

ISN 935

PROGRESS REPORT
of the
STUDY OF MARINE TECHNICAL ASSISTANCE AND
COOPERATION IN FISHERIES AND OCEANOGRAPHY

submitted to the

AGENCY FOR INTERNATIONAL DEVELOPMENT and
NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION

by the

OCEAN POLICY COMMITTEE

In accordance with Contract AID/DSAN-G-0168 and NOAA Contract NA79AA-D-00135, this is a progress report for the period 1 July 1980 through 31 January 1981 of the activities undertaken for the Study of Marine Technical Assistance and Cooperation in Fisheries and Oceanography. The Ocean Policy Committee's Marine Technical Assistance Group (MTAG) has the responsibility for the pursuit of the activities of the study. The membership of the MTAG for this period includes:

Dr. John Liston, Chairman
University of Washington

Dr. David A. Ross
Woods Hole Oceanographic Institution

Dr. Bernhard J. Abrahamsson
University of Denver

Dr. Roger Revelle
University of California

Dr. John V. Byrne
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Dr. Harris B. Stewart
Old Dominion University

Dr. John P. Craven
University of Hawaii

Dr. Christopher K. Vanderpool
Michigan State University

Dr. Vic Klemas
University of Delaware

Dr. Francis Williams
University of Miami

Dr. Richard E. Meunier
Solar Research Institute

The purpose of the study is to:

1. assess the relationship between the objectives of selected past marine technical assistance programs and the mechanisms developed to achieve them;
2. project the future environment for marine technical cooperation between the U.S. and developing countries;
3. present the projections of ocean science and technical developments in relation to developing country needs, and
4. make recommendations on general requirements and mechanisms for future U.S. technical assistance and cooperative policies and programs.

The MTAG met 27-28 October 1980 in Washington, D.C. and on 23 January 1981 in La Jolla, California. Study activities are proceeding in three phases.

PHASE I: REVIEW OF THE PRESENT SITUATION IN U.S. MARINE TECHNICAL ASSISTANCE AND COOPERATION

A. An inventory of U.S. agency programs and projects in marine technical assistance and cooperation includes the following information for each project or program as available:

1. name of the agency;
2. name of the project;
3. objectives of the project;
4. time period involved;
5. level of U.S. funding and other funding;
6. number of U.S. and foreign personnel
7. type of equipment of knowledge transferred;
8. exchange of personnel;
9. recipients;
10. training programs;
11. outputs; and
12. an abstract of the final report, if any, of the project.

Data on the programs and projects of the following federal agencies will be included: AID, NOAA, NSF, Department of Navy, Coast Guard, Peace Corps, and other agencies as relevant.

An appendix to the federal inventory will include data collected from universities and research centers, and this information will be cross-referenced to the federal listing.

The inventory will provide an overview of U.S. government-funded and other related marine technical assistance programs currently or recently operating. It will be available as a reference document for use by government agencies and others concerned with assistance projects. The Committee will use the inventory as part of its analysis of the effectiveness of present structures and mechanisms to meet stated objectives and perceived LDC needs.

- B. A summary of federal support for marine technical assistance and related activities was prepared for use at the workshop, "Future of International Cooperation in Marine Technology, Science, and Fisheries," January 18-22, 1981. A copy of the summary is attached.
- C. Analyses of AID and NOAA programs were prepared as background documents for MTAG and for use at the workshop.

- D. Project Evaluation. The MTAG has established an evaluation team consisting of Drs. Liston, Abrahamsson, Meunier, Vanderpool and Williams. This group is reviewing four selected AID projects. This analysis will include an evaluation of the success and failure rate of various methods of delivering technical assistance. A draft report was prepared and reviewed at a meeting on 10 December 1980. This report is being revised.

PHASE II: PRELIMINARY EVALUATION OF THE PRESENT SYSTEM, PROJECTIONS FOR THE FUTURE, PREPARATION OF WORKSHOP PAPERS AND IDENTIFICATION OF PARTICIPANTS

- A. The evaluation of federal policies and programs in marine science and fisheries was the focus of the October MTAG meeting.
- B. A projection of the future predicting the future in ocean affairs as related to marine technical assistance was prepared and published as Background Papers for the workshop. This document is enclosed. This prognostication focuses on:
 - 1. those particular developments in science which could affect ocean and inland fisheries, aquaculture, and oceanography;
 - 2. specific new technologies on the horizon; and
 - 3. political and policy changes resulting from the proposed new international order of the oceans.

PHASE III: THE WORKSHOP, POST-WORKSHOP ANALYSIS, PREPARATION OF REPORT AND RECOMMENDATIONS

- A. The Workshop, "Future of International Cooperation in Marine Technology, Science, and Fisheries," was held at the Scripps Institution of Oceanography, University of California, at La Jolla, California, on January 18-22, 1981. The workshop was funded by NOAA, State, AID and the Department of the Navy. The actual program for the workshop is enclosed along with the list of participants and the papers distributed at the meeting. The participants discussed and presented a reasonably complete and diversified view of the ocean future, the needs of developing countries, the desirable policies and mechanisms for technical assistance, and directions for development.

