Annotated Acronyms and Abbreviations of Marine Science Related Activities

(Third Edition)

1981

**U. S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Environmental Data and Information Service**

ANNOTATED ACRONYMS AND ABBREVIATIONS

OF

MARINE SCIENCE RELATED ACTIVITIES

(Third Edition)

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U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
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National Oceanographic Data Center
Washington, D.C.

1981

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Contents

Introduction	v
I. International organizations	1
A. Intergovernmental organizations	1
United Nations	1
Specialized and affiliated organizations	5
Joint United Nations groups	12
Independent organizations	13
B. Nongovernmental organizations	25
International Council of Scientific Unions	25
Other nongovernmental organizations	30
C. Joint governmental and nongovernmental organizations	41
D. Data centers and other facilities	42
II. International programs, projects, and expeditions	46
III. United States national organizations	68
A. Federal Government	68
Legislative Branch	68
Executive Branch	68
Office of the President	68
Advisory and interagency bodies	
Executive Departments	71
Independent Agencies	92
Quasi-official Agencies	95
B. State agencies and organizations	96
C. Regional organizations	108
D. Private organizations	110
IV. Foreign organizations	120
V. Terms	139
Index of titles of acronyms and abbreviations	143
Index of acronyms and abbreviations	247

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Revised by Charlotte M. Ashby and Alan R. Flesh
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INTRODUCTION

One of the more fascinating aspects of compiling this publication was the realization of the growth of interests in marine sciences, especially during the past decade. Dates of origin of the many agencies show this growth. The increase in the number of acronyms and abbreviations in use since the first and second edition of Annotated Acronyms and Abbreviations appeared in 1969 and 1976 is another indication. The varied organizations involved show the changes in the concept of oceanographic sciences. In the beginning years, it was knowledge for the sake of knowledge; in recent years, it is application of knowledge acquired for many and varied purposes.

Changes in man's approach to the environment are also apparent from this compilation: from the initial use of the environment for economic purposes to a realization that the environment must at the same time be preserved and protected.

Two general suggestions were made following publication of the second edition: that addresses and that national acronyms and abbreviations should be included. Time did not permit the inclusion of both in this third edition. Because the librarians and other members of the newly-formed Marine Science Librarians Association (now the International Association of Marine Science Libraries and Information Centers, IAMSLIC) requested that national acronyms be included, we considered this request more important and have done so.

The present edition includes descriptive entries and indexes to acronyms and abbreviations that are listed alphabetically by title and by acronym/abbreviation. The descriptive entries are grouped into two major chapters: international and national. To show pertinent relationships, a single descriptive entry may include two or more acronyms or abbreviations.

Sources for information include newsletters, minutes of meetings, annual reports, journal articles, and correspondence from users of the second edition. We wish particularly to acknowledge the assistance of the staff of UNESCO's Division of Marine Science who made substantive changes and additions.

We wish to acknowledge the editorial assistance provided by The Environmental Science and Information Center (ESIC), one of NODC's co-organizations within NOAA's Environmental Data and Information Service; we especially acknowledge the assistance provided by Evelyn Liddel of ESIC, who not only entered the text of both the second and third editions into machine-readable form but provided valuable suggestions in formatting the text.

Despite the best efforts of all who contributed to it, however, this publication still has its shortcomings. For these we ask the readers' indulgence. We apologize to our foreign readers for the damage done their languages by the absence of diacritical marks. The word processor available to us, however, lacked this capability. We are also acutely aware that the rush of scientific progress leaves any compilation such as this in its wake, forever struggling to keep pace. We hope that people who find this publication useful will help us keep it accurate and up-to-date. If we have overlooked an acronym or misinterpreted it, please correct our mistake by writing the National Oceanographic Data Center, NOAA/EDIS D7822, Washington, D.C. 20235.

I. INTERNATIONAL ORGANIZATIONS

International organizations fall into two categories: International Governmental Organizations (IGO's) and International Nongovernmental Organizations (INGO's or NGO's). The governmental organizations are those entered into by treaty or other agreement between two or more national governments. The nongovernmental organizations are generally composed of organizations or individuals who have a common interest, which often is a specialized scientific discipline.

While separate entities, governmental and nongovernmental agencies often cooperate on programs and projects of mutual interest. Direction and funding may be supplied by the governmental organizations, whereas scientific expertise is supplied by the nongovernmental groups. The prime governmental organization with universal interests in marine sciences is the Intergovernmental Oceanographic Commission (IOC) of UNESCO, and the prime nongovernmental organization with universal interests in marine sciences is the Scientific Committee on Oceanic Research (SCOR) of the International Council of Scientific Unions (ICSU). IOC and SCOR participate in many of the major scientific programs in oceanography. Other agencies, both governmental and nongovernmental, have more parochial interests, limited to a geographic area or a special subject matter.

Part I.A describes intergovernmental organizations; descriptions of the U.N. organizations precede those of independent agencies, which appear in alphabetical order; Part I.B describes nongovernmental organizations; descriptions of the organizations of the International Council of Scientific Unions (ICSU) precede those of the independent or unaffiliated groups, which again appear in alphabetical order; Part I.C describes joint organizations; and Part I.D describes data centers and other facilities either operated by international organizations or as depositories of international data.

A. INTERGOVERNMENTAL ORGANIZATIONS

United Nations

1. UNITED NATIONS: U.N.

The United Nations was created in 1945 to maintain international peace and security, to develop friendly relations among nations, and to achieve international cooperation in solving economic, social, cultural, and humanitarian problems. It is a forum for bringing nations together to attain common goals. One such conference was the 1971 U.N. Conference on the Human Environment, known as UNCHE. Many recommendations for programs and projects dealing with study, improvement, and conservation of the environment, including the marine environment, originated during UNCHE.

Within its headquarters is an Ocean Economics and Technology Office (OETO), responsible for coordination of U.N. programs in ocean-related activities at the interdepartmental level. One of OETO's projects is the development of a Marine and Coastal Technology Information Service (MACTIS), which led to the U.N. becoming a sponsor with the Food and Agriculture Organization (FAO) and the Intergovernmental Oceanographic Commission (IOC) of the Aquatic Sciences and Fisheries Information System (ASFIS). U.N. also sponsors a Group of Experts on the Standardization of Geographic Names, which serves as a coordinating group for the Conference on Standardization of Geographic Names, which meets every 5 years. The International

Hydrographic Organization (IHO) and IOC sponsor a Joint IOC/IHO Guiding Committee for the General Bathymetric Chart of the Oceans (GEBCO), which includes a Subcommittee on Geographical Names and Nomenclature of Ocean Bottom Features, which participates in the Conference on the standardization of maritime and undersea features names. In addition, the U.N. has many councils, committees, and specialized and affiliated agencies that have interests in the marine sciences. These are described in entries 2 through 15.

2. U.N. GENERAL ASSEMBLY: UNGA

Representatives of U.N. member nations compose the General Assembly, which meets in regular annual sessions and may hold special sessions when necessary. UNGA concerns itself with any matter falling within the scope of the U.N. charter and may make recommendations on all issues except those on the agenda of the Security Council.

UNGA's immediate interests in marine affairs generally relate to legal and jurisdictional problems concerning the use of the seabed beyond the limits of national jurisdiction. In 1967 it established an Ad Hoc Committee to Study the Uses of the Sea-Bed and the Ocean Floor Beyond the Limits of National Jurisdiction. By resolution of UNGA in 1968, the Ad Hoc Committee was made a standing committee and renamed the Committee on the Peaceful Uses of the Sea-Bed and the Ocean Floor Beyond the Limits of National Jurisdiction. Commonly known as the U.N. Seabed Committee, its major activity is the preparation for and convening of the Law of the Sea Conferences (LOSC), also called the U.N. Conferences on the Law of the Sea (UNCLOS), the third of which opened in Caracas, Venezuela, in 1974. An Informal Single Negotiating Text (ISNT) was developed at the third session in 1975. It was superseded in 1976 by a Revised Single Negotiating Text (RSNT), which in turn was superseded in 1977 by an Informal Composite Negotiating Text (ICNT). One of the measures considered at this Conference was the U.N. proposal for an International Seabed Resource Authority (ISRA) for the orderly management and fair-sharing of seabed resources beyond the limits of national jurisdiction.

3. ECONOMIC AND SOCIAL COUNCIL OF THE UNITED NATIONS: ECOSOC

Under the authority of the General Assembly, ECOSOC is responsible for the initiation and development of U.N. economic and social programs. It receives and reviews the programs proposed by the Advisory Committee on the Application of Science and Technology to Development (ACAST). It is also responsible for the United Nations Development Program (UNDP), the United Nations Children's Fund (UNICEF), the United Nations Institute for Training and Research (UNITAR), and the several U.N. regional economic commissions.

4. ADMINISTRATIVE COMMITTEE ON COORDINATION: ACC

Executive heads of the many U.N. organizations compose ACC. Its functions include the proposing of programs to be sponsored by U.N. or its organizations, including programs in the marine sciences and those in the United Nations Environment Program (UNEP). A recently abolished Subcommittee on Marine Science and Its Applications had cognizance over marine science activities.

5. ADVISORY COMMITTEE ON THE APPLICATION OF SCIENCE AND TECHNOLOGY TO DEVELOPMENT: ACAST

ACAST is the central body in the U.N. system charged with the entire range of the application of science and technology in the development stage. Scientific and technological programs and projects

proposed for consideration by U.N. or one of its organizations are submitted to ACAST for review. ACAST also establishes priorities, looks for duplication of effort, and, when necessary, recommends measures for improvement of programs.

6. UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT: UNCTAD

Established in 1965, UNCTAD includes committees concerned with development and efficiency of marine transportation, economic and commercial aspects of ocean shipping and ports, transfer of technology relating to the marine environment to developing countries, and effect on developing countries of marine mineral production.

7. UNITED NATIONS DEVELOPMENT PROGRAM: UNDP

Established under ECOSOC in 1956, UNDP assists the lower income countries to expand their economies through support of projects designed to attract development capital, train skilled manpower, and apply modern technologies needed for improvement and expansion. In cooperation with FAO, UNDP is assisting in the development of about 125 projects relating to fishery development, including projects in individual countries, regional and interregional projects, and a global program in the Southern Ocean.

8. UNITED NATIONS ENVIRONMENT PROGRAM: UNEP

Established in 1973 upon recommendation of the U.N. Conference on the Human Environment (UNCHE), UNEP is also called the Stockholm Conference. UNCHE included two working groups that identified marine environment problems that were referred to UNEP. They were the Intergovernmental Working Group on Marine Pollution (IWGMP) and the Intergovernmental Working Group on Monitoring or Surveillance (IWGMS).

UNEP is under the aegis of the U.N. General Assembly (UNGA), which established a Governing Council comprising 54 members selected by UNGA on an equitable geographic distribution. Input to the Council was formerly provided by a recently abolished Environment Coordination Board (ECB) under the auspices of the Administrative Committee on Coordination (ACC). UNGA and ECOSOC review programs referred to UNEP.

UNEP initiated and maintains the International Referral System (IRS) for sources of environmental information. In January 1979, IRS was renamed INFOTERRA. It is coordinating several regional sea programs including the Mediterranean Action Plan (MAP) and the Mediterranean Pollution, Monitoring, and Research Program (MEDPOL), and was instrumental in establishing a Regional Oil Combating Center (ROCC) to combat massive oil pollution in the Mediterranean. In 1975 it established an Ecosystem Conservation Group (ECG) in which the IUCN, UNESCO, and FAO participate. In cooperation with UNESCO, UNEP is developing a Register of Rivers Discharging into the Oceans (RRDO).

9. INTERNATIONAL COURT OF JUSTICE: ICJ

Established in 1946, the Court deals with cases including those pertaining to fishery jurisdiction, the continental shelf, and other marine affairs. It delivered an advisory opinion on the composition of IMCO's Maritime Safety Committee.

10. INTERNATIONAL LAW COMMISSION: ILC

Established in 1949, ILC is a permanent subsidiary body of UNGA responsible for promoting the progressive development of international law and its codification. It participates in the Law of the Sea

Conference by drafting articles on the territorial sea and contiguous zones, the high seas, fishing, and the continental shelf.

11. UNITED NATIONS INSTITUTE FOR TRAINING AND RESEARCH: UNITAR

Established in 1965, UNITAR, which reports to ECOSOC, is responsible for improving U.N. effectiveness by providing facilities for research and training. One of its areas of concern is global environmental problems; in 1970 it prepared "Marine Pollution Problems and Remedies" as a background study for the U.N. Conference on the Human Environment (UNCHE). It is currently concerned with studies on procedures and mechanisms for settling disputes over management of ocean resources and marine environmental problems.

12. REGIONAL ECONOMIC COMMISSIONS

Five regional commissions come under the general supervision of ECOSOC: The Economic Commission for Africa (ECA), Economic Commission for Europe (ECE), Economic Commission for Latin America (ECLA), Economic Commission for Western Asia (ECWA), and the Economic and Social Commission for Asia and the Pacific (ESCAP), formerly known as the Economic Commission for Asia and the Far East (ECAFE). Each is responsible for promoting the economic development of resources in its respective region. As the protection of the environment, including the marine environment, has become a major concern in recent years, each Commission has taken steps to prevent marine pollution in its respective region.

Another common concern, especially of ESCAP, is the exploration for mineral resources on offshore areas. ESCAP sponsors two Committees for Coordination of Joint Prospecting for Mineral Resources (CCOP): one in Asian offshore areas (CCOP/ESCAP) and the other for South Pacific offshore areas (CCOP/SOPAC). Membership on each committee is limited to the adjacent countries, and each is assisted by a Technical Advisory Group (TAG) composed of scientific advisers from developed countries both inside and outside the region.

ECLA established the Caribbean Development and Co-operation Committee (CDCC), which, among other activities, promotes the development of fisheries and transportation. CDCC is concerned with developing a common position among Caribbean states on the Law of the Sea.

13. UNITED NATIONS CHILDREN'S FUND: UNICEF

UNICEF helps lesser developed nations and administers long-range health, nutrition, and welfare programs for children and mothers. As a part of its program to advance nutrition, it seeks ways to provide sources of high-protein food and so encourages the development of fishpond programs and the production of fish protein concentrate (FPC).

14. UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION: UNIDO

Established in 1967, UNIDO provides assistance to developing countries in the promotion and acceleration of their industrialization. Among its activities are studies on fish processing, shipbuilding and related engineering studies, and environmental aspects of industries as they relate to marine pollution.

15. UNITED NATIONS SCIENTIFIC COMMITTEE ON THE EFFECTS OF ATOMIC RADIATION: UNSCEAR

Responsible to the U.N. General Assembly, UNSCEAR has among its concerns the effects of radioactive contamination of the marine environment.

Specialized and Affiliated Organizations

16. FOOD AND AGRICULTURE ORGANIZATION: FAO

Established in 1945, FAO is responsible for raising levels of nutrition and standards of living of the peoples under the respective jurisdictions of its member nations, securing improvements in the efficiency of the production and distribution of all food and agricultural products including fishery products, bettering conditions of rural populations, contributing to an expanding world economy, and ensuring humanity's freedom from hunger. It sponsors the Perspective Study of World Agricultural Development (PSWAD) and plays a major role in international marine science activities as they relate to fishing and the fishing industry.

Within FAO headquarters is a Department of Fisheries, which, among its many duties, is responsible for extensive bibliographic work and maintenance of the FAO Fishery Data Centre (FCD). FAO, with the cooperation of IOC, was responsible for development of the Aquatic Sciences and Fisheries Information System (ASFIS). (See entry 230.)

Other components of FAO are described in entries 17 through 20.

17. ADVISORY COMMITTEE ON MARINE RESOURCES RESEARCH: ACMRR

Established in 1963 as an FAO body, ACMRR advises the FAO Director General on the formulation and execution of programs concerned with marine resource research and advises IOC on fishery oceanography. It is the FAO body responsible for international programs, projects, and policies relating to marine sciences. It meets with other international organizations involved with similar programs. The Committee has 13 members from FAO member states. When acting as IOC adviser, its members are increased by two persons appointed from states that are not members of FAO.

18. EXPERT PANEL FOR THE FACILITATION OF TUNA RESEARCH: EPFTR

Established in 1964 upon recommendations made at the FAO Scientific Conference on the Biology of Tuna and Related Species, the Panel operates much like ACMRR, but is highly specialized.

19. COMMITTEE ON FISHERIES: COFI

Established in 1966 as an FAO standing committee, COFI comprises senior fishery officials from 34 member nations who are elected by the Council in such a manner that representation is assured for nations having special interests in fisheries and for nations having interests in different areas of the oceans. COFI meets annually to review the work program of the Department of Fisheries, to consider fishery problems of an international character, and to promote international cooperation in fisheries.

20. FAO REGIONAL FISHERIES COMMISSIONS, COMMITTEES, OR COUNCILS

FAO sponsors regional fisheries organizations established throughout the world. Each organization is responsible for advising FAO on fishery programs in its respective area, for encouraging national and regional programs of cooperative action in the investigation and management of fishery resources, for encouraging training and proper assignment of fishery personnel, and for assisting in the collection and dissemination of data. The regional organizations, their initialisms, and dates of establishment are:

Committee for Inland Fisheries of Africa. CIFA. 1971.
 European Inland Fisheries Advisory Commission. EIFAC. 1957.
 Fishery Committee for the Eastern Central Atlantic. FCECA.
 (Also known by the acronym CECAL for Committee for Eastern
 Central Atlantic Fisheries.) 1967.
 General Fisheries Council for the Mediterranean. GFCM. 1949.
 Indian Ocean Fishery Commission. IOFC. 1967.
 Indo-Pacific Fisheries Commission. IPFC. 1968.
 International Commission for the Southeast Atlantic Fisheries.
 ICSEAF. 1972.
 Southwest Atlantic Fisheries Advisory Commission. SWAFAC.
 (More commonly known by the initialism CARPAS for Comision
 Asesora Regional de Pesca para el Atlantico Sud-Occidental).
 1961.
 Western Central Atlantic Fishery Commission. WECAFC. 1974.

A Regional Fisheries Commission for Western Africa (RFCWA) has been proposed. FAO also was responsible for negotiating the convention for the establishment of the International Commission for the Conservation of Atlantic Tuna (ICCAT), an independent, regional, and specialized fishery organization.

21. UNITED NATIONS EDUCATIONAL, SCIENTIFIC, AND CULTURAL ORGANIZATION: UNESCO

Organized in 1945 to promote collaboration among nations in education, science, and culture, UNESCO is the parent agency for the Intergovernmental Oceanographic Commission (IOC), which promotes cooperation in the marine sciences and is described in greater detail in entry 22. Within UNESCO headquarters is a Division of Marine Sciences (formerly the Office of Oceanography). Before the establishment of IOC, UNESCO sponsored the International Advisory Committee on Marine Sciences (IACOMS), created in 1955 to consider the U.N. role in marine sciences. IACOMS, comprising nine persons appointed as representatives of the different areas of the world, was severely handicapped: it had no charter or authority and was limited in funds. It did, however, focus attention on marine sciences and was instrumental in recommending the establishment of IOC.

