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A COMMUNITY PARTNERSHIP MODEL TO SUPPORT STEM EDUCATION AND CAREER EXPLORATION IN URBAN SCHOOLS

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**A Community Partnership Model to Support
STEM Education and Career Exploration in Urban Schools
Abstract/Proposal**

Will there be enough mathematicians, engineers and scientists with the interest, critical thinking and problem solving skills needed to meet the challenges of climate change and environmental variability? Climate changes over the next century will present many challenges and consequences for most U.S. coastal and marine ecosystems, impact oceanography and intensify ecosystem dynamics and species harvest rates. These interactive systems have the potential for the emergence of new challenges, which may alter human dependency in how we interact with the ocean and environment. Consequently, there is a need for many skilled professionals including Marine Scientists and Ocean Engineers, who are capable of solving complex and emerging global air and temperature problems, and improving our ability to derive food, drinking water, energy sources, waste disposal and transportation from the ocean.

The Friends of American Engineering and Science (AES), a nonprofit organization, facilitates the design and implementation of Science, Technology, Engineering and Mathematics (STEM) after-school programs targeting at-risk youth in grades K-12. There is a desperate need for this demographic to understand and apply STEM concepts to enhance their current and future academic studies, as well as broaden their career choices as adults. AES has partnered with the Richard Stockton College, Rutgers University, the Jacques Cousteau Center, Oceanside Charter School, Pleasantville High School, the Atlantic City Aquarium, and many other partners to offer after school and Saturday programs for urban youth. This proposal presents the work of two after-school programs, the Seaperch Robotics Program sponsored by the Office of Naval Research and the Try-Math-A-Lon Competition sponsored by the National Society of Black Engineers. Over 50 middle and high school students participated in the programs, assisted by teachers and school administrators, college faculty and students. The success of these programs has led to the development of a regional partnership whose long term goals are to:

- 1) map current STEM after-school and in-school activities for grades K-12
- 2) identify grade gaps in STEM exposure
- 3) correlate STEM laboratories and activities with state curriculum standards
- 4) prepare lesson plans and
- 5) develop online resources for school districts.

The early work in developing this multi-faceted approach to STEM education with after- and in-school activities will be presented along with next steps and lessons learned from the past two years.