M.A., 120 B.S., 16 J.D., 1 B.A.) with additional students currently in the pipeline .
- Over 1,600 students per year complete courses taught by ECSC faculty in NOAA-mission relevant fields at partner institutions.
- 12 former ECSC doctoral students from underrepresented minority communities are now NOAA employees (NOS, OAR, NMFS).
- 26 former ECSC students from underrepresented minority communities are now Federal (other than NOAA), state, or local government employees.
- 11 former ECSC students are now Federal (other than NOAA), state, or local employees conducting work/research related to NOAA sciences.
- 20 former ECSC students have joined academia (university and K-12).

Outreach and K-12 education highlights:

- " A peer-reviewed, post-secondary lecture series in Introductory Oceanography, based on the Ocean Science Concept-driven Interactive (OSCI) teaching model.
<http://www.aslo.org/lectures/fundamentals.html>
- " 'From Education to Exploration: Students at Sea' video presented in NOAA's "Oceans Today" kiosk (a multi-media interactive exhibit that was shown at 15 museums and aquariums around the country including The Smithsonian-Ocean Hall in Washington D.C.)
- " Annual Summer Camps for K-12 teachers and students at FAMU and partner universities.
- " Environmental Awareness poster competitions for elementary and middle school students.
- " Mentoring and training student teams competing in the National Ocean Science Bowl Competitions.

Research and Management highlights:

- " Over 250 peer-reviewed scientific and technical publications in NOAA-related sciences by ECSC faculty and students
- " Over \$90,000,000 in additional grants and contracts leveraged over NOAA EPP base funding.
- " Acquisition of high-resolution aerial and hyper-spectral imagery and development of geospatial databases for 7 National Estuarine Research Reserves (NERRs) along the Atlantic and Gulf coasts.
- " Development of remote sensing tools, computer algorithms, and maps for natural resource management and assessment of changes (due to human activities and natural phenomena such as hurricanes) in estuaries, marshes and coastal waters
- " Studies of effects of the Deepwater Horizon oil spill in the Gulf of Mexico, including impacts on fish, food webs and the coastal environment.
- " Comprehensive ecological risk assessments addressing effects of sea-level rise and various water management scenarios. A model for Apalachicola bay assessing impacts of these factors on oyster fisheries has been developed.
- " Development and validation of conceptual ecological models of NERR sites to link drivers (anthropogenic or natural activities), stressors (ecological impacts as the results of drivers), and ecological endpoints (important ecological, economic, and/or social factors). These are used to identify future research needs and inform management priorities

Graduate students must include NOAA scientists on their advisory committees to ensure that their research projects align with NOAA interests. Current MS and Ph.D. projects include work on harmful algal blooms, mercury in coastal fish, water quality and nutrient dynamics in estuaries, remote sensing of sea grass beds, ecosystems of barrier islands, conservation plans for threatened fisheries, and legal issues and management outcomes affecting marine resources.



Florida A&M University
School of the Environment
Frederick S. Humphries Science Research Center, 305
1515 Martin Luther King Blvd., Tallahassee, Florida 32307



TEXAS A&M UNIVERSITY
CORPUS CHRISTI