The workshop broke into four regional groups (Latin America and the Caribbean, Near East and India, Southeast Asia and Oceania, and Africa) to discuss these issues and prepare a report. The working group reports will be available in the proceedings of the workshop.
- B. Proceedings of a Workshop, "Future of International Cooperation in Marine Technology, Science, and Fisheries," will be published by the end of April 1981. A draft outline of the proceedings was prepared and will be reviewed at the next MTAG meeting.

- C. Preparation of the Final Report. A draft outline of the final study report has been prepared including chapters on the rationale for marine technical assistance; current and past U.S. policies and programs supporting marine technical assistance and cooperation; international programs for marine technical assistance; new directions; and recommendations for the future.

Next Meeting

The next meeting of the MTAG is scheduled to be held in mid-March in Washington, D.C.

FEDERAL SUPPORT FOR MARINE TECHNICAL ASSISTANCE
AND RELATED ACTIVITIES IN DEVELOPING COUNTRIES

Federal support for international technical assistance and cooperative programs related to the marine sciences is extensive and affects more or less directly many agencies of the federal government. The Marine Technical Assistance Group of the National Research Council's Ocean Policy Committee is assessing the relationship between the objectives of marine technical assistance and cooperative programs and the mechanisms developed to achieve them as one part of a study of U.S. marine technical assistance and cooperation in fisheries and oceanography. This summary of the marine-related activities of several federal agencies was prepared for that study and specifically as background information for participants in the Ocean Policy Committee's Workshop on the Future of International Cooperation in Marine Technology, Science, and Fisheries, January 18-22, 1981, at the Scripps Institution of Oceanography.

Although many agencies carry out responsibilities that somehow involve marine-related activities with other countries, only a few agencies are centrally concerned with marine technical assistance and cooperation with developing countries. The Department of State is the agency of government charged with formulating and carrying out U.S. foreign policy, including U.S. policy in international ocean affairs. The Agency for International Development is the agency principally responsible for U.S. nonmilitary assistance to developing countries. The National Oceanic and Atmospheric Administration, including the International Sea Grant Program, is centrally involved in cooperative programs related to marine science and technology. The following summaries are intended to provide brief overviews of the marine-related assistance and cooperative activities of the agencies for which such activities are central concern.

The following summaries do not include the marine-related activities of a number of other agencies. For example, the Commodity Credit Corporation of the Department of Agriculture administers the ocean transportation of U.S. agricultural products donated to foreign

governments and voluntary assistance organizations. The Department of Energy carries out cooperative international programs on energy-related matters, including nuclear nonproliferation and the international fuel cycle. The summaries also do not include such specialized activities as the ad hoc committee convened by the Federal Coordinating Council for Science, Engineering, and Technology, under the Office of Science and Technology Policy, to consider technical assistance in obtaining food from the oceans.

The summaries include information abstracted from the Marine Technical Assistance Group's forthcoming inventory of federally supported fishery, aquaculture, and oceanography projects. The summaries also have drawn upon papers, prepared for the Marine Technical Assistance Group, which discuss in depth the marine technical assistance activities of the Agency for International Development and the National Oceanic and Atmospheric Administration. Those papers are, respectively, U.S. Agency for International Development Programs in Fisheries and Aquaculture for Fiscal Years 1980-81 by Shirley A. Clarkson and NOAA's Activities in Marine Technical Assistance and Cooperation by Philip M. Roedel. A third paper, Marine Science and Technology for Development: In Search of a Policy, prepared by Christopher K. Vanderpool of the Michigan State University discusses the evolution of U.S. policy governing foreign assistance and cooperative programs related to marine science and technology.

Department of State

The Department of State advises the President in the formulation and execution of U.S. foreign policy. The department's primary objective in the conduct of foreign relations is to promote the long-range security and well-being of the United States. The Department of State formulates and implements U.S. policy in international ocean affairs with the assistance of other federal departments and agencies having responsibilities relating to the oceans.

The Bureau of Oceans and International Environmental and Scientific Affairs is one of the nine "functional areas" of the Department of State. The bureau was established in October 1974 pursuant to Public Law 93-126 (22 U.S.C. 2655a). It has the principal responsibility in the department for policies and proposals for the scientific and technological aspects of U.S. relations with other countries and with international organizations. The bureau also manages a broad range of foreign policy issues and global problems related to oceans, fisheries, environment, population, and so forth. It represents the department in international negotiations in its area of responsibility; provides policy guidance to the U.S. oceanic, environmental, scientific, and technological communities on activities and programs affecting foreign policy issues; ensures effective coordination of policy responsibilities between the Department of

State and the Agency for International Development in regard to science and technology; and directs the Scientific and Technological and Fisheries Attache Program.

The State Department contributes the U.S. share of financial support for a number of international organizations concerned with marine science and technology and which have technical assistance components. Those organizations include the World Meteorological Organization (WMO), the Intergovernmental Maritime Consultative Organization (IMCO), the United Nations Environment Program, and other U.N. organizations. IMCO is concerned with the facilitation and safety of shipping and provides technical assistance to developing countries to meet IMCO standards. Two of the principal United Nations organizations supporting marine-related activities are the Food and Agriculture Organization (FAO) and the United Nations Educational, Scientific, and Cultural Organization (UNESCO).

