

Preparing Minority Students in Fish and Wildlife Management and Research

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Background

Fish and wildlife management and research are professions unknown to the majority of minority students. This fact is reflected not only in the few minorities employed by public sectors, corporations and conservation organizations, but also by the few minorities presently matriculating in conservation programs at colleges and universities.

During its annual meeting in 1975, the American Fisheries Society (AFS) rejected a resolution from the Iowa Chapter of AFS to increase fisheries training of minorities and women. The same negative attitude was evident 10 years later. However, in 1987, the AFS took a positive step toward making minorities aware of training and employment opportunities available in fisheries management. The AFS held a special session on establishing linkages between institutions to provide training to minority students. Additionally, the cost of attending the meetings by minorities was borne by the AFS. No similar efforts have been made by equivalent wildlife societies, where the lack of training of minorities in wildlife sciences is the same as in fisheries.

Through the efforts of J. Darling, the first Cooperative Wildlife Research Unit was established at Iowa State College in 1932 to promote a scientific approach to wildlife management. In 1935 and 1936, 9 additional Wildlife Research Units were established: about one-third of the costs was supported by the Bureau of Biological Survey (presently the U.S. Fish and Wildlife Service—USFWS), and the remaining funds provided by cooperating states, colleges and the Wildlife Management Institute. Congress gave the Cooperative Wildlife Research Units Program statutory (Public Law 86-686) recognition in 1960. In the same year, the Cooperative Fishery Units Program was established. Both programs were combined under a single program of the USFWS in 1973. During the 1980s, the unit organizational process was modified to combine Fishery Units and Wildlife Units located at the same university in a single unit, and the current policy is to establish only combined Units.

Additionally, the Units Program was given Research Center status. Currently, the Cooperative Research Units Center employs more than 90 professional scientists, and all salaries and some operating costs are borne by the USFWS.

The USFWS was mandated by Congress to provide units for the purpose of developing adequate, coordinated, cooperative research and training programs for managing fish and wildlife resources. To date, 40 cooperative research units have been established in 35 states, with additional units anticipated. However, no Units have been established at historically minority colleges and universities (HMCUs), which train the majority of successful minority professions in the U.S. workforce to date.

One of the primary reasons for the lack of conservation awareness among minorities is due to the lack of this educational opportunity at HMCUs. In recent years there has been an increase in minority enrollment at non-minority institutions but only a few minorities have actually enrolled in fish and wildlife courses. For example, in 1988, the Units supervised 15 minority master's or doctorate candidates (3 of which may be from foreign countries), which represented about 2% of the 661 graduate and postdoctoral students participating in the Units Program. Despite the success of blacks in the professional sector, to date there is not a single black unit leader or assistant leader. The record for employment of other minorities in the units is almost as lacking.

The purpose of my presentation is to propose viable solutions to increasing education and employment opportunities for minorities in fish and wildlife resource management and research. It is intuitive from the statistics presented above that there is a major deficiency of minorities in these professions, and it is the social and professional responsibility of the federal government to aid in rectifying this problem.

Program Concept

HMCUs with special offerings in environmental and living aquatic resource disciplines could benefit greatly from a bona fide working relation with majority institutions and supporting entities.

Minorities have been persistently under-represented in science and technical career fields. The educational pipeline for science and engineering in this country has been plagued with serious deficiencies, including:

- at the elementary and secondary school levels there is a decline in scientific literacy . . .

- states are short of teachers in the sciences . . .

- at the college level, although a bit better, the percentage of freshman enrolled in science has been sliding for the past decade with the decline for minorities being particularly sharp.

Most American minority groups increased their representation among Natural Science and Engineering Ph.D.s during the 1975–1987 period. Despite the slowly

increasing number of black women Ph.D.s in science through the 1980s, rising to 51 in 1987, black men exhibited a net decrease from a 1978 high of 98 to only 68 in 1987. This situation resulted in a net loss for blacks overall. Although no statistics are available, our assumption is that other minority groups will face similar trends in the future.

To establish viable networks and linkages between HMCUs offering programs in environmental and living aquatic resource disciplines and majority institutions with Cooperative Fishery and Wildlife Research Units, and to provide training for minorities with strong interests in pursuing careers in the fishery and wildlife science professions, there is a need to include HMCUs in the fraternity of federally funded research institutions. To this end there is a need for:

- 1) HMCUs and major research institutions to establish alliances;
- 2) High technology fishery science and wildlife centers to be formed at HMCUs; and
- 3) Expansion of HMCU alliances with all sectors, including agricultural and living resource research and management centers, federal, state, and local governments and academic institutions.

Such linkages provides for both 1) consultation and support for constituents in developing programs and setting budget priorities, and 2) serves as a "communication network" which has the ability to interact with other higher education associations and members.

Program Implementation

Historically, there has been little systematic recruiting of graduate students by Fishery and Wildlife Research Units; and, thus, little attention has been paid to refining operational practices that could increase minority student's success in the admissions process. Therefore, there is a need for an agreed upon mechanism for evaluating the credentials of minority applicants, in order to assess the true quality of the student.

Retention of students is a major concern in most universities and is correlated positively with a high degree of student involvement. Thus, there is the need for providing types of interacting which maximize the chance for student involvement.

The fishery and wildlife field has become increasingly diversified. Where the overwhelming emphasis was formerly on the biological sciences, professional fishery and wildlife now offers challenging careers demanding a wide variety of skills and interests. Obviously, biological interests continue to be central, but many specialties can be pursued under this rubric, including physiology, genetics, pathology and ecology. Aside from biology; however, fish and wildlife management demands skills in economics, management science, public administration, food technology, computer science and other related fields. Demand for social skills is rapidly growing in all aspects of fish and wildlife, with specific emphasis in public involvement, information and education, recreation, and social impact statements. The physical

sciences, e.g. oceanography, geology, chemistry, physics, computer science, are needed in understanding the importance of environmental change on fish and wildlife populations. In developing products: business skills are needed in fish and wildlife products marketing.