Proposals have been made to remove IOC from UNESCO and create an independent U.N.-affiliated agency to handle marine sciences at the international level, much as the World Meteorological Organization (WMO) is responsible for meteorological activities at the international intergovernmental level. While such proposals have yet to materialize, a title, World Oceanographic Organization (WOO), has been suggested.

UNESCO, through its Division of Marine Sciences, is involved in a number of activities to strengthen marine research and marine institutions in its member states, to improve understanding of basic marine systems, and to disseminate information. During the 1960's and early 70's UNESCO established and supported the operation of three regional biological sorting centers: the Mexican Oceanic Sorting Center (CPOM), the Indian Ocean Biological Center (IOBC), and the Regional Marine Biological Center (RMBC) in Singapore. These were established in conjunction with IOC cooperative investigations, and UNESCO sponsored an Advisory Panel for International Marine Biological Centers to ensure the standardization of operating techniques and to provide guidance in the selection of specialists working on fraction collections.

UNESCO, as well as IOC, lends financial support to such organizations as SCOR, which in turn offer scientific advice on specific research aspects of UNESCO's and IOC's programs. They also provide financial support to other international organizations by helping pay travel expenses of scientists from developing countries who attend symposia and conferences.

Under its publications program the Division of Marine Sciences issues a quarterly title, the International Marine Science (IMS) Newsletter to inform scientists and administrators of recent developments in marine science activities of U.N. agencies.

UNESCO also supports Regional Offices of Science and Technology (ROST). Two in particular, the Regional Office of Science and Technology for Latin America and the Caribbean (ROSTLAC), formerly called the Regional Office of Science and Technology for Latin America (ROSTLA) and before that the Latin American Science Cooperation Office (LASCO) and that for Southeast Asia (ROSTSEA), formerly called the Southeast Asia Science Cooperation Office (SEASCO), have participated in the development of plans for oceanographic programs in their respective regions. Other regional offices are Africa (ROSTA), the Arab States (ROSTAS), and South and Central Asia (ROSTSCA). UNESCO is responsible also for organizing Conferences of Ministers Responsible for the Application of Science and Technology to the Development of the Arab States (CASTARAB), of Asia (CASTASIA), and of Africa (CASTAFRICA).

22. INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION: IOC

The 1960 Intergovernmental Conference on Oceanographic Research (ICOR), sponsored by UNESCO, included a recommendation for the establishment of the Intergovernmental Oceanographic Commission (IOC) to act as the international body responsible for coordination of all scientific investigations of the oceans by the states concerned and the international organizations. IOC was established later in 1960 by the General Conference of UNESCO and held its first session in October 1961.

The Assembly of IOC, which now includes members from 101 nations, meets every 2 years. Before 1971, its policy and programing activities were handled between sessions by the Bureau and Consultative Council (IOC/BCC); since a reorganization in 1971, the Consultative Council has been discontinued and an elected Executive Council (IOC/EC) comprising a chairman, four vice-chairmen, and eight delegates from member states performs these functions. In 1975 it established a Scientific Advisory Board (SAB) to improve its ocean science activities and develop priorities to avoid spreading its limited resources too thinly. Originally established for a 2-year experimental period, the life of SAB was extended for another 2-year period until IOC held its 11th session in October and November 1979. At that meeting, IOC established a Scientific Review Board (SRB) to replace SAB.

Other activities of IOC are handled by working committees, international coordination groups, and groups of experts. Among these, the Group of Experts on Long-Term Scientific Policy and Planning (GELTSPAP), now abolished, was established in 1969 to develop the scope, content, and criteria for the assignment of priorities for the Long-Term and Expanded Program of Oceanic Exploration and Research (LEPOR) and to find ways of interrelating projects relevant to LEPOR that are being conducted by other international bodies. A Working Group of Experts on Pollution of the Ocean Originating on Land (POOL), established in 1974 as part of the Global Investigations of Pollution in the Marine Environment (GIPME), was dissolved in 1975

upon acceptance of its recommendations. A Working Group on Legal Questions Related to Scientific Investigations in the Oceans (LEG) has also been dissolved.

International Coordination Groups (ICG's) are responsible for coordinating international marine expeditions, projects, or programs supported by IOC including the Cooperative Investigations of the Mediterranean (CIM), now in abeyance; the Cooperative Investigations of the Northern Part of the Eastern Central Atlantic (CINECA), now terminated; the Tsunami Warning System in the Pacific (ITSU); and the Southern Oceans Study (SOC). In 1975, upon completion of the program, the ICG for the Cooperative investigations of the Caribbean and Adjacent Regions (CICAR) was disbanded and replaced by an IOC Regional Association for the Caribbean and Adjacent Regions (IOCARIBE). IOCARIBE was established on an experimental basis for a 6-year period. It will continue to develop the regional cooperation in the marine sciences instituted by CICAR over its 7-year program. In 1977 the ICG for the Cooperative Investigations of the Kuroshio and Adjacent Regions (CSK) was terminated and replaced by a Working Group for the Western Pacific (WESTPAC), which in cooperation with CCOP, CCOP/SOPAC, SEATAR, and others, is developing plans to continue scientific investigations in the Western Pacific.

IOC includes a number of working committees. One, the Working Committee on International Oceanographic Data Exchange (IODE), is primarily responsible for arranging for the exchange of data and information. IODE's subsidiary bodies include Groups of Experts on such arrangements as the Marine Environmental Data Information Referral System, (MEDI) designed to complement but not duplicate the Aquatic Sciences and Fisheries Information System (ASFIS) by providing descriptions of organizational sources for marine information and descriptions of coherent data files. Another group of experts developed the concept of the Responsible National Oceanographic Data Center (RNODC). An ad hoc group called Marine Information Management (MIM) coordinates IODE's activities.

In 1976 the Working Committee on Training, Education, and Mutual Assistance in Marine Sciences (TEMA) established a Voluntary Assistance Program (IOC/ VAP) similar to that developed by the World Meteorological Organisation (WMO). IOC's Working Committee for the Integrated Global Ocean Station System (IGOSS) was superseded in 1977 by the Joint IOC/WMO Working Committee for IGOS. The Working Committee on Global Investigations of Pollution in the Marine Environment (GIPME) supersedes an International Coordination Group for GIPME. GIPME includes a Group of Experts on Methods, Standards, and Intercalibration (GEMSI). IOC is also responsible for general programs and policies of the International Tsunami Information Center (ITIC) in Honolulu, Hawaii.

IOC participates with other international organizations in developing programs and projects. With these organizations it forms Joint International Coordination Groups (JICGs) and Joint Groups of Experts (JGEs), several of which are described under entries 35 to 39.

23. WORLD HEALTH ORGANIZATION: WHO

Established in 1948 to promote the highest possible level of health for all peoples, WHO is actively concerned with the study of and control of ocean contamination, particularly in the coastal zone, and studies of shellfish contamination and the effects of contamination in coastal recreation areas. It is also responsible for the establishment of international standards for Fish Protein Concentrate (FPC).

24. INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT: IBRD

Established in 1945 and commonly called the World Bank, IBRD is empowered to lend funds to facilitate international trade, raise living standards, finance productive investments when private capital is not available, and provide technical assistance to developing countries. It lends assistance and capital for fishery programs, for improvement of maritime safety, for port and coastal developments, and exploration and use of marine mineral resources.

In view of the emphasis on the protection of the environment, an Office of the Environmental Adviser was created in 1970 within IBRD to examine projects proposed for funding in order to detect in advance and either cancel or modify projects that might adversely affect the environment.

25. INTER-GOVERNMENTAL MARITIME CONSULTATIVE ORGANIZATION: IMCO

Established in 1959, IMCO is mainly concerned with maritime safety and coordinates work relating to atomic propulsion, aviation, health, labor, meteorology, oceanography, and telecommunications. Since the Torrey Canyon sinking in 1967, it has been especially concerned with oil pollution of the seas and collects and disseminates technical information on oil pollution, sets standards for the shipment of oil and the prevention of oil spills, and sponsors conventions on these matters. It has also been asked to be concerned with the prevention of pollution caused by all discharges from sea-going vessels. Its Marine Environment Protection Committee (MEPC) has cognizance over matters pertaining to oil spills and other aspects of marine pollution.

In 1976 the International Conference on the Establishment of an International Maritime Satellite System (INMARISAT) concluded an agreement to establish under the auspices of IMCO an International Maritime Satellite Organization (INMARSAT) that will administer a worldwide system for maritime communications.

IMCO is also concerned with and has developed programs concerned with Safety of Life at Sea (SOLAS). Together with IHO it is developing a Worldwide Radio Navigation Warning System (WRNWS) for the rapid dissemination of navigational data on an organized international cooperative basis.

26. INTERNATIONAL CIVIL AVIATION ORGANIZATION: ICAO

Established in 1947 to develop principles and techniques for international air navigation, ICAO was also responsible for supervising the North Atlantic Ocean Stations (NAOS) agreement under which a network of multinational ocean weather observation ships provided weather information, search and rescue aid, navigation, and communication services to aircraft flying across the ocean. By agreement, NAOS vessels also made oceanographic observations. In 1974, the program was severely curtailed and responsibilities for its continuation were transferred to the World Meteorological Organization.