The FAO support seven regional marine fisheries commissions, which promote research on fishery products and technology. Among services the FAO provides are data compilation, assessment of world fish stocks, and sponsorship of technical conferences. The principal marine-related activities of UNESCO are supported through the Intergovernmental Oceanographic Commission (IOC), a semiautonomous body whose purpose is to promote scientific investigation with a view to learning more about the nature and resources of the oceans. The IOC coordinates programs in basic marine research and related services, promotes the exchange of oceanographic data and the publication and dissemination of the results of oceanographic investigation, and promotes development of education and training programs for specialists in the marine sciences.

Training, Education, and Mutual Assistance (TEMA) activities of the IOC are monitored by the interagency Panel on International Programs and International Cooperation in Ocean Affairs (PIPICO). Under the direction of the State Department's deputy assistant secretary for oceans and fisheries affairs, the panel addresses questions concerning international marine cooperative affairs, including marine technical and scientific development.

The Department of State also contributes to the support of eight international fishery commissions established by treaty. They are the following:

- International Pacific Halibut Commission
- International Pacific Salmon Fisheries Commission
- Inter-American Tropical Tuna Commission
- International Whaling Commission
- International North Pacific Fisheries Commission
- North Pacific Fur Seal Commission

**Great Lakes Fishery Commission
International Commission for the Conservation of Atlantic Tunas**

The objectives of U.S. participation in these commissions are (1) to provide a means of preventing disputes between the United States and other nations fishing in common fishing grounds on the high seas and fishing for common stocks of fish, (2) to ensure the conservation of fishery resources important to the United States, and (3) to increase the opportunity for U.S. fishermen to share in the catch of fish. The commissions also carry out or coordinate scientific studies on the resources for which they are responsible and recommend conservation measures to member governments. The Department of State provides funds for the travel expenses of the U.S. commissioners and their advisers.

The State Department provides funds to the International Council for the Exploration of the Sea, which proposes and organizes fishery and oceanographic research in the Northeast Atlantic Ocean and disseminates the research results. Studies recommended by the council are carried out by national organizations.

Thus, although the Department of State does not engage in direct marine technical assistance to developing countries, it addresses a wide range of interests, including technical assistance, through its support of international organizations concerned with marine affairs. A weakness of this approach has been a lack of sustained, adequate attention to specific needs for marine technical assistance when other interests have taken precedence. Such assistance activities as the State Department does support sometimes are less effective than they could be, because of the department's predominantly U.S. domestic, rather than international, point of view regarding fisheries.

Agency for International Development

The U.S. Agency for International Development (AID) was established in 1961 pursuant to provisions of the Foreign Assistance Act of 1961 (75 Stat. 424; 22 U.S.C. 2381), as amended. The agency administers assistance programs designed to promote economic and political stability in certain less developed countries and to help the people of those countries develop their human and economic resources and increase their productive capacities. AID is the principal U.S. agency responsible for carrying out nonmilitary foreign assistance to developing countries. Until 1979, when AID became a subagency of the International Development Cooperation Agency, the administrator of AID reported to the secretary of state. AID's proposed budget for Fiscal Year 1981 is \$4 billion.

AID functions through (1) Missions in countries where U.S. economic assistance is large, continuing, and usually involves several kinds of assistance projects in more than one economic sector,

(2) Offices in countries where U.S. economic assistance is moderate, declining, or has relatively limited objectives, and (3) Sections in U.S. embassies in countries where U.S. economic assistance is small or is being phased out. The central headquarters staff of AID in Washington, D.C., is organized into four central and four regional bureaus.

Centrally funded assistance projects in fisheries and aquaculture are managed through the Fisheries Division of the Office of Agriculture in AID's Development Support Bureau. The division also provides technical advice on request to AID missions. However, there are no specialists in fisheries or aquaculture on AID's permanent staff. The National Oceanic and Atmospheric Administration (NOAA) provides such personnel to AID through an advisory service contract.

In accordance with overall AID policy, the Fisheries Division directs its assistance efforts toward development of "small-scale" fisheries and aquaculture, although there is no generally accepted definition of small-scale. AID policy requires that such assistance efforts be designed to benefit the rural poor directly through increased production and distribution of low-cost fish protein and to provide income for unemployed or underemployed rural people through jobs in fishing and related activities. In February 1980, AID listed 13 continuing or projected centrally funded projects related to fisheries.¹

Some of those centrally funded projects began as "211(d)" grants. Section 211(d) of the Foreign Assistance Act of 1966 made AID funding available to U.S. educational institutions to "strengthen their capability to develop and carry out programs concerned with the economic and social development of less developed countries." Centrally funded 211(d) grants were made by AID to the University of Rhode Island (URI) and to Auburn University. The 211(d) grant to URI totaled \$2,010,000 and the 211(d) grant to Auburn totaled \$1,438,000. Auburn University has received other funding (more than \$6 million) from AID for 34 projects (both short- and long-term) since 1967 through basic ordering agreements, task orders, and grants.

The four AID regional bureaus and the AID country missions initiate and support the majority of AID-supported fisheries and aquaculture projects. As of September 1980, there were 17 such projects in Africa, Southeast Asia, and Latin America.² The AID missions generally contract with U.S. universities and private

¹Personal communication to the Marine Technical Assistance Group, Ocean Policy Committee, from Kenneth Osborn, AID, February 1980.