Role of Institutions and the USFWS

The U.S. Fish and Wildlife Service will provide support for minority students enrolled in HMCUs through 3 mechanisms. These consist of support for undergraduate students through the Undergraduate Study and Research Scholarship Program (USRSP), and graduate student support through the Co-op Unit Partnership Program (CUPP) and through the establishment of Fish and Wildlife Cooperative Research Units at 2 HMCUs.

I. Undergraduate Study and Research Scholarship Program:

Undergraduate students enrolled in biology, environmental science, chemistry, natural resources, or other appropriate majors at HMCUs would be encouraged to spend 1 academic year, including summer, at a school housing a co-op unit. During this period the students would enroll in regular fisheries and/or wildlife courses and participate in research projects underway in the unit.

Students would be selected from sophomore or higher applicants who are recommended by faculty members at their home institutions. Approval would be granted by a review team consisting of a representative of the co-op unit, a faculty member from the host school's academic department most closely associated with the unit, and a representative of the USFWS Affirmative Action Staff. The USFWS will provide financial support for the program by funding any cost for tuition and fees which exceeds that normally paid by the student at his or her home institution. In addition, each student will receive a USFWS funded stipend/scholarship of \$3000 per academic term for each term they participate in the program. Students who graduate after having participated in this program would be guaranteed a \$5,000/year graduate stipend if they pursue a graduate degree through 1 of the Cooperative Research Units. Additionally, minority institutions participating in this program will be provided \$10,000 per institution to defray operating costs.

II. Co-op Unit Partnership Program:

Formal cooperative agreements will be established among the Cooperative Research Units, their host university, and HMCUs to permit the full participation of graduate students and graduate faculty members from HMCUs in instruction and research activities conducted through the coop unit. Students would work under the direction of a research advisor who serves within the coop unit and an academic advisor from the home HMCU. Faculty members from the HMCU would also be encouraged to participate in both unit research projects and teaching at the host institution through adjunct faculty appointments. The USFWS would also be encouraged to participate in both unit research projects and teaching at the host institution

through adjunct faculty appointments. The USFWS would provide sponsorship of the program through a \$5,000 annual research stipend for each graduate student participant in the program, along with an annual supplement of \$10,000 to the coop unit specifically designed to support research conducted by graduate students and/or faculty members from partner HMCUs.

This CUPP will be designed to function in either of two organizational formats, the Paired Institutional Partnership (PIP) and the Cluster Institutional Partnership (CIP).

A. The Paired Institutional Partnership will involve a direct formal agreement which pairs one coop unit and its host university with a single HMCU. This will provide the opportunity for maximum interaction and cooperation between the 2 institutions through faculty and student interchange, and may include the granting of a dual degree from each of the partner institutions providing that a contractual arrangement can be developed by the institutions themselves.

The Paired Institutional Partnership can be most effectively used when a single HMCU has a large number of students and faculty who are active in environmental or fish and wildlife related research and instruction.

B. The Cluster Institutional Partnership serves as a method by which a group of HMCUs enter into a formal affiliation with a coop unit and its host institution. The CIP should ideally consist of from 2 to 6 HMCUs located within geographic region in reasonably close proximity to the coop unit host institution. Such an arrangement would be of greatest benefit where HMCUs having only a small number of students or faculty involved in environmental or fish and wildlife activities become partner institutions. Thus the consistent participation of HMCU representatives would be assured over time.

C. Neither the coop unit nor any participating HMCU would be limited to a single partnership agreement in this program. For example, 1 coop unit might have 2 or more PIP contracts or 1 HMCU might participate in both a PIP and a CIP arrangement with different Co-op units.

III. Establishment of Cooperative Fish & Wildlife Research Unit at 2 or more HMCUs:

Several HMCUs presently have active graduate or undergraduate research programs in natural resources disciplines, and some of these are located within political jurisdictions which do not presently have coop units. Two such institutions are the University of Maryland Eastern Shore and the University of the District of Columbia. The establishment of co-op units at HMCUs will provide the most effective integration of minorities into the arena of sponsored fish and wildlife research and provide the greatest source of M.S. degree or higher minority graduates for entry into the profession.

Partial support for the establishment of the HMCU co-op units would be provided by the USFWS through the same formula used to support exiting units at other institutions. In addition, \$50,000 per year will be provided as an institutional grant to each of the HMCUs for the first 5 years of the program. This funding will

be used to expedite the structural development of the co-op unit at the university. Within this framework the funding could be used to support faculty release time for revision of curriculum requirements to accommodate unit programs, to purchase instructional materials, and for indirect expenses involving administration of the program.

Conclusion

We must get minority kids involved in fish and wildlife at an early age. This interest must begin while in elementary school or younger. It's very difficult to get a teenager involved if he or she has not been exposed at this earlier age.

We must encourage fish and wildlife courses in high school and college, especially HMCUs. Even those students seeking entrance to medical school can be encouraged to obtain degrees in fish and wildlife. Only a few applicants are accepted in med school anyway.

We have encouraged HMCUs to encourage black students to major in fish and wildlife; however, it will take 5–10 years to produce graduates.

Therefore, to deal with today's problem we need to make a few exceptions. I believe minorities that have a degree in the sciences and are trainable are good candidates for employment.

We also must re-assess our interview process. In some cases the initial interview process can contain questions that are unintentionally culturally biased. This was also shown on standardized IQ, SAT, and ACT test scores.