27. WORLD METEOROLOGICAL ORGANIZATION: WMO

Formally established in 1951, WMO succeeded the International Meteorological Organization (IMO), a nongovernmental organization established in 1873 and abolished in 1951. Shortly after it was established, WMO was recognized as a U.N. specialized agency.

WMO's broad responsibilities include the coordination, standardization, and improvement of meteorological services throughout the world. Marine meteorology is an especially important service, and international interests in marine meteorology date back to the

first International Meteorological Conference of 1853, which concerned itself with providing a program of oceanic weather observations. This conference is not only considered the predecessor to IMO, but a forerunner in the field of international cooperation.

WMO also operates a Voluntary Assistance Programme (VAP) to assist developing countries. Under this program, the developing countries are granted scholarships for job training, offered the aid of experts, provided training courses, and encouraged to participate in research campaigns falling in their geographic area or appropriate in subject matter.

WMO's committees, commissions, and associations are described in entries 28 through 31.

28. WMO COMMITTEES

Overall policy and administrative matters are handled by an Executive Committee comprising heads of 24 national meteorological services. The Executive Committee meets at least once a year to conduct the activities of the organization; review, coordinate, and implement programs; and study and make recommendations on matters affecting international meteorology and the operation of meteorological centers. The Executive Committee establishes panels of experts to review special topics as needed. One of these, the Executive Committee's Panel on Meteorological Aspects of Ocean Affairs (MAOA), was originally created in 1968 to review and provide advice to the Executive Committee on the coordination of meteorological programs with oceanographic programs. In 1976 a resolution was adopted to combine the functions of MAOA with those of the Advisory Committee on Oceanic Meteorological Research (ACOMR) into a new Panel, also called the Executive Committee's Panel on Meteorological Aspects of Ocean Affairs (MAOA). The new Panel's responsibilities are to serve as an advisory body both to WMO and to the Intergovernmental Oceanographic Commission (IOC). Another, the Executive Committee's Panel of Experts on Climatic Change (PECC), is concerned with the effect of the world's oceans on climatic changes and has given high priority to the collection of time series of marine meteorological and oceanographic data. Its Panel of Experts on Environmental Pollution (PEEP) is promoting programs for the development of techniques to measure pollutants and the development of programs to measure specific pollutants. It is especially concerned with monitoring pollutants in open ocean waters and the exchange of data.

WMO has other advisory committees whose functions are to advise the Executive Committee on matters affecting two or more of the specialized commissions. One of these is the Advisory Committee on Operational Hydrology (ACOH), which also serves as an international body through which national hydrological services can advise WMO.

29. WMO COMMISSIONS

Eight specialized commissions form the main body of WMO and are:

1. Commission for Aeronautical Meteorology: CAeM
2. Commission for Agricultural Meteorology: CAgM
3. Commission for Atmospheric Sciences: CAS
4. Commission for Basic Systems: CBS
5. Commission for Hydrology: CHy
6. Commission for Instruments and Methods of Observation: CIMO
7. Commission for Marine Meteorology: CMM
8. Commission for Special Applications of Meteorology and Climatology: CoSAMC

CMM, the most significant of the commissions in respect to marine sciences, has its antecedents in the previously mentioned Conference of 1853. (See entry 27.) It is responsible for the improvement of weather services to the marine community, including the collection of meteorological data for use in preparing forecasts and warnings, the organization of meteorological networks for observations at sea, and the promotion of studies of the meteorological aspects of ocean waves and sea ice.

CAS, in view of its research in air/sea interaction, has the additional responsibility as a source of advice on meteorological aspects of oceanic research. CBS and CIMO are also of interest to marine scientists: CBS is charged with assuring optimum procedures for handling data and CIMO with improving data acquisition and communication. CHy is of peripheral interest and recently developed the Integrated Operational Hydrological System (IOHS) to service water resources management programs and projects in need of a real-time and/or historical design data base. It is also responsible for WMO's Operational Hydrology Programme (OHP).

30. WMO SPECIALIZED COMMITTEES

Specialized committees are established within WMO as needed to handle special tasks or programs. Among the present committees are the GARP Joint Organizing Committee (JOC), which also includes membership from the International Council of Scientific Unions (ICSU); the Tropical Experimental Board (TEB) comprising representatives from WMO member countries who have signified their intention to contribute substantially to the GARP Atlantic Tropical Experiment (GATE) and which acts as the central international body for planning and implementing GATE; and the Tropical Experimental Council (TEC), composed of representatives from member governments whose territories or territorial waters extend into the GATE region and other member governments that plan to contribute to GATE, which is responsible for implementing and reviewing the GATE program. (See entry 347.)

31. WMO REGIONAL ASSOCIATIONS

Six Regional Associations, composed of member governments, coordinate meteorological activities with the respective geographical regions and examine from the regional point of view all questions referred to them. The Regional Associations are:

- RA I: Africa
- RA II: Asia
- RA III: South America
- RA IV: North and Central America
- RA V: South West Pacific
- RA VI: Europe

32. INTERNATIONAL TELECOMMUNICATIONS UNION: ITU

ITU was established in 1865 as the Union Telegraphique Internationale (UTI) and renamed the International Telecommunications Union in 1932. In 1947 ITU became a U.N. specialized agency charged with promoting international cooperation in telecommunications. It promotes the rapid transmission of oceanographic and meteorological data from ocean stations, which are allocated frequencies for their exclusive use by the International Frequency Registration Board (IFRB), a subsidiary of ITU.

33. INTERNATIONAL ATOMIC ENERGY AGENCY: IAEA

An autonomous agency in the U.N. system, IAEA was established in 1957 to promote and develop atomic energy for peaceful purposes and to undertake any service or operation useful in the research and development of the peaceful uses of atomic energy. It also maintains a continuous program on all aspects of radioactive pollution caused by the peaceful uses of atomic energy and has provided detailed guidance, at the international level, for the controlled disposal of toxic waste material at sea.

In 1961, in view of its concern with radioactive fallout in the marine environment, it established a special laboratory in Monaco, the International Laboratory of Marine Radioactivity (ILMR). It participates with other international organizations having similar concerns and cooperates with FAO in a program on using radioactivity to preserve food fish.

In 1970, it established the International Nuclear Information System (INIS). The major purpose of INIS is the creation of a file on the peaceful uses of atomic energy; in addition, a subsystem on environmental aspects of nuclear programs is being developed. With the assistance of WMO, IAEA is compiling a safety guide devoted to coastal sitings of nuclear powerplants. The guide will include methods and models to be used in the determination of high seawater levels caused by storm surges, water setup and runup, and related phenomena.

34. INTERNATIONAL LABOR ORGANIZATION: ILO

Established in 1919, ILO is concerned with working conditions in coastal areas and on the high seas. The control of marine environmental pollution is a major concern, and ILO participates with other international organizations working on pollution.

Joint United Nations Groups

35. FAO/IOC JOINT PANEL OF EXPERTS ON THE AQUATIC SCIENCES AND FISHERIES INFORMATION SYSTEM

Established in 1975, the Joint Panel advises the secretariats of the sponsoring agencies of the Aquatic Sciences and Fisheries Information System (ASFIS) on the policy, development, and implementation of an effective international system for scientific and technical information in marine and freshwater science and technology.

36. INTER-SECRETARIAT COMMITTEE ON SCIENTIFIC PROGRAMMES RELATING TO OCEANOGRAPHY: ICSPRO

Created in 1969 and composed of executive heads of several U.N. organizations (specifically FAO, IMCO, UNESCO, and WMO) having interests in marine sciences, ICSPRO serves as a committee on interagency cooperation in marine sciences and the development of scientific programs in oceanography.

37. JOINT CCOP/IOC GROUPS

The Intergovernmental Oceanographic Commission (IOC) and the Economic and Social Commission for Asia and the Pacific (ESCAP) Committee for the Coordination of Joint Prospecting for Mineral Resources in Asian Offshore Waters (CCOP) are cooperating in two joint programs. One, called the CCOP/IOC Joint Working Group on IDOE Studies in East Asia Tectonics and Resources (SEATAR), originally called the CCOP/IOC Joint Working Group on East Asia Transects, met for the first time in 1975 to formulate the program. The other, a Program of Research for the South Pacific (SOPAC), is in the planning stages.

38. GROUP OF EXPERTS ON THE SCIENTIFIC ASPECTS OF MARINE POLLUTION: GESAMP

A joint FAO, IAEA, IMCO, UN, UNEP, UNESCO, WHO, and WMO group, GESAMP was established in 1969 to provide advice on the scientific and technical aspects of marine pollution problems and to develop proposals for cooperative programs of action with respect to pollution monitoring and control. GESAMP comprises specialized experts from several interested U.N. agencies.

GESAMP's responsibilities include the gathering of scientific data. It recently developed an International Maritime Dangerous Goods (IMDG) code to unify reporting techniques.

39. JOINT IOC/WMO WORKING COMMITTEE FOR IGOSS

IGOSS is supervised by the Joint IOC/WMO Working Committee for IGOSS. This Joint Committee replaced both the IOC working committee for IGOSS and the Joint IOC/WMO Planning Group for IGOSS (IPLAN). The former Joint IOC/WMO Group of Experts superseded the IOC Group of Experts on Oceanographic Research as it relates to IGOSS (IRES), and the Joint IOC/WMO Group of Experts on IGOSS Technical Systems, Design, Development Service Requirements (ITECH), and on Telecommunication (ITEL).