²See U.S. Agency for International Development Programs in Fisheries and Aquaculture for Fiscal Years 1980-81, MTAG, for a listing of regional and mission-supported projects in fisheries and aquaculture.

concerns for technical advisers. A substantial number of Auburn's fishery projects are supported in this manner.

Title XII of the Foreign Assistance Act of 1975 established a mechanism--the Board for International Food and Agricultural Development--for providing AID funds for collaborative research, including projects related to fisheries and aquaculture. On the basis of a 1977 BIFAD planning study, one collaborative research support program (CRSP) in aquaculture has been undertaken and others are projected. AID expects to provide \$420,000 in Fiscal Year 1981 for the first phase of a project entitled CRSP-Planning Aquaculture (Pond Dynamics). The study is to develop detailed plans and identify sites and research institutions in developing countries for a future study of principles and mechanisms of pond aquaculture. Similar studies are projected to consider stock assessment and postharvest losses.

According to the Marine Technical Assistance Group's inventory of federally supported fishery and aquaculture projects, AID has funded 93 projects through the various funding mechanisms totaling nearly \$112 million from the 1950s through 1979.

Most of the recent AID projects contain small fishery development components compared with their agricultural components. Although currently projected AID funding areas for the 1980s indicate an increasing interest in fisheries and aquaculture, especially in West Africa, overall funding for fishery projects remains small in comparison with funding for agricultural concerns.

There are a number of agency-wide problems at AID with regard to technical assistance for fisheries and aquaculture, including the lack of a central fisheries office and of specialized fishery and aquaculture personnel. This shortcoming underscores the absence of an AID policy for marine and fisheries technical assistance. For example, the role of science in fisheries assistance at AID is not clear, and the dominance of agricultural assistance at AID has led to an overemphasis on aquaculture as compared with marine capture fisheries. These problems of policy often are compounded by problems of communication between country and regional offices and between missions and AID headquarters.

BIFAD is a potentially effective means of support for fishery and aquaculture research but has not been extensively used for that purpose.

National Oceanic and Atmospheric Administration

The National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce was formed in October 1970, incorporating the department's Environmental Science Services Administration and a number of functions formerly administered by other federal agencies. Reflecting NOAA's predominantly U.S. domestic orientation, the agency

carries out the majority of technical assistance activities concerning oceanography, fisheries, and training under the general terms of a variety of public laws. Sea Grant International, the international component of the Sea Grant College Program, is the only marine technical assistance program at NOAA for which there is specific legislative authority.

The major units of NOAA involved in international marine affairs are (1) the National Marine Fisheries Service, (2) the Office of Research and Development, and (3) the Office of Oceanic and Atmospheric Services. The Office of Research and Development administers the Sea Grant Program.

The National Marine Fisheries Service administers a number of international fisheries training programs in addition to providing technical personnel to AID under an advisory service contract. In this respect, NOAA functions as the operating arm of AID in marine matters. The training programs, which bring individuals from other countries to the United States for training primarily in academic institutions, are sponsored by the United Nations, the Agency for International Development, the Department of State, and private foundations. At the end of June 1980, there were 19 AID-sponsored trainees in the United States; six others were sponsored by the United Nations Development Program, and two were sponsored by their own countries.

NOAA's Office of Research and Development is the focal point for the agency's cooperation with international scientific organizations and programs, including the World Meteorological Organization, the United Nations Environment Program, the Intergovernmental Oceanographic Commission, and the Global Atmospheric Research Program.

The Sea Grant College Program, in the Office of Research and Development has had an international component since 1976, when Congress established the International Cooperation Assistance Program (ICAP) with passage of the Sea Grant Program Improvement Act of 1976 (Public Law 94-461). ICAP was intended to enhance the marine research and development capabilities of developing countries and to promote international exchange of information with regard to development and use of marine resources. The program's emphasis has been on cooperative education and training projects between universities in the United States and developing countries. With passage in June 1980 of Public Law 96-289, which amends the National Sea Grant College and Program Act of 1966 (Public Law 89-688, 33 U.S.C. 1124a), ICAP was renamed the Sea Grant International Program. Sea Grant International has awarded three annual sets of grants, totaling about \$910,000 each year, and currently supports 11 projects in 19 developing countries, including 11 small Pacific island nations.

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Technical assistance activities of NOAA's Office of Oceanic and Atmospheric Services are largely concerned with atmospheric science.

Through its Environmental Data Information Service (formerly the National Oceanographic Data Center), the office is involved in the compilation and transfer of information pertinent to needs of developing nations. The International Affairs Office of the Office of Oceanic and Atmospheric Service supports some oceanographic training of individuals from developing countries.

A new direction for marine technical assistance at NOAA is emerging in the current program of cooperation with the People's Republic of China. A protocol for cooperation in marine and fishery science and technology between NOAA and China's National Bureau of Oceanography is one of two protocols administered by NOAA under terms of a U.S.-Chinese bilateral agreement signed in January 1979. The second protocol concerns cooperation in atmospheric science and technology. NOAA funding for activities under the two protocols in Fiscal Year 1980 totaled \$611,000, of which \$472,000 supported marine-related studies. Current cooperative marine activities with China are (1) development of a marine data center and data-exchange mechanism, (2) a cooperative study of marine sedimentation dynamics in the outflow of the Yangtze River, and (3) study of marine and freshwater aquaculture.

