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DEPARTMENT of the INTERIOR

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UNITED STATES SCIENTISTS OFFER FISHERY PLANS

Two long-range plans under which emerging nations can convert the unused protein in their coastal waters into food for their hungry were submitted by United States scientists to be incorporated into the proceedings of the Conference on the Application of Science and Technology to Less-Developed Areas, meeting currently in Geneva, Switzerland.

Four of the scientists are with the U. S. Department of the Interior and three have non-government positions. A fifth Departmental scientist also delivered one of the principal fisheries papers at the Conference.

One plan in the papers submitted for publication pointed the way for the development of fisheries along traditional lines to supply needed protein and to meet the individual tastes for fresh, dried or canned fish; the other showed the possibilities of developing a highly acceptable fish protein concentrate to supply the animal protein needs of those whose diets are lacking in this nutrient. The separate plans would not be in conflict but would supplement each other--taking into account problems of food distribution and traditional forms of food preparation.

The scientists based their programs upon the proposition that the sea, acre for acre, is potentially as productive as the land; that only about 16 percent of this potential is being harvested; that only about one fifth of the world's harvest of fish is available to the people in the areas where the shortage of animal protein is most acute.

The plans were prefaced by a review of conditions in many parts of the world. Peru has increased its fish harvest 600-fold in the past 15 years. West Africa has areas in which peoples, a few miles from the coast, are suffering from lack of proper food while the coastal waters teem with protein-packed fish. India has a shortage of harbors which hampers fish landings. There are also social customs there which frown upon the use of fish as food. In many areas, hot weather and poor transportation facilities have erected an impassable barrier to utilization and distribution of fishery resources actually only a few miles away.

The first plan called for a balanced, concurrent development of production, processing and distribution, all of which must necessarily be pleased in accord with the economic, technological and social progress of the respective nations. The scientists emphasize any fishery development must be tied closely to the existing base--human skills and industrial facilities. They noted the undesirability of producing more fish than the industry can properly process and distribute; that it would be of no purpose to introduce fishing gear which exceeds the capacity of the available vessels or the present skills of the available workers, and that national customs must be taken into consideration.

According to the Department scientists the development of these traditional fisheries could well cover a period of ten years or more. The program would include analysis of the economic, social and religious barriers to fishery development; it would recognize the need for biological, technological, economic and engineering skills for the optimum development of the fishery resource; it would also begin with the facilities and fishermen at hand and attempt to achieve better utilization of the present facilities by training the fishermen, by making improvements in the lines and nets being used, and by converting to more efficient equipment and methods when the demand increases, skills develop and processing and marketing methods improve.

The second plan shows how time, temperature and transportation categories, which offer serious problems in the development of the traditional fisheries in certain parts of the world, can be obviated, to a great extent, by the development of a highly desirable fish protein concentrate.

More than 20 nations are interested in the search for a satisfactory concentrate. The Canadians have developed a product of exceptionally high nutritive quality. Several U. S. industries have developed products which are now under test. The Union of South Africa has developed and tested a concentrate. The United Nations has actively cooperated with the Chilean Government in a pilot plant operation. Researchers in Uruguay, Morocco, India, Russia, Norway, Sweden, Denmark, and Britain are actively seeking ways and means for preparing the most acceptable concentrate.

The U. S. Government contemplates an extensive review of the problems associated with the manufacture of and use of the concentrate.

Fish protein concentrate will not eliminate the problems of time, temperature and transportation but it will reduce them to a great extent. There will be problems on packaging, marketing and consumer education but these problems would be far less challenging than those encountered in expanding the utilization of existing types of traditional fishery products.

This is not to say, the scientists point out, that the development of a suitable fish protein would replace other methods of processing, for the individual taste remains a potent factor in the market. But, with both of these plans in operation, such important objectives as expansion of the overall market for fishery products expansion of the world's fishing effort and the extension of the dietary benefits of marine resources to nutritionally deficient population groups can be achieved.

A third phase of fishery resource development discussed was the effect industrialization was having upon the fisheries of the older nations. It was pointed out that in America development proceeded in steps associated with technological advances affecting vessels, fishing methods, techniques of preservation, and facilities for transporting, storing and marketing. Where American fisheries have been slow to develop, the principal retarding influence has been ignorance about the resource, about its possible use, or about techniques for developing it.

The stimulus of science and technology has had both good and bad effects upon the fisheries in the United States. Disposal of chemical wastes into fishery habitat and the blocking of migration streams by huge dams have had injurious effects. On the other hand such developments as the aqua lung has led to intensive biological studies of underwater habitat and to the development of new fisheries through the creation of artificial reefs.

The industries which have made the great modern fisheries are based upon such things as the manufacture of fish meal, oil and solubles; canning; and refrigeration. The increased demand for raw material for the fish processing industries has stimulated improvements in vessels, vessel equipment, fishing gear and techniques, extension of the range of fishing and general improvements in operations.

Industrialization has also resulted in a tremendous increase in the number of persons fishing for recreation or for food for their personal use.

The scientists who participated in the preparation of the presentations to the conference were:

Department of the Interior--Charles Butler, H. B. Allen, Lee Alverson, and Dr. Donald G. Snyder of the Fish and Wildlife Service's Bureau of Commercial Fisheries, Washington, D. C., and Dr. Lionel Walford of the Fish and Wildlife Service's Bureau of Sport Fisheries and Wildlife Laboratory at Sandy Hook, New Jersey.

Other scientists--Dr. Wilbert M. Chapman, Director, Van Camp Foundation, San Diego, California; Professor James Crutchfield, Department of Economics, University of Washington, Seattle, Washington; and Mr. Robert B. Keating, Division of Physical Sciences, National Academy of Sciences, Washington, D. C.

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