The Joint Committee includes three subgroups approved by its first session in 1978. They are the Sub-Group of Experts on Marine Pollution Monitoring (MARPOLMON), the Sub-Group of Experts on Scientific Matters related to IGOSS, and the Sub-Group of Experts on Operations and Technical Applications.

Independent Organizations

40. ASIAN-AFRICAN LEGAL CONSULTATIVE COMMITTEE: AALCC

Established originally by Asian countries in 1956, AALCC accepted the participation of African countries in 1958. It serves as an advisory body of legal experts to its member countries in matters involving international law and as such is involved with the Law of the Sea Conference, especially with those issues pertaining to the economic zone and to archipelagos.

41. ASSOCIATION OF SOUTHEAST ASIAN NATIONS: ASEAN

Established in 1967 to promote economic growth, cooperation, and mutual education for its member states, Indonesia, Malaysia, Republic of the Philippines, Singapore, and Thailand. It sponsors many projects relating to fishery research and education.

42. BALTIC SEA SALMON STANDING COMMITTEE: BSSSC

Established in 1966, BSSSC fosters the development of salmon stocks, fish-breeding methods, and the rational use of the salmon population. Members are Denmark, the Federal Republic of Germany, Poland, and Sweden.

43. CARIBBEAN COMMUNITY: CARICOM

Established in 1973, CARICOM's programs include the development of fisheries and the shipping industry among the member states.

44. CARIBBEAN ORGANIZATION

Founded in 1942 and known successively as the Anglo-American Caribbean Commission (1942-46), the Caribbean Commission (1946-60), and the Caribbean Organization (1960-65), it ceased operations in 1965. Its goal was to promote research in areas of common interest,

including fisheries. In 1962, it established a Standing Advisory Committee on Fisheries (SAFCO) to coordinate fishery research, development, and training.

45. CENTRAL TREATY ORGANIZATION: CENTO

Organized in 1955 as the Middle East Treaty Organization, and renamed the Central Treaty Organization in 1959, CENTO promotes research in areas of mutual interest, including marine sciences. Member nations are Iran, Pakistan, Turkey, and the United Kingdom.

46. COLOMBO PLAN COUNCIL FOR TECHNICAL COOPERATION IN SOUTH AND SOUTHEAST ASIA

Established in 1950, the Council administers the Colombo Plan, which provides for promoting the economic development of south and southeast Asia, including the development of marine resources, by providing technical assistance in the form of training facilities, expert advice, and equipment.

47. COMMISSION FOR FISHERIES RESEARCH IN THE WESTERN PACIFIC

Established in 1956 by treaty, the Commission plans joint research and exploration, exchanges information, and provides conservation measures to protect fishery resources. Member nations are the People's Republics of China, Mongolia, North Korea, Vietnam, and the Union of Soviet Socialist Republics.

48. COMMISSION ON FISHING AND CONSERVATION OF THE LIVING RESOURCES IN THE BALTIC SEA AND THE BELTS

Proposed by the International Council for the Exploration of the Sea (ICES), the Commission was ratified by the member nations and formally established in 1974. Its objectives include promotion of the renewal of living resources, collection of necessary data, coordination of scientific research, and development of methods to prevent pollution.

49. CONFERENCE OF MINISTERS OF ARAB STATES RESPONSIBLE FOR THE APPLICATION OF SCIENCE AND TECHNOLOGY TO DEVELOPMENT: CASTARAB

Organized in 1976 under the leadership of UNESCO, CASTARAB meets every 3 years to discuss outstanding science and technology issues in the Arab world and to consider cooperative programs. At its first meeting the ministers endorsed a regional project for marine science studies of the Persian Gulf.

50. COORDINATING COMMITTEE ON GREAT LAKES BASIC HYDRAULIC AND HYDROLOGIC DATA: CCGLBHHD

Established in 1953, CCGLBHHD studied the problem of establishing a base for the development and acceptance by Canada and the United States for coordinated hydraulic and hydrologic data for the Great Lakes.

51. COUNCIL FOR MUTUAL ECONOMIC ASSISTANCE: CMEA

Established in 1949 to promote and coordinate planned development of the economics of its member governments, CMEA has recently expanded its interests to include an awareness of the human environment and is especially concerned with protecting water resources and the development of fisheries. Member governments are Albania, Bulgaria, Czechoslovakia, the Democratic Republic of Germany, Hungary, Mongolia, Poland, Romania, the Union of Soviet Socialist Republics, and Yugoslavia.

52. COUNCIL OF EUROPE: CE

Originated in 1949, CE concerns itself with problems of interest to its member nations and sponsors meetings and symposia regarding these concerns, one of which is the protection of international waterways from pollution; another is the legal issues concerning the use of the seabed and its subsoil. In 1970 its members proposed the establishment of the European Ocean Space Commission to unify interests of the nations of Western Europe in the scientific aspects of ocean activities.

53. EAST AFRICAN COMMUNITY: EAC

Established in 1962 as the East African Common Services Organization, EAC had its name changed to East African Community in 1967. Problems and activities common to its members were its concerns until recent years, when it collapsed because of political unrest. Marine activities were the responsibility of the East African Marine Fisheries Research Organization (EAMFRO), organized in 1953 to investigate the commercial sea fisheries of the East African coast and later made a part of EAC. From 1972 until it collapsed with EAC, EAMFRO was active in marine pollution research. It included a research staff and operated three research vessels. Participating countries were Kenya, Tanzania, and Uganda.

54. EAST ASIA HYDROGRAPHIC COMMISSION: EAHC

EAHC is an independent regional hydrographic commission established in 1971 and comprising chiefs of hydrographic offices or services of Burma, China, Indonesia, Japan, Philippines, and Thailand. Though independent, it operates within the framework of the International Hydrographic Organization (IHO).

55. EUROPEAN ATOMIC ENERGY COMMUNITY: EURATOM

Established in 1958, EURATOM contributes to the raising of standards of living in member states by promoting the development of nuclear industries. It also takes preventive measures to protect the environment, including the marine environment, from nuclear accidents and from the haphazard disposal of nuclear wastes.

56. EUROPEAN ECONOMIC COMMUNITY: EEC

Also called the "Common Market," EEC came into effect in 1958 following the ratification of a treaty by Belgium, France, Italy, Luxembourg, the Netherlands, and West Germany. Denmark, Ireland, and the United Kingdom joined it in 1973. Its purpose is to work toward a customs-free union and free flow of goods and services. It also takes an active interest in fishery research and fishing industries and includes the Cooperation Europeenne dans le Domaine de la Recherche Scientifique et Technique (COST), which concerns itself with oceanography, among other things; and a Consultative Committee on Fisheries which includes an Aquaculture Working Group (AWG). It sponsors the Association of Fish Industries of the EEC, known as AIPCEE for Association des Industries du Poisson de la CEE, founded in 1959; and EUROPECHE, the Association of National Organizations of Fishing Enterprises of the EEC, founded in 1962.

Other areas of concern of EEC are the development of a common fishery policy in the light of the creation of 200-mile economic zones, development of alternate energy sources using resources of the continental shelf, development of mineral resources of the continental shelf and the international seabed, and the prevention of marine pollution.

57. EUROPEAN SPACE AGENCY: ESA

Established originally in 1962 and reestablished in 1975 upon signature of a new convention, it promotes collaboration among European nations in space research and technology for peaceful purposes, such as remote sensing of estuarine and coastal waters. Recently it promoted the SEASAT Users Group of Europe (SURGE) to cooperate with U.S. agencies responsible for SEASAT.

58. GREAT LAKES FISHERY COMMISSION: GLFC

Established by the convention on Great Lakes fisheries ratified in 1955 by Canada and the United States, GLFC was activated in 1956 to develop coordinated programs of research in the Great Lakes and, on the basis of findings, to recommend measures that will permit the maximum sustained production of fish of common concern. It is also responsible for the project to formulate and implement a program to eradicate or reduce the sea lamprey population in the Lakes.

59. INTER-AMERICAN DEVELOPMENT BANK: IADB

Established in 1959, IADB has members from most of the autonomous countries in the Western Hemisphere and nonregional developed countries elsewhere that have joined solely as contributors of resources. IADB accelerates the economic development of its member states by guaranteeing loans and providing technical assistance and advice. Its programs include development of fisheries, the fishing industry, and ports; and the promotion of education and training. Its policies and guidelines include requirements related to the protection of the environment before projects are approved.

60. INTER-AMERICAN TROPICAL TUNA COMMISSION: IATTC

Originally founded in 1950 by convention between Costa Rica and the United States, IATTC now has six more members: Canada, France, Japan, Mexico, Nicaragua, and Panama. Ecuador, once a member, has since withdrawn. IATTC is responsible for studying the biology, ecology, and population dynamics of the tunas and related species of the eastern Pacific Ocean with a view to determining how fishing activities or other forces affect their natural abundance and for recommending appropriate conservation measures so that stocks of fish can be maintained at levels that will afford maximum sustained catches if or when the Commission's research show such measures to be necessary.

Investigations at sea and in the laboratory are made by a permanent, internationally recruited research staff operating under the direction of the Director of Investigations, who is responsible to the Commission. In 1976-77 it was an active participant in the IDOE/CUEA Joint II program to study currents and other phenomena off the coast of Peru.

61. INTERNATIONAL BALTIC SEA FISHERY COMMISSION: IBSCF

Established in 1974 to coordinate scientific research and to submit recommendations regarding the control of fishing; the regulations of fishing gear, the size limit of fish, closed seasons and area; the allocation of catch among member countries; and means of implementing and enforcing regulations. Member countries are Denmark, Federal Republic of Germany, Finland, German Democratic Republic, Poland, Sweden, and Union of Soviet Socialist Republics.