Under terms of bilateral agreements signed in late September 1980, Nigeria and Senegal are purchasing marine technical assistance--primarily fishery resource assessment--from NOAA. In Nigeria, NOAA also is assisting in the instrumentation of offshore platforms and is providing U.S. advisers to help establish oceanographic departments in Nigerian research institutions.

Although NOAA has acquired major responsibilities for marine technical assistance to developing countries, a number of factors impede the agency in carrying out those responsibilities. The agency's predominantly domestic orientation reduces its effectiveness in dealing with international questions. Except for NOAA's Sea Grant program, for example, the agency's marine-related cooperative and assistance programs lack specific legislative mandates. Sea Grant International is not as effective as it could be, because its budget has been held essentially constant since it was founded and its activities generally lack coordination with related activities of other units of NOAA. Throughout NOAA, atmospheric programs are better developed than their oceanographic counterparts.

National Science Foundation

The National Science Foundation (NSF) was established by the National Science Foundation Act of 1950 (64 Stat. 149; 42 U.S.C. 1861-1875), as amended, and was given additional authority under the National Defense Education Act of 1958 (72 Stat. 1601; 42 U.S.C. 1876-1879). The National Science Foundation is charged with developing and encouraging the pursuit of a national policy for the

promotion of research and education in the sciences. Although its major emphasis is on basic research, the NSF also supports research applied to selected social needs. The NSF supports research principally through grants and contracts.

Leadership of the NSF consists of the National Science Board of 24 members, and a director, each appointed by the President to 6-year terms. The director is the chief executive officer of the agency.

International programs and cooperative scientific research activities of the National Science Foundation are supported principally through exchanges of scientists and engineers, joint research projects, participation in activities of international scientific organizations, and travel to international conferences.

Concern with marine science and technology and technical assistance to developing countries cuts across several units of the National Science Foundation. The Division of Ocean Sciences supports about half of all federally sponsored oceanographic research conducted by U.S. universities. In Fiscal Year 1980, the division awarded 520 grants averaging \$79,500 per award for basic research in oceanography. Those grants included support for large-scale, multidisciplinary projects formerly supported through the International Decade of Ocean Exploration. The division also provided about \$20 million, or 70 percent, of the total operating cost of the 26 research vessels in the University National Oceanographic Laboratory System (UNOLS) fleet.

The Division of International Programs supports the U.S. component of approximately 300 cooperative science programs annually in about 40 countries and currently participates in 21 formal agreements for science and cooperation. Eight of those agreements are with developing countries, and three--with India, Korea, and Taiwan--include marine-related elements.

The Division of International Programs administers the Science in Developing Countries program, which in 1980 grew out of the Scientists and Engineers in Economic Development (SEED) Program and discussions related to U.S. participation in the United Nations Conference on Science and Technology for Development. The program is intended to strengthen science and engineering collaboration with developing countries according to mutual benefit. It provides research participation grants allowing U.S. scientists to participate in research projects in about 50 developing countries and allowing scientists from developing countries to participate in research in the United States. The program also provides conference grants to support national, regional, and international meetings concerned with the application of science and technology to problems of development and supports dissertation improvement grants for supplemental support of dissertation research projects by students from developing countries working at U.S. institutions on problems of development.

The Special Foreign Currency Program of the Division of International Programs uses U.S.-owned foreign currency to support international science activities. Such funds have supported primarily geological activities in India, Pakistan, Egypt, Burma, and Guinea. The International Travel Grant Program supports travel by U.S. scientists to participate in international meetings and conferences.

The National Science Foundation was not intended to provide direct technical assistance to developing countries in the way that the Agency for International Development does. NSF programs in developing countries have denied support for certain activities deemed not directly related to strengthening a developing country's scientific and engineering capabilities. These disallowed activities include construction of physical facilities, procurement of commodities, clinical sciences, business administration, and certain other technical assistance.

One result of NSF's emphasis on supporting only activities that yield a direct benefit to science is that international programs of NSF have been directed most often to the more scientifically developed countries. There has also been a lack of continuity in some NSF projects designed to strengthen science in less developed countries. Since the end of the International Decade of Ocean Exploration, there has been less emphasis on encouraging participation by scientists from developing countries in research supported by the Division of Ocean Sciences. Nevertheless, the nature of marine sciences dictates that international, marine-related activities of the National Science Foundation increasingly will affect developing countries of the Third World.

Department of the Navy

The principal activities of the U.S. Department of the Navy in cooperative marine science and related programs with developing countries are directed through the U.S. Naval Oceanographic Office, which carries out a wide range of scientific and technical functions related to exploration of the oceans and their boundaries. The office established the Harbor Survey Assistance Program (HARSAP) in 1964 to stimulate hydrographic data collection by providing training and technical assistance during harbor survey operations. The program, which was renamed the Hydrographic Survey Assistance Program (HYSAP) in 1980, loans the necessary technical equipment for a country to conduct hydrographic surveys and produce nautical charts of harbors and coastal areas. Twelve Latin American countries were participating in the program as of November 1980.

The Naval Oceanographic Office also directs the International Training Program in Hydrographic Surveying/Coastal Oceanography. The purpose of the training program is to assist maritime nations in improving their hydrographic and oceanographic capabilities with

regard to nautical charting. Since 1957 when the program began, nearly 400 students from more than 40 predominantly developing nations have received such instruction.

