

Fisheries Education in the 1980s: The Issues

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Citation: Lackey, Robert T. 1979. Fisheries education in the 1980's: the issues. *Fisheries*, Bulletin American Fisheries Society. 4(2): 16-17.

FISHERIES EDUCATION IN THE 1980'S: THE ISSUES

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This series of fisheries education papers was presented at the 1978 AFS Annual Meeting in Rhode Island.

ABSTRACT

As a profession grows and matures its members typically take a greater collective interest in the education of future members of that profession. Many members of the American Fisheries Society are now actively involved in a discussion of the status and future direction of fisheries education. There are many issues in fisheries education: curriculum, "training vs. education," unemployment, role of these, grade inflation, certification, accreditation, civil service requirements, teaching effectiveness, continuing education, and the role of "soft" funds in academia.

When discussing the future of fisheries education, one of the first problems is defining exactly what is fisheries science as a profession and what is a university program in fisheries science. While this problem may at first appear simple, it is not so easy to solve. For example, many university programs have only one or possibly two professors educated in fisheries science; others may have several dozen professors representing various areas of fisheries science. Where do we draw the line between a "fisheries program" and a university that employs a professor or two?

Another important issue in fisheries is the role of "training" vs. "education." While few will make the case that a university education is solely training for landing a job, few people these days will make the case that university education is merely education in a vacuum with no orientation or concern towards ultimate employment. The issue of teaching what is "relevant" vs. what is "fundamental" is another way of expressing the same concept. Everyone seems to support a "broad philosophy of education," whatever that may be.

Another issue in fisheries education is the role of the bachelor of science degree. We must address the problem of whether or not fisheries science is too diverse to offer a cohesive and useful baccalaureate degree. Perhaps the bachelor's degree should be primarily oriented toward the biological aspects of fisheries science and not other areas of fisheries. After all, how can we expect an undergraduate fisheries student to be proficient in ecology, mathematics, economics, statistics, sociology, psychology, political science, and other relevant areas of renewable

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natural resource management? Perhaps we should have degrees in speciality areas, like those above, and allow for broadening at the graduate level, or perhaps we ought to have a very general baccalaureate curriculum and foster specialization in graduate school.

A corollary issue is whether we need a bachelor's degree in fisheries science at all. We have previously accepted students into graduate programs from speciality areas like biology and economics; many have done quite well. Perhaps the Society ought to develop a "recommended" core curriculum in fisheries science as The Wildlife Society has done for that profession. Perhaps all curricula should require summer work experience or summer camp experience.

A vexing issue facing us all in fisheries education is employment opportunity and its future. There is no question that there is an oversupply of B.S. graduates seeking work in the fisheries profession, but there is a paradox here, too. Major fisheries programs (say, the top dozen) have been relatively successful in placing their graduates. Perhaps this oversupply of fisheries students and job applicants is due to an expansion of the number of students from very small programs calling themselves fisheries programs.

Job potential at the master's level is another issue. With an increasing pool of applicants applying to graduate schools, has the quality of graduate offerings and graduates increased? Have the universities responded by raising the performance criteria necessary to graduate at the master's level?

At the doctoral level another issue emerges. Graduates with a Ph.D. in fisheries science who wish to work in academia find the number of positions at major fisheries programs to be severely limited. If such positions are unavailable, a teaching position at a university without a fisheries program might be the only alternative. Within a few years, this professor is turning out graduates seeking employment in fisheries. Is this a problem? Can anything be done about it? Should anything be done about it?

Nearly all universities require thesis work for a graduate degree. What is the role of the thesis in graduate education? Many individuals have proposed dropping the thesis requirement at the master's degree level because they feel the thesis is primarily a learning exercise to acquaint the student with research methods. Would those interested in management and administration be better served by taking additional coursework rather than spending time developing unnecessary research capability?

Enrollment continues to increase in most fisheries programs,

including those well established and those operating on a small scale. Should anything be done to limit enrollment? If so, how? I suspect that most professors acquaint their beginning students with the job market and the potential hurdles that must be overcome. But in my experience, this approach has little or no impact on students. If students select fisheries as a profession, they will continue in that field regardless of the unemployment hazards.

Grade inflation is a problem. Grades have continued to rise to a point where in many programs a B average is truly an "average" grade. Part of the job of education is providing accurate and informative appraisals of student accomplishments. Have we failed as educators in this regard? If so, what can be done about it?

The field of fisheries is so broad that perhaps we need options *within* the major. For example, a student aiming at a career in research probably needs a different set of courses from those for a student aiming at a career in management or administration. What about a student interested in pursuing a career in marine fisheries, freshwater fisheries, aquaculture, or fisheries law? It is very difficult to design a single program to accomplish these objectives.

Certification of fisheries scientists is an issue with many ramifications. The American Fisheries Society certifies individuals who meet certain minimum standards in fisheries science. We can argue that the requirements for certification are so low that nearly anybody with any kind of background in fisheries would qualify, but we might also argue the point that we need speciality certifications for certain areas, such as fish pathology, environmental impact analysis, and population dynamics. Perhaps the whole concept of certification is inappropriate.

Accreditation is an emotional issue. While most professions practice some form of accreditation, there are obvious problems. Should the American Fisheries Society provide independent review of academic programs as do many other professional societies? Do the universities want or need this kind of review? Should we be concerned with accreditation of undergraduate programs, graduate programs, or both? Do employing organizations and agencies recognize a need?

In many respects, requirements for fisheries positions in state and federal civil service set the norm throughout the profession, even in the private sector. Sometimes standards are so nebulous that anybody would qualify for positions with very limited training. Is there something that we can do about this, or is it even an issue in education?

A problem facing all of us in education is how to improve teaching effectiveness and evaluation. The mechanics of teaching go far beyond the mere content of classes and curricula. Such things as computer-assisted instruction and new developments in audio-visual techniques are known to most professors, but are usually not utilized effectively by them because of perceived "higher" priorities. Many aspects of fisheries are not very conducive to traditional teaching methods. How do we teach management and provide students with an opportunity to develop managerial skills? These are issues that we must improve in academia to produce better students.

Continuing education is an often-stated need in fisheries science. Everyone agrees it is important, but what is the mechanism so far as educational institutions go? Should we become increasingly involved in this activity? If so, how do we support it? Is it a role of the university or should the agencies and organizations wishing to upgrade their employees pay for

it? How do we relate this problem to the current institutional setup?

In addition to baccalaureate and graduate education there is an additional type of training that is becoming increasingly common—that of technician programs. These are found in colleges, usually community colleges, that train people in two- and three-year programs to be field or laboratory technicians. They are particularly designed to train employees for hatcheries, refuges, and the like. This activity seems intuitively appealing, but is it the best approach? Are we creating a group of people who will be dissatisfied with their professional opportunities? To a certain degree, are they taking positions that would be better filled by bachelor's graduates who have the opportunity to go on and further develop in a career within the organization? Should universities become involved in short-term training programs for technicians, or is it a job best left to community colleges?

A final issue relates to the role of universities, relative to other institutions. Has dependence on "soft" money made fisheries programs little more than research laboratories? What should be the role of universities in relation to government laboratories?

These are just some of the issues and problems that we are facing in fisheries education now and certainly will be facing in the 1980's and beyond. How we answer these questions now, in large measure, will affect our ability to respond to changing fisheries problems in the future.