62. INTERNATIONAL COMMISSION FOR THE CONSERVATION OF ATLANTIC TUNAS: ICCAT

Though organized in 1966, ICCAT did not come into force until 1969. Its functions are to promote research on the stocks of Atlantic tunas and to recommend methods for their conservation. Member nations are Brazil, Canada, Cuba, France, Ghana, Ivory Coast, Japan, Korea, Morocco, Portugal, Senegal, South Africa, Spain, and the United States. While FAO was instrumental in organizing ICCAT, the Commission is an independent organization.

63. INTERNATIONAL COMMISSION FOR THE NORTH WEST ATLANTIC FISHERIES: ICNAF

Established by international convention in 1950, ICNAF helps investigate, protect, and conserve the fisheries of the Northwest Atlantic, west of longitude 42°W and north of latitude 39°N. It sponsors oceanographic investigations of fish stocks and proposes conservation measures. Its standing committees include the Standing Committee for Research and Statistics (STACRES) which provides advice on fishing conservation. Canada, United States, and a number of European countries were member countries. In 1977-78, both Canada and the United States withdrew their membership from ICNAF, because much of its responsibilities covered areas incorporated in the 200-mile Exclusive Economic Zone (EEZ) established by each country. Plans are currently being developed to replace ICNAF with a new organization known as the Northwest Atlantic Fisheries Organization (NAFO).

64. INTERNATIONAL COMMISSION FOR THE SCIENTIFIC EXPLORATION OF THE MEDITERRANEAN SEA: ICSEM

An intergovernmental regional scientific organization established in 1919, ICSEM promotes research in the Mediterranean and serves as a liaison between scientists and laboratories throughout the region. It was one of the sponsors of the Cooperative Investigations in the Mediterranean (CIM) Program, which is now in abeyance.

65. INTERNATIONAL COUNCIL FOR THE EXPLORATION OF THE SEA: ICES

Established in 1901, ICES is recognized as the oldest of the international regional organizations in the fields of oceanography and fishery research. Its prime area of interest is the northeastern Atlantic Ocean; it also has worldwide interest. Annual meetings are held. Through standing committees and working groups, it encourages various research connected with the exploration of the seas. It coordinates the marine science activities of its participating countries, which include most of the countries of Europe, Iceland, Canada, and, recently, the United States. It operates the Service Hydrographique, a center forming part of the World Data Center system and responsible for maintaining and servicing data from the ICES area of interest and data contributed by member countries. The Service Hydrographique acted as the Regional Data Center (RDC) for the recently terminated Cooperative Investigations of the Northern Part of the Eastern Central Atlantic (CINECA).

In addition, ICES is a scientific adviser to the International Commission for the Northwest Atlantic Fisheries (ICNAF); the Northeast Atlantic Fisheries Commission (NEAFC); and the Commission on Fishing and Conservation of the Living Resources in the Baltic Sea and the Belts, which was organized in 1974 at the recommendation of ICES.

In 1977, ICES established an Advisory Committee on Fishery Management (ACFM) comprising the chairmen of the several special committees

dealing with fisheries such as demersal or pelagic fisheries and Baltic fishing and representatives from national delegations who wish to participate.

66. INTERNATIONAL HYDROGRAPHIC ORGANIZATION: IHO

Organized in 1970 by ratification of the Convention on the International Hydrographic Organization, IHO legally assumed the international intergovernmental responsibilities formerly held by the International Hydrographic Bureau (IHB), which now serves as the administrative or headquarters facility for IHO.

IHB was founded in 1921, following a recommendation of the International Hydrographic Conference, to serve as a liaison between hydrographic services of the maritime countries. It coordinates the work of the national services, advises regional hydrographic organizations, endeavors to obtain uniformity in hydrographic documents, advances the science of hydrography, and facilitates the free exchange of hydrographic charts and information. It serves as the World Data Center for the collection of information on oceanic soundings taken outside the continental shelf. Under the direction of the Joint IOC/IHO Guiding Committee for the General Bathymetric Chart of the World (GEBCO), it is responsible for coordinating the compilation of master plotting sheets on a scale of 1:1,000,000 that are prepared by member countries on an assigned area basis; these form the basis of GEBCO, which is published in 18 sheets on a scale of 1:10,000,000.

The International Hydrographic Convention (IHC) held every 4 years, serves as the convention for representatives of the various hydrographic services. Policy matters to be administered by IHB are established by the Convention.

67. INTERNATIONAL ICE PATROL: IIP

After the sinking of the SS Titanic in 1912, following its collision with an iceberg, an International Conference for Safety of Life at Sea was held. It recommended the establishment of IIP, which, by agreement, is managed by the United States.

The task is the assigned responsibility of the U.S. Coast Guard (USCG), which patrols the shipping lanes and warns of dangers from icebergs. It also makes scientific studies of currents and ice drifts and takes standard oceanographic observations in the assigned area in the vicinity of the Great Banks of Newfoundland, Baffin Bay, and the Labrador Sea.

68. INTERNATIONAL JOINT COMMISSION: IJC

A permanent body organized in 1911, IJC carries out the provisions of the Boundary Waters Treaty of 1909 to prevent disputes over and solve common problems relating to boundary waters between Canada and the United States, especially in the Great Lakes area. Current IJC investigations include regulation of Great Lakes levels, studies of pollution, and supervision of the operation and maintenance of the St. Lawrence Seaway and Power Project. Two advisory boards, established by IJC, report on the extent of pollution in their respective areas and recommend control measures. They are the International Lake Erie Water Pollution Board (ILEWPB) and the International Lake Ontario and St. Lawrence River Water Pollution Board (ILOSRLWPB).

69. INTERNATIONAL NORTH PACIFIC FISHERIES COMMISSION: INPFC

Convened in 1953 following the 1952 International Convention for the High Seas Fisheries of the North Pacific Ocean, INPFC is

responsible for promoting and coordinating scientific studies necessary to ascertain the conservation measures required to secure the maximum sustained productivity of fisheries of joint interest to the three participating countries: Canada, Japan, and United States.

70. INTERNATIONAL PACIFIC HALIBUT COMMISSION: IPHC

Established in 1925 under the terms of the 1923 Convention between Canada and the United States, IPHC has been responsible for scientific investigations and regulation of stocks of the Pacific halibut, development of stocks to levels that will permit maximum sustained yields, and for maintaining stocks at the maximum level. After the passage in 1976 of the Fisheries Conservation and Management Act, the U.S. was required to renegotiate the terms of the agreement and gave formal notice to withdraw from IPHC. A protocol to amend the convention was later agreed on by the United States and Canada, however, and IPHC functions as before.

71. INTERNATIONAL PACIFIC SALMON FISHERIES COMMISSION: IPSFC

Established in 1937 by Canada and the United States, IPSFC aims to preserve, protect, and extend the fisheries for sockeye and pink salmon of the Fraser River and its tributaries.

72. INTERNATIONAL WHALING COMMISSION: IWC

Though agreements to restrict whaling had been signed by several of the whaling nations in 1937 and 1938, IWC was not formed until 1946. Its missions are to preserve the world's stock of whales, sponsor research on whales, and establish regulations to protect stocks.

According to the terms of the Convention, IWC maintains a special relationship with the Bureau of International Whaling Statistics (BIWS), established in 1929 upon recommendation of the International Council for the Exploration of the Sea (ICES). Wholly maintained by the Norwegian Government, BIWS publishes statistics on whaling throughout the world.

73. JAPAN-CHINA JOINT FISHERIES COMMISSION: JCFC

Established in 1975, JCFC recommends conservation measures, exchanges data, and studies fishery resources in the Yellow and East China Seas.

74. JAPAN-KOREA JOINT FISHERIES COMMISSION: JKFC

Established in 1965, JKFC recommends scientific investigations and conservation measures including provisional regulatory measures.

75. JAPANESE-SOVIET FISH COMMISSION: JSFC

Established in 1956, JSFC regulates catches in the northwestern Pacific Ocean, coordinates joint scientific research programs, and organizes international efforts at enforcing regulations.

76. JOINT PANEL FOR NORDIC/IHD COOPERATION: NUTSAM

Organized in 1967 and comprising the secretaries of the five Nordic national committees for the International Hydrological Decade (IHD), NUTSAM acts as the coordinating body for the free exchange of ideas and the evaluation of proposed projects. It is responsible for the preparation of a regional position on Nordic hydrology and plans and conducts symposia and conferences. In 1970, it founded the Nordic Hydrological Association (NHA).

77. LEAGUE OF ARAB STATES: LAS

Established in 1945, LAS coordinates activities of the Arab states in political, economic, financial, and health matters. It is currently concerned with developing programs relating to marine pollution control and the development of related training programs. It lent its support to IMCO and UNDP in the establishment of the Arab Maritime Transport Academy.

In 1964 it organized the Arab Educational, Cultural, and Scientific Organization (ALECSO). One of ALECSO's major programs is the environmental study and protection of the Red Sea and Gulf of Aden. Plans for the programs were proposed in 1974 and formalized in 1976 with the signing of the Jidda Declaration committing the member countries to ensure the proper scientific development and protection of their marine environment.

78. MEDITERRANEAN AND BLACK SEA HYDROGRAPHIC COMMISSION: MBSHC

An independent regional hydrographic commission formed of representatives from hydrographic offices or related services from countries bordering the Mediterranean and Black Seas. It cooperates with and operates within the framework of the International Hydrographic Organization (IHO).