The Office of Naval Research directs a number of cooperative marine science activities through its Contract Research Program. The Geography Progr: has funded field investigations performed under contracts with U.S. investigators in the coastal regions of Surinam, Nicaragua, Brazil, Turkey, Israel, and Egypt. The Oceanic Biology Program has funded contracts and grants directly with institutions in Egypt, Israel, and India.

When U.S. Navy research vessels are conducting marine research in the territorial waters of another country, the Office of Naval Research provides for scientists from that country to participate in the research aboard U.S. Navy research ships and aircraft. Scientists from more than 20 countries have participated in marine research in this way since 1973. The Office of Naval Research also has worked with the University of Michigan in planning the International Symposia on Remote Sensing of the Environment, which have addressed the needs of developing nations.

The Navy has participated in the training of allied officers in the Naval Postgraduate School Environmental Science Program and, in cooperation with the National Science Foundation, has supported such large-scale marine science projects as the Mid-Ocean Dynamics Experiment (MODE) and the North Pacific Experiment (NORPAX) under the International Decade of Ocean Exploration.

Peace Corps

The Peace Corps was established under the Peace Corps Act of 1961 (75 Stat. 612, as amended; 22 U.S.C. 2501) and now is organized within ACTION, an independent agency established to mobilize U.S. citizens for voluntary service in the United States and in developing countries. ACTION administers domestic and international volunteer programs sponsored by the federal government and designed to help meet basic human needs and support self-help efforts of low-income people.

The Peace Corps currently supports more than 6,000 volunteers serving in 63 countries. Services vary according to the skills of the volunteers and the needs of the host country but are intended to match volunteer work at the community level with the resources of the host country and of international organizations to solve specific problems of development.

Most of the Peace Corps's involvement in fisheries assistance has been in freshwater fishculture. About 90 percent of the 300 volunteers now working on fisheries projects in some 30 countries are working on freshwater fisheries. This emphasis results in part from

the greater number of requests from Peace Corps offices in developing countries for assistance with freshwater fisheries than marine fisheries.

Since the first fishery project in 1962, Peace Corps volunteers have worked in a total of about 45 marine fisheries projects in 29 countries. The design of these projects changed as the overall philosophy of the Peace Corps evolved. Some of the early marine fisheries projects emphasized teaching of new fishing techniques and demonstrating new types of fishing gear to artisanal fishermen. Later projects involved research and university instruction by more highly skilled volunteers. In accordance with the Peace Corps's current emphasis on meeting the basic needs of people living in the poorest areas of countries in which the Peace Corps works, a recent Marine Fisheries Programming Guide points to the promise of small-scale, village-level development programs for marine fisheries. Such programs would be directed toward helping artisanal fishermen and would involve volunteers in all aspects of marine fisheries development, including applied fisheries research.

United States Coast Guard

The United States Coast Guard was established under the Act of January 28, 1915 (14 U.S.C. 1) and became a component of the Department of Transportation in 1967, pursuant to the Department of Transportation Act of October 15, 1966 (80 Stat. 931). The Coast Guard is a branch of the Armed Forces of the United States and is a service within the Department of Transportation except when operating as part of the Navy in time of war or when the President directs.

The Coast Guard carries out broad responsibilities related to marine technical and sociotechnical assistance under some 50 international instrumentalities, not including an additional 22 international fishing agreements. The Coast Guard assists other U.S. governmental agencies in training within the United States individuals from at least 59 developed and developing countries and has provided mobile training teams to Jordan, Saudi Arabia, and Haiti. Training is in the areas of search and rescue, merchant marine safety, port security, law enforcement, and aids to navigation and is conducted in cooperation with the Department of State, the Agency for International Development, the Military Assistance Program of the Department of Defense, and in accordance with Loran agreements between the United States and other nations.

Besides these forms of training assistance, the Coast Guard provides various forms of operational assistance, such as dispatching oil pollution strike forces to the Straits of Magellan and Malacca.

The Coast Guard carries out other marine, scientific, and operational functions through the International Ice Patrol, through

operational and technical direction to Loran stations overseas, and through participation in United Nations activities, including 11 U.N.-Intergovernmental Maritime Consultative Organization subcommittees and the U.N. Conference on the Law of the Sea.

The Smithsonian Institution

The Smithsonian Institution was created by an act of the United States Congress, approved August 10, 1846 (9 Stat. 102; 20 U.S.C. 41 et seq.), to carry out the terms of the will of James Smithson of England, who in 1829 had bequeathed his entire estate to the United States "to found at Washington, under the name of the Smithsonian Institution, an establishment for the increase and diffusion of knowledge among men."

The marine-related activities of the Smithsonian Institution, under the Assistant Secretary for Science, focus on the classification and ecology of marine organisms and investigation of biological and geological phenomena of marine environments.

The most significant international marine-related activity was the establishment of the Mediterranean Marine Sorting Center in Tunisia in 1966. It provides services similar to the Smithsonian Oceanographic Sorting Center, but its use is limited to scientists and institutions involved in Mediterranean marine science programs. The center provides the facility and logistical support to a number of projects in Tunisia funded from the Smithsonian Foreign Currency Program and also provides administrative support to a study of eutrophication elements in Lake Tunis which is being undertaken with the Environmental Protection Agency.

