

November 18, 2002

Admiral James D. Watkins, USN (Ret.)
Chairman
United States Commission on Ocean Policy
1120 20th Street, NW
Washington, DC 20036

Dear Admiral Watkins:

On behalf of CORE, I want to express our admiration for all of the Commission's hard work in preparing its upcoming report. We appreciate the complex issues before you and the CORE staff and Board of Governors wish you the best as you labor to complete your difficult task.

As your hearing schedule draws to an end and you begin to consider recommendations for inclusion in the report, we want to provide you with CORE's views on aspects of higher education in the ocean sciences on which the Commission can have the greatest impact. I hope that our input is beneficial. Naturally, we are available for any questions or discussion you may have, should clarification be necessary.

Please be assured that CORE and its members stand ready to provide whatever assistance the Commission requires.

Thank you again for your consideration.

Sincerely,

R. D. West
Rear Admiral, U.S. Navy (Retired)
President

Enclosure



Preparing the Next Generation of Ocean Scientists & Policy- Makers

Graduate education in the United States is based upon a strong national research infrastructure at centers of higher education and research. The future quality of ocean sciences in the United States and our nation's capability to understand and manage marine issues related to environmental quality, economic well-being, and national security depend upon maintaining graduate educational programs of high caliber. This area of education cannot be just the concern of the National Science Foundation (NSF). All ocean-related agencies, dependent upon a well-educated and well-trained workforce, need to assume responsibility for this endeavor.

Graduate student support is not being provided in the ocean sciences at a level comparable to the life sciences. For example, NSF and the National Aeronautics and Space Administration (NASA) offered an average of 15 graduate fellowships per year between 1995 and 2000¹. NSF also funded an average of 6 traineeships per year between 1995 and 2000. By contrast, the federal government supported almost 17,000 graduate traineeships and fellowships for all science and engineering fields during 2000.

Another concern is that the Office of Naval Research's (ONR) role in supporting graduate education has declined since its high point during the 1980s when ONR was a leader in this area. In addition, the National Oceanic and Atmospheric Administration (NOAA) has been significantly absent throughout its history in supporting graduate education on a national scale, other than through research assistantships associated with specific contracts or grants and a small program of marine policy and industry fellowships. Given the scale of the agency and its potential import in addressing issues of resource management and sustainable development, it is imperative that NOAA take on a significant share of the responsibility for supporting graduate education and training across the marine sciences and public policy arenas.

¹ NSF Graduate Student Survey. The most recent numbers available are from 2000. Data are available through the NSF WebCASPAR System.

We recommend the following actions be taken to ensure the ocean research and policy enterprise has a well-educated, well-trained workforce far into the future.

1. Science education should be part each federal ocean agency's mission. Currently NSF and NASA are the only agencies that include education in their missions. The other "mission-oriented" agencies such as the U.S. Navy, NOAA, the U.S. Geological Survey (USGS) and the U.S. Environmental Protection Agency (EPA) all support science education to varying degrees—most commonly through graduate student research assistantships. At the same time such support is more vulnerable to budget cuts because education is not perceived by the executive branch to be a part of the agencies' core missions. Yet, these very agencies require an adequate supply of well-trained professionals in ocean sciences and marine policy. Logic dictates that, given this need, they provide significant financial assistance for supporting graduate students in order to ensure continued agency capabilities as well as the future health of the profession.
2. The Commission should support more cooperative programming between the Education and Human Resources (EHR) Directorate and the Geosciences Directorate at NSF. There appears to be a cultural disconnect between the personnel in the education directorates and the science directorate, often with discouraging results for those ocean scientists who venture to involve themselves in educational programs. If we are to address the nation's critical need for scientifically literate primary and secondary teachers, the research and education sections of the NSF must work together. It is not appropriate to "tax" the research directorates for educational programs within their directorates, when they appear to have minimal access to the EHR Directorate's funds.
3. At present, the financial aid system for graduate students is too dependent upon research assistantships. Over 50% of all graduate students in residence during the fall 2001 were supported through research assistantships². Yet, only a handful (1%) were funded by traineeships. This is an imbalance that must be corrected.

While research assistantships are appropriate for supporting field-based graduate student research, traineeships allow the best students to support themselves in non-traditional educational programs, which are often interdisciplinary, and can produce a masters or doctorate with the

² Figures from CORE's recent assessment on the higher education infrastructure for the Commission.

knowledge of science, management and communications that is so desperately needed in our ocean-related workforce. The National Institutes of Health (NIH), which funds more than 50% of all federally funded traineeships (NSF, 2000), can provide a good model for employing students by this means. Furthermore, the creation of large-scale integrated ocean research and observation programs offer new opportunities to support more than research assistantships. They also can provide fellowships and traineeships that allow the development of a well-rounded multi- or interdisciplinary educational experience. We recommend that mission agencies examine how each could create traineeship programs to support a significant number of graduate students in a range of marine fields to ensure we have well-educated professionals for the coming decades.

We believe these recommendations are the areas in which the Commission can make the biggest impact not only on graduate education, but also on our nation's capability to understand and address critical problems of environmental quality, economic well-being, and national security. Therefore, we urge the Commission to consider our recommendations carefully as deliberations proceed on the final report.

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