79. MIXED COMMISSION FOR BLACK SEA FISHERIES: MCBSF

Organized in 1960, MCBSF develops programs for regulating fishing to conserve resources, develops techniques of commercial fishing, coordinates scientific research projects, and exchanges data. Members are Bulgaria, Romania, and Union of Soviet Socialist Republics.

80. MIXED COMMISSION FOR COOPERATION IN MARINE FISHING: MCCMF

Organized in 1973, MCCMF plans scientific and technical cooperation and mutual assistance in the development of fishing in the open sea, exchanges data, and plans conferences and meetings. Members are Bulgaria, German Democratic Republic, Poland, Romania, and Union of Soviet Socialist Republics.

81. NORTH ATLANTIC TREATY ORGANIZATION: NATO

Established in 1949, primarily as a military alliance to provide mutual protection for its member governments, NATO was authorized, by a 1956 decision, to expand its nonmilitary cooperative activities and include the furtherance of scientific progress through support of cooperative and collaborative efforts of scientists.

Organizations within NATO of interest to marine scientists are the Sub-Committee on Oceanographic Research; the Advisory Group for Aerospace Research and Development (AGARD), which sponsors many research projects, including those in air/sea interaction and subsurface communications; the Supreme Allied Command, Atlantic (SACLANT), which coordinates the oceanographic activities of NATO, directs the Military Oceanography Synoptic Surveys (MILOC), which take place in the eastern Atlantic Ocean and Mediterranean Sea, and supervises the Anti-Submarine Warfare Research Center (SACLANTEN), which performs research in acoustics and instrumentation; and the Committee on the Challenges of Modern Society (CCMS), which encourages member countries to undertake studies of environmental problems, such as oil pollution of the seas and coastal pollution in general, and to disseminate the resultant data throughout the world community. In response to the world's concern over the environment, NATO established in 1971 an Advisory Panel on Earth Sciences. In September and October 1979 it conducted a program of Marine Remote Sensing in the North Sea (MARSEN).

82. NORTHEAST ATLANTIC FISHERIES COMMISSION: NEAFC

The Permanent Commission of the International Fisheries Convention (PCIFC) was established in 1946 to enforce the provisions of the 1946 International Fisheries Convention regulating meshes of fishing nets and the size limits of fish. PCIFC was superseded in 1959 by NEAFC, which works closely with both the International Council for the Exploration of the Sea (ICES) and the International Commission for the Northwest Atlantic Fisheries (ICNAF). With the latter, it shares in a mutual policing system whereby enforcement officers may board ships and inspect fishing vessels of member countries while on the high seas.

83. NORTH PACIFIC FUR SEAL COMMISSION: NPFSC

Though not formally established until 1958, in accordance with the Convention of 1957 between Great Britain, Japan, USSR, and United States, NPFSC has antecedents that date to the Fur Seal Treaty of 1911. It is responsible for formulating and coordinating research programs to achieve the objects of the Convention, which are to ensure the maximum sustained productivity of the fur seal resources.

84. NORTH SEA HYDROGRAPHIC COMMISSION: NSHC

In realization of the growing hydrographic problems in the North Sea and the need for mutual cooperation to solve the problems, Dutch and Swedish hydrographers proposed the establishment of a North Sea Hydrographic Commission, which was formally established in 1962. It patterned itself somewhat on the Scandinavian Hydrographic Union (SHU), and three member nations serve on both organizations--Denmark, Norway, and Sweden. Other members of NSHC are Federal Republic of Germany, France, Great Britain, and the Netherlands. NSHC was responsible for the cooperative hydrographic survey that resulted in the 4-sheet International Chart of the North Sea. It is now concerned with the exploration and use of the Sea for energy sources and is developing policies relative to these activities. It is developing deepwater routes and the means of displaying them on charts. Cooperative training programs are also being developed.

85. NORTH SEA INTERNATIONAL CHART COMMISSION: NSICC

Established in 1973 upon recommendation of the North Sea Hydrographic Commission, NSICC includes Canada, Denmark, France, Federal Republic of Germany, Iceland, Netherlands, Norway, Sweden, United Kingdom, and United States. It is responsible for establishing specifications for international charts of the North Sea on medium and large scales.

86. ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT: OECD

Established in 1961, replacing the Organization for European Economic Cooperation (OEEC), which was formed in 1948, OECD is responsible for promoting economic growth and financial stability, for developing the world economy, and for expanding world trade.

It sponsors intergovernmental services for shipping and related marine activities and has a standing committee on fishing. It encourages economic development of marine resources in the developing countries and promotes cooperative research between laboratories working in similar fields. One of its cooperative projects, research into the causes of fouling and corrosion of ship hulls, led to the establishment of the Permanent International Committee for Research on the Preservation of Materials in the Marine Environment.

An Environment Committee (OECD/ENV) was organized within OECD to deal with the economic implications of environmental problems and

to advance cooperation in dealing with these matters among its member nations. Several cooperative environmental projects deal with the technical and economic aspects of water pollution.

The European Nuclear Energy Agency (ENEA) was established within OEEC in 1957. Still a part of OECD, ENEA has responsibilities that include a special interest in the management and disposition of radioactive wastes in the marine environment.

87. ORGANIZATION OF AFRICAN UNITY: OAU

Organized in 1963 to coordinate cultural, political, scientific, and economic policies among the African members, OAU succeeded to the functions of many previous organizations that dated back to 1958. In 1965, it absorbed the Commission for Technical Cooperation in Africa South of the Sahara, known as CCTA for its French name, Commission pour la Cooperation Technique en Afrique, which was then renamed the Scientific Technical Research Commission (OAU/STRC). Among other projects, OAU/STRC and its predecessor, CCTA, sponsored the Guinean Trawling Survey (GTS). It is currently coordinating a unified African approach to issues involved in the Law of the Sea Conference (LOSC).

The Scientific Council for Africa, known as CSA, for Conseil Scientifique d'Afrique, established in 1965 and composed of scientists representing the main scientific disciplines important to the development of Africa, provides scientific advice to OAU. The Inter-African Committee for Oceanography, Marine Biology, and Sea and Inland Fisheries, established in 1972 upon recommendation of CSA, advises OAU on the development of training and education, establishment of regional fishery research institutions, elaboration of international conventions on fishery jurisdictions, and management and conservation of the living resources of the sea.

88. ORGANIZATION OF AMERICAN STATES: OAS

Though formally established in 1951, OAS has antecedents that date back to 1890 with the establishment of the International Union of American Republics, later known as the Pan American Union (PAU). With the establishment of OAS, PAU became the general secretariat responsible for carrying out programs and other administrative activities of OAS.

In its charter, OAS is described as a regional agency within U.N. This affiliation is, however, limited to the settlement of disputes and maintenance of peace; in all other activities it acts independently of UN.

In recent years OAS has expanded its interests in marine areas and now promotes a Multinational Marine Science Project (MMSP) to support research particularly in the coastal and continental shelf areas. It is cooperating in marine projects in 12 countries and helps maintain 14 research centers offering training, facilities, and data. Assistance for fishery projects is another major area of interest. Many of its activities are carried out through the Inter-American Economic and Social Council (IA-ECOSOC), which promotes scientific research in areas of common interest.

Among its several specialized and autonomous organizations are two that have some interests in marine sciences: the Pan American Institute of Geography and History (PAIGH), originally established in 1928, encourages and supports activities in oceanography; and the Pan American Health Organization (PAHO) serves as the regional office of the World Health Organization (WHO) and has activities, including those in the marine field, that parallel those of WHO.

89. PERMANENT COMMISSION OF THE SOUTH PACIFIC: PCSP

Established in 1952 by Chile, Ecuador, and Peru and more frequently referred to as CPPS for its Spanish title, Comision Permanente del Pacifico Sur, it is responsible for holding regular conferences on the use, conservation, and regulation of the fishery resources of the three member countries. A member of CPPS has been present when members of the CEP (Chile-Ecuador-Peru) block nations have met to discuss fishery disputes with other nations, particularly the United States. Its activities are coordinated by its Comision Coordinadora de las Investigaciones Cientificas (COCIC).

One of its major efforts of recent years has been the coordination of the program Regional Studies of the Phenomenon Known as "El Nino," identified by its acronym ERFEN for its Spanish title "Estudio Regional del Fenomeno El Nino."

PCSP has also been known as the Permanent Commission on the Exploitation and Conservation of the Maritime Resources of the South Pacific, the Standing Committee of the Conference on Use and Conservation of the Marine Resources of the South Pacific, or the Permanent Commission for the Conservation of the Maritime Resources of the South Pacific. Occasionally it is referred to as the South Pacific Commission, which is a misnomer, as it has no relation to the South Pacific Commission, described in entry 93.

90. SCANDINAVIAN HYDROGRAPHIC UNION: SHU

Organized in 1929 as a regional cooperative venture, the Union encourages the exchange of information regarding research and technical details pertaining to nautical chart production and hydrography. All the Scandinavian nations are members. It is independent of, but cooperates fully with, the International Hydrographic Organization (IHO).

91. SOUTHEAST ASIA TREATY ORGANIZATION: SEATO

Organized in 1954, SEATO provides for the collective defense of the southeastern Asian countries and promotes programs in economic, social, medical, scientific, and technical fields, including those relating to marine sciences. It also provides technical assistance to member nations.

92. SOUTH CHINA SEA HYDROGRAPHIC COMMISSION: SCSHC

Proposed at the 6th U.N. Regional Cartographic Conference for Asia and the Far East held in 1970.