Another bureau of the Smithsonian Institution which plays an important role in marine research assistance to foreign states is the Smithsonian Tropical Research Institute. The institute conducts research on basic biological processes, supports advanced training, supports research in the tropics by others, and works on behalf of conservation in the tropics.

NATIONAL ACADEMY OF SCIENCES

NATIONAL RESEARCH COUNCIL

2101 Constitution Avenue Washington, D.C. 20418 USA

COMMISSION ON INTERNATIONAL RELATIONS

Cable Address: NARECO

TWX #: 7100 22 9509

ACTUAL PROGRAM

International Workshop

Future of International Cooperation in Marine Technology, Science and Fisheries

January 18-22, 1981

Sunday, January 18

4:00 - 6:00 p.m.

Workshop Registration at the:

Sea Lodge at La Jolla Shores
8110 Camino Del Oro
La Jolla, California

6:30 p.m.

Reception and Dinner - Acapulco Room, Sea Lodge

8:00 p.m.

Welcoming Address by Dr. John Liston, Chairman
Workshop Steering Committee

Monday, January 19

9:00 a.m.

Plenary Session chaired by Dr. John Liston at the

Marine Biology Building Conference Room
Scripps Institution of Oceanography (SIO)
University of California, San Diego

Overview presented by Dr. Roger Revelle

10:45 a.m.

Panel Session on the U.S. Program in Marine Technical
Assistance, chaired by Dr. John V. Byrne

Panel Members:

Dr. Francis Williams
Dr. Judy Kildow
Mr. Philip Roedel

Dr. David Ross
Dr. Vic Klemas
Dr. Christopher Vanderpool

12:30 p.m.

Catered Luncheon

- 1:30 Panel Session on International and National (non-U.S.) Programs chaired by Dr. Bernhard Abrahamsson
Panel Members:
Mr. Geoffrey Holland Professor Ulf Lie
Dr. Julio Luna-Munoz Mr. Dale Krause
Mr. Harry Winsor
- 3:30 p.m. Panel Session on General Discussion and Additional Contributions regarding Activities of Donor Countries chaired by Dr. Richard Meunier
Panel Members:
Dr. Francisco Palacio Dr. Vladimir Kaczyski
Dr. Ziad H. Shehadeh Dr. Agustin Ayala-Castanares
Mr. Francis Henderson
- 5:30 p.m. Recess
- 8:00 p.m. Reconvene at the Sea Lodge
- Working groups meet to organize, discuss agenda, and begin preliminary general discussions.

Tuesday, January 20 (S10)

- 9:30 a.m. Panel Session on the Needs of the Less Developed Countries in Marine Science, Technology, and Fisheries chaired by Dr. Harris Stewart
Panel Members:
Dr. Manuel Murrillo Prof. Inonencio Ronquillo
Dr. A. R. Bayoumi Dr. E. O. Bayagbona
- 11:00 a.m. Plenary Session - General Discussion and Additional Contributions chaired by Dr. John Craven
Panel Members:
Mr. Michael Molitor Dr. Vladimir Kaczyski
Dr. John Costlow
- 12:30 p.m. Luncheon
- 2:00 p.m. Working Group Sessions
- 5:00 p.m. Adjourn
- 6:00 p.m. Reception at the home of Ellen and Roger Revelle

Wednesday, January 21

- 9:00 a.m. - 3:00 p.m. Discussions on the R/V Ellen Browning Scripps
- 3:00 p.m. Working Group Sessions at the Sea Lodge
- 5:30 p.m. Adjourn
- 8:00 p.m. Meeting of Working Group Chairmen and Rapporteurs
Preparation of Working Group draft reports

Thursday, January 22 (SIO)

- 8:30 a.m. Working Group Sessions - Consideration of draft reports
- 11:00 a.m. Panel Session on Proposals for Future Directions for
U.S. Marine Cooperative Assistance chaired by
Dr. John Liston
Panel Members:
Dr. Bernhard Abrahamsson Dr. Roger Revelle
Dr. John Byrne Dr. David Ross
Dr. John Craven Dr. Harris Stewart
Dr. Vic Klemas Dr. Christopher Vanderpool
Dr. Richard Meunier Dr. Francis Williams
- 12:30 p.m. Luncheon
- 2:00 p.m. Plenary Session - Presentation of Working Group
Reports and Proposals chaired by Dr. Harris Stewart
Panel Members:
Chairmen of Working Groups
- 3:45 p.m. Conclusions and General Discussion
- 5:00 p.m. Closing of Workshop

International Workshop
Future of International Cooperation in
Marine Technology, Science, and Fisheries

PARTICIPANTS LIST

Dr. John Liston, CHAIRMAN
University of Washington

Dr. Bernhard Abrahamsson
University of Denver

Dr. Felipe Ancieta
Instituto Del Mar Del Peru (Peru)

Dr. Agustin Ayala-Castanares
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Dr. Arieh Back
Israel Oceanographic & Limnological
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Dr. E. O. Bayagbona
Nigerian Inst. for Oceanography & Marine
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Dr. A. R. Bayoumi
Inst. of Oceanography & Fisheries
Egypt

Dr. John V. Byrne
Oregon State University

Mr. Edward Cannon
U.S. Coast Guard

Dr. Wayne Coleman
Science Applications, Inc.

