

## Ocean Science and Its Role in the Knowledge Economy

IN MY FIRST LETTER to The Oceanography Society (TOS), I challenged the membership to consider how we might bring to bear the incredible powers of the ocean and the bright minds of the ocean sciences community on relevant concerns of society. Many of the voices of the American people advising our new President report that the economy and the current economic crisis in the United States are issues of highest priority.

Virtually every serious study of national goals underscores the critical importance of education to national prosperity. Over the centuries, the role of universities has changed a number of times—they were, at first, educators of the clergy and landed gentry. Then, in the nineteenth and twentieth centuries, research universities emerged that were not based on residential undergraduate colleges, but rather on a departmental structure, giving them a research orientation.

Today, there is another evolution and transformation in the purpose and self-image of the university. Academics and society at large are beginning to see universities not just as creators of knowledge, as cultivators of young minds, and transmitters of culture, but also as major agents of economic growth. This change in university purpose is being driven by the concept of the “knowledge economy”—an economy in which ideas, and the ability to use these ideas, are more important than traditional factors of production. In the global economy, a world-class university is increasingly being seen as a critical asset.

If it is agreed that universities have a key role to play in the knowledge economy paradigm, then the question ocean scientists need to ask is, how well are we placed to contribute to this new university status in society? How are the ocean sciences positioned as part of the national higher-education enterprise? I find the answer to this latter question disturbing, as ocean science, or oceanography, has no consistent academic standing in those universities that even have educational programs devoted to the study of the ocean.

Unlike the expansive definition of oceanography found in *Webster's Collegiate Dictionary*, which states that oceanography is “a science that deals with the oceans and includes the delimitation of their extent and depth, the physics and chemistry of their waters, marine biology, and the exploitation of their resources,” the situation in higher education is that oceanography is quite splintered and boutique. For example, in many

cases, marine biology is considered an entirely separate discipline from ocean science. Unlike other natural science fields that are more all-encompassing, academic oceanography seems to have chosen a more narrow definition. Then again, there have been some who have even questioned whether oceanography is really a science at all—perhaps it is just a place where one does science!

Is a clear definition of oceanography really important for the ocean sciences to contribute to higher education's new role in advancing the knowledge economy? I believe so. Currently, ocean science is found in very different parts of the university organization—sometimes as a college, sometimes as a department, and sometimes not visible at all. How can the discipline of ocean science command institutional investment and continue to evolve if there is not a clear understanding of what ocean science/oceanography really is? The lack of a clear identity puts ocean science at a disadvantage against other fields when competing for university resources, and marginalizes the field in the eyes of other scholars.

Some argue that oceanography finds itself in its current status because it is a young science—and because of its interdisciplinary nature, it has resisted easy definition. Others suggest that the field has not become mainstreamed as part of higher education because when academic programs in oceanography have been established, they have been set up mostly as graduate programs. In fact, the growth of graduate programs in the fifties and sixties was due largely to the need for trained staff, both at the master's and doctoral levels, to support research. So—what is the point of education in the ocean sciences? Is our role simply to produce professionals? Or, are we to produce scientifically literate and quantitatively skilled graduates who are prepared to enter a wide range of professions? And lastly, what is our role in preparing students to support informed decision-making about marine and coastal issues?

These comments and questions are intended to catalyze discussion and hopefully create some new action in areas of education where oceanographers have often feared to venture.



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