93. SOUTH PACIFIC COMMISSION: SPC

Established in 1947 by agreement of the six nations responsible for administering territories in the South Pacific: Australia, France, Great Britain, New Zealand, the Netherlands, and United States, SPC is concerned with the health and economic development of the area and supports the South Pacific Island Fishery Development Agency (SPIFDA). Development of marine resources is a major activity, and projects have included the introduction of new species of fish food, investigations of fish toxicity, seawater distillation, training of personnel, and establishment of fishery research institutes.

94. UNITED STATES-FRANCE COOPERATIVE PROGRAM IN OCEANOGRAPHY

An agreement exists between France and the United States to cooperate in areas of mutual concern. FAMOUS, the French-American Mid-Ocean Undersea Study, is an example of such cooperation.

95. UNITED STATES-JAPAN COOPERATIVE PROGRAM IN NATURAL
RESOURCES: UJNR

Established in 1964 by bilateral agreement between Japan and the United States, UJNR promotes coordination of efforts between the two nations and encourages the exchange of scientists, data, and information. Activities of the overall program include the United States-Japan Science Program (UJSP), which includes basic and academic ocean research. UJSP receives guidance from the Marine Resources and Engineering Coordinating Committee (MRECC) of UJNR. UJNR establishes many panels that change as needed to work in specific areas. As of 1977 panels actively involved in marine science affairs were the Sea Bottom Surveys Panel, the Panel on Marine Observations and Forecasting, the Panel on Marine Electronics and Communications, the Panel on Diving Technology, the Panel on Marine Mining, the Panel on Marine Geology, and the Panel on Marine Facilities.

96. UNITED STATES-SPAIN SCIENTIFIC COOPERATION

In accordance with a treaty signed in August 1970, Spain and the United States cooperate in several scientific programs, one of which is the Sahara Upwelling Experiment (SUE), in the CINECA area.

97. UNITED STATES-UNION OF SOVIET SOCIALIST REPUBLICS JOINT
COMMITTEE ON COOPERATION IN WORLD OCEAN STUDIES

Though the United States and the Soviets have been cooperating informally in oceanographic activities for many years, the cooperation was formalized by signed agreement on June 19, 1973. The Joint Committee meets once a year to implement the program. Areas of cooperation include studies of large-scale ocean-atmosphere interaction, ocean currents and ocean dynamics, geochemistry and marine chemistry, geological and geophysical investigations, biological productivity and biochemistry, and intercalibration and standardization of instruments and methods. As a result of the agreement, the Soviets plan contribute and participate in the Deep Sea Drilling Project (DSDP), which has been renamed the International Phase of Ocean Drilling (IPOD).

98. UNITED STATES-UNION OF SOVIET SOCIALIST REPUBLICS JOINT
WORKING GROUP ON THE EFFECTS OF POLLUTANTS ON MARINE ORGANISMS

Organized under the terms of the Agreement on Cooperation in the Field of Environmental Protection, signed by the two countries in May 1972, the Joint Committee explores and proposes mutual cooperative programs for controlling pollution of the ocean waters. The program also calls for the exchange of information on research activities in the field. As a result of the agreement, the Joint Group approved the establishment of a joint marine environmental monitoring network to measure the effects of pollution on marine organisms and to disseminate the data. A bimonthly journal, to be published simultaneously in both countries, is planned. Exchange of scientists is also planned.

99. WEST AFRICAN ECONOMIC COMMUNITY: CEAO

Known by the initials of its French name, Communauté Economique de l'Afrique de l'Ouest and sometimes by the initials ECOWAS, Economic Community of West African States, CEAO was originally established by treaty in 1959 as the Customs Union of West African Countries and renamed in 1974. Its functions include promoting cooperation and development in all fields of economic activities among its member states. It is concerned with the conservation and development of fishery resources, development of ports and fishing fleets, promotion of fishing industries, and the harmonization of fishery legislation among its member countries.

B. NONGOVERNMENTAL ORGANIZATIONS

International Council of Scientific Unions

100. INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS: ICSU

Established in 1919 as the International Research Council (IRC) and renamed the International Council of Scientific Unions in 1931, ICSU facilitates and coordinates activities of the international scientific unions. Six unions composed IRC when it was first created.

New unions may be added upon appropriate justification, and 18 now make up the Council as follows:

International Astronomical Union: IAU
International Geographical Union: IGU
International Union of Biochemistry: IUB
International Union of Biological Sciences: IUBS
International Union of Crystallography: IUC
International Union of Geodesy and Geophysics: IUGG
International Union of Geological Sciences: IUGS
International Union of Pharmacology: IUPHAR
International Union of Pure and Applied Chemistry: IUPAC
International Union of Pure and Applied Physics: IUPAP
International Union of Pure and Applied Biophysics: IUPAB
International Mathematical Union: IMU
International Union of Radio Science: IURS
International Union of History and Philosophy of Science: IUHPS
International Union of Nutritional Sciences: IUNS
International Union of Physiological Sciences: IUPS
International Union of Theoretical and Applied
Mathematics: IUTAM
International Union of Immunological Societies (IUIS)

At its 15th General Assembly, held in 1967, IAPSO--the International Association for the Physical Sciences of the Ocean and a member of the International Union of Geology and Geophysics (IUGG)--proposed the creation of an International Union of Marine Sciences (IUMS). The proposal has yet to be accepted. Opposition to such a union centers on the interdisciplinary nature of oceanography; many on the Council feel that scientists prefer to be associated with their fellow scientists in the major discipline of their choice, e.g., geology, chemistry, biology.

Each union within ICSU comprises one or more independent associations, each representing a discipline falling within the scope of the parent union. Associations of interest to marine scientists are included in the more detailed descriptions of the several unions with interests in the marine sciences that follow. Most important to marine scientists are IAPSO, a member of IUGG; IABO, a member of IUBS; and CMG, a commission within IUGS. Entries 101 through 132 pertain to ICSU.

101. INTERNATIONAL GEOGRAPHICAL UNION: IGU

Founded in 1922 to promote the study of geographical problems, IGU initiates and coordinates research and provides for scientific discussion and publication. It promotes two permanent services of interest, the Bibliographie Geographique Internationale and the Bibliographie Cartographie Internationale.

Commissions are appointed as needed. One recently active but now defunct group was the Commission on the International Hydrological Decade. The now defunct Commission on Coastal Geomorphology evolved

into a Working Group established in 1972 to study the dynamics of shoreline erosion.

Entry 102 below describes an IGU Association of interest to marine scientists.

102. INTERNATIONAL CARTOGRAPHIC ASSOCIATION: ICA

A member of IGU, ICA was founded in 1959 to advance the study of cartographic programs, institute research, promote training, and serve as a forum for nationals to exchange ideas and documents. In recent years it has become interested in the mapping of the ocean floors and has established a Working Group on Ocean Cartography. It has sponsored several conferences on this topic and is developing a bibliography on oceanic cartography.

103. INTERNATIONAL UNION OF BIOLOGICAL SCIENCES: IUBS

Founded in 1919, IUBS promotes the development of the different branches of pure and applied biology, including marine biology. It provides an advisory committee to assist in the operation of the Naples Zoological Station in Italy, an internationally known marine laboratory.

Member associations with interests in marine sciences are described in entries 104 through 107.

104. INTERNATIONAL ASSOCIATION FOR ECOLOGY: IAE

Founded in 1967, IAE assumed the work of the former IUBS Commission on Applied Ecology--the promotion of the science and practice of ecology.

105. INTERNATIONAL ASSOCIATION OF BIOLOGICAL OCEANOGRAPHY:
IABO

Founded in 1966 to promote the advancement of knowledge of the biology of the seas, IABO also serves to provide or improve contacts between biological oceanographers. It participates in numerous cooperative programs such as the Joint Oceanographic Assembly (JOA) or the International Southern Ocean Studies (ISOS). In 1975 it established a permanent Coral Reef Committee.

106. INTERNATIONAL ASSOCIATION OF MICROBIOLOGICAL SCIENCES:
IAMS

Established in 1930.

107. INTERNATIONAL ASSOCIATION OF THEORETICAL AND APPLIED
LIMNOLOGY: IAL

Founded in 1922 as the International Association of Limnology, IAL continues to use its old initialism to identify the present organization.

108. INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS: IUGG

The largest of the ICSU unions and the most important to marine scientists, IUGG was created in 1919 by uniting six previously autonomous associations--Geodesy, Geomagnetism, Seismology, Meteorology, Physical Oceanography, and Volcanology--antecedents of some of which began as early as 1862. In 1922, the addition of Hydrology made a total of seven. Descriptions follow in entries 109 through 116.

109. INTERNATIONAL ASSOCIATION OF GEODESY: IAG

Founded in 1962, IAG includes among its commissions the International Gravity Commission (IGC), whose purpose is to promote scientific investigations of the gravity field of the Earth. IGC is

served by the International Gravimetric Bureau (IGB) of the Federation of Astronomical and Geophysical Services (FAGS). IAG also includes the Commission on Recent Crustal Movements (CRCM), which, in 1976, began the International Center on Recent Crustal Movements (ICRCM) in Prague. CRCM has proposed the establishment of a World-wide Geometrical Position Reference Network.

110. INTERNATIONAL ASSOCIATION OF GEOMAGNETISM AND AERONOMY: IAGA
Included in IAGA is the World Magnetic Survey Board or WMSQ, responsible for the World Magnetic Survey (WMS).

111. INTERNATIONAL ASSOCIATION