Dr. John Costlow
Duke University

Dr. John P. Craven
University of Hawaii

Dr. Paul M. Fye
Woods Hole Oceanographic Institution

Mr. John Grover
Auburn University

Mr. James H. Hannaham
Department of the Navy

Mr. Francis Henderson
Inland Water Resources & Aquaculture Service
Italy

Mr. Geoffrey Holland
Marine Science & Information Directorate
Canada

Dr. Veravat Hongskul
Department of Fisheries
Thailand

Captain R. E. Hughes
Department of the Navy

Professor Rogelio Juliano
University of the Philippines
Philippines

Dr. Vladimir Kaczynski
University of Washington

Ms. Mary Hope Katsouros
National Academy of Sciences

Dr. Judith Kildow
Massachusetts Institute of Technology

Dr. Vic Klemas
University of Delaware

Mr. Dale C. Krause
United Nations Educational Scientific &
Cultural Organization
France

Mr. H. Dale Langford
National Academy of Sciences

Professor Ulf Lie
Universitetet I Bergen
Norway

Ms. Debra R. Luks
National Academy of Sciences

Dr. Julio Luna
Inter-American Development Bank

Mr. Gilbert Maton
Tracor Jitco, Inc.

Dr. Richard Meunier
Institute for Energy Analysis

Mr. Michael Molitor
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Dr. Stephen Olsen
University of Rhode Island

Mr. Kenneth Osborn
Agency for International Development

Dr. Francisco Palacio
University of Miami

Dr. Andreas B. Rechnitzer
Department of the Navy

Dr. Roger Revelle
University of California, San Diego

Mr. Anthony Rock
National Oceanic and Atmospheric
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Mr. Philip Roedel
International Fisheries Consultant

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Dr. Saul Salla
University of Rhode Island

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International Center for Living Aquatic Resources Management
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Dr. Aprilani Soegiarto
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Dr. Harris B. Stewart, Jr.
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Dr. James Storer
Department of State

Mr. William L. Sullivan
National Oceanic & Atmospheric Administration

Mr. P. R. S. Tampi
Indian Council of Agricultural Research
India

Mr. W. Murray Todd
National Academy of Sciences

Mr. William J. Trainor, Jr.
Department of State

Dr. Christopher K. Vanderpool
Michigan State University

Dr. Francis Williams
University of Miami

Mr. Harry C. Winsor
Consultant
Canada

Mr. Norman Wulf
Department of State

Dr. G. S. Zabi
Centre de Recherches Oceanographiques
Ivory Coast

OCEAN POLICY COMMITTEE

International Workshop

Future of International Cooperation in
Marine Technology, Science, and Fisheries

WORKSHOP PAPERS

- ANCIETA, Felipe - "Outline of the Principal Needs of Peru in Fisheries and Related Investigations"
- BACK, Arieh - "Needs and Programs in Marine Technological and Scientific Cooperation"
- BAYAGBONA, E. O. - "Contribution by the Nigerian Institute for Oceanography and Marine Research"
- BAYOUMI, A. R. - "Needs for Research and Technical Development of the Aquatic Resources in Egypt and Adjacent Fisheries"
- DUNBAR, Lyle E. & MOLITOR, Michael R. - "An Overview of the Potential for OTEC in the Developing World; the Need for International Cooperation"
- HOLLAND, Geoffrey - "International Aid in Fisheries and Ocean Science and Technology: A Canadian View"
- HONGSKUL, Veravat - "The Needs for Research and Technical Development in Marine Fisheries and Oceanography in Thailand"
- JULIANO, Rogelio O. - "Marine Technology, Science and Fisheries Development in the Philippines"
- KACZYNSKI, Wlodzimierz - "Joint Ventures in Fisheries: Their Role in Marine Technical and Economic Cooperation between U.S. and Developing Countries"
- KRAUSE, Dale C. - "International Co-operation in Marine Science Development"
- LIE, Ulf - "Swedish and Norwegian Programs in Technical Assistance to Developing Countries in the Fields of Fisheries and Marine Sciences"
- LUNA, Julio - "Financing for Fishery Development" and "Fishery Development: The Latin American Model Revisited"
- MURRAY, Thomas E. - "Sea Grant International Program: The Third Year"
- RONQUILLO, Inocencio A. - "The Needs for Research and Technical Development of the Marine and Relevant Freshwater Areas of the Philippines"
- ROSA, Horacio, Jr. - "Assistance to Research and Development of Brazilian Fishery Resources"

SOEGIARTO, Aprilani - "The Need of Developing Research and Technical Capabilities in the Management of Marine Resources in the Indonesian and Adjacent Waters"

STRAUBE, Enrique Torrejon - "Prospects of International Cooperation for Marine Science and Technology Development"

TAMPI, P. R. S. - "Marine Sciences & Technology: Needs for India"

IOC/UNESCO - "The Role of IOC in Training, Education and Mutual Assistance in the Marine Sciences (TEMA)"

ZABI, S. G. - "Marine Science and Technology Development in the Ivory Coast"

PROJECT NUMBER: _____
PROJECT: _____ AD: _____
TITLE: _____ 8/9/82 P.P.
ABSTRACT: _____
FICHE: _____
COMMENTS: _____
DS/DIU