

Second, there is the Federal responsibility to see that Federal civil works, military installations, and other Federal activities do as little harm as possible (or no harm at all) to fishery resources.

Third, there is the reason of the sheer size of the need. There are at least 150 species of marine game fish, only about 10% of which have been extensively studied. The water area that these fish range is enormous. Research involving mixed species, boundless water areas, and wide ranging habits make for a very large-scale research program, quite outside the resources or area of freedom available to the States—not that the Federal Government could or should do the work alone, any more than the States could or should. Effort currently is concentrated largely in the Fish and Wildlife Service, the State game and fish and conservation agencies, and in the colleges and universities.

Alternatives to the marine game fish research program of the Bureau would be to shift the responsibility and funding to the State and universities. Fragmented and local research that would result from this transfer would be more expensive and ill-suited to the wide-ranging problems of migratory marine fishes. The States have shown little inclination to assume this responsibility on their own or with Dingell-Johnson funds. Although the universities share this function, the species of fish involved are rarely important game fishes. Most university research is supported by the National Science Foundation, Office of Naval Research, and the National Institute of Health, which have little or no interest in game fishes. The National Science Foundation discourages applied research.

Course of action

The aims of the marine game fish program is best expressed in the language of the Act (Public Law 86-359) authorizing it, "To undertake for the purpose of developing wise conservation policies and constructive management activities, a continuing national program of research on migratory game fishes including migration, identity of stocks, growth, mortality, variations in survival environmental influences both natural and artificial, pollution and the effects of fishing".

We propose to meet these aims as follows:

1. Determine a rational basis for marine game fish conservation through development of principles for habitat improvement, regulations, artificial propagation, selective breeding, and predictions of abundance.
2. Develop methods for continuous measurement of the amount and distribution of salt-water angling and the catch.
3. Describe the natural history and migrating of marine game fish species including big game fishes such as marlins and sailfish.
4. Determine the environmental requirements of marine game fish species, and document how they have been and will be affected by man's activities.
5. Promote the dissemination of new knowledge and the training of marine fishery biologists.

The Sandy Hook Marine Laboratory, Highlands, N.J., was established in 1960, followed by the Tiburon Marine Laboratory, Tiburon, Calif., in 1962 and the Narragansett Marine Game Fish Laboratory, R.I., in 1966. Two more, the Eastern Gulf Marine Laboratory, Panama City, Fla., and the Western Gulf Marine Laboratory, Port Aransas, Tex., are currently (1967) being constructed. Still two more laboratories are proposed for the future, one in eastern Florida, the other in southern California. In addition two vessels (65 feet and 107 feet) are maintained for research in coastal waters.

Objective

The broad objectives of the marine game fish program are divided into two categories; i.e., research objectives and management and development objectives. There is an apparent relationship between the two, but the final completion of a research objective is not necessarily a prerequisite for full or partial completion of a management or development objective.

Research Objectives

Research objectives are designed to develop the following:

1. Methodology for sampling catch and effort;
2. Life histories and ecology of the 50 most important and estuarine-dependent game fishes;
3. Life history, population dynamics, and migration of pelagic big game fishes such as marlins and sailfish;
4. A survey of facilities and resources;
5. Evaluation of artificial reefs;