

The state of U.S. coastal engineering & science

Science and Technology Committee

American Shore & Beach Preservation Association

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Policy

The state of U.S. coastal engineering and science is in flux. ASBPA is concerned that academic coastal engineering and science programs in the U.S. may seriously decline in the next five to ten years, in part due to reduced federal funding. ASBPA seeks to restore confidence in our national coastal expertise. ASBPA seeks to partner with agencies, academia, and the private sector to work toward improving the state of U.S. coastal engineering and science. ASBPA supports state and local efforts to promote U.S. engineering and science. ASBPA seeks to assist in the implementation of the slightly revised versions of the following recommendations from the 1999 National Research Council study, “Meeting the Research and Educational Needs in Coastal Engineering”

1. The coastal engineering & science academic community should establish a consortium to improve research and education through cooperative arrangements for leveraging major research facilities and educational capabilities.
2. The National Science Foundation should establish a program to fund fundamental research on coastal engineering and science (in its Engineering Division and/or elsewhere).
3. The USACE and other federal agencies should establish a substantial program to fund applied research in academic coastal engineering and science programs and promote partnerships between academia, federal agencies, & private interests.

Issue

In recent years, foreign coastal expertise has been called upon in support of complex problems involving the physical dynamics, erosion and environmental impacts along the U.S. coast. Consortiums of European universities and engineering institutes, for example, have invested millions of Euros in the past decade, or so, on development of expertise and predictive models of coastal change, such as occur due to storms or oil spills. A similar coordinated effort to maintain excellence in coastal engineering and science has not occurred in the U.S. There is a pressing need to promote partnering among U.S. coastal research entities. Academic research has been fragmented and funding levels have diminished. Without a stable funding base, university programs that were once strong in this field struggle to attract our top students to the profession.

ASBPA is concerned about the diminishing level and depth of expertise in U.S. coastal engineering & science and seeks to restore excellence in this field. ASBPA has investigated this concern by examining the three “legs” of U.S. coastal engineering and science: federal agencies, academia, and the private sector. Academics do not have a coalition to support funding for coastal research. Large-scale research programs and field experiments with federal and academic partnering (e.g., SANDYDUCK or the National Sediment Transport Study) have not been

funded or conducted in over a decade. Almost half of the coastal engineers in Corps district offices are in the senior stage of their careers. Many coastal engineering firms have principal engineers who are also in the late stages of their careers. Both retiring groups are being replaced by graduates who often lack traditional coastal engineering or coastal science backgrounds. The graduates are often trained in more interdisciplinary and theoretical courses with little or no coastal field experience. U.S. graduates offer strong numerical modeling skills but little real-world experience in applied studies.

By reviewing the 1999 NRC study and conducting recent interviews, ASBPA has established that coastal engineering and science programs at U.S. universities are or will be declining due to reduced funding. Fewer coastal engineers are entering academia due to the difficulty obtaining funding, so retiring coastal faculty are not being replaced or are being replaced by non-coastal faculty and the number of traditional coastal courses offered is declining. U.S. Army Corps R&D funding (non-academic) has also declined dramatically since 1983. All of these facts point to an unhealthy coastal engineering and science profession.

Rationale

U.S. university programs educate and initiate the training of our nation's coastal engineers and scientists. Continuing the outflow of trained coastal students into the industry is critical to the future of our nation's coasts. Therefore, maintaining this flow of graduates should be a national priority. These programs require funding to sustain research, professors, and students. Federal funding programs should recognize and address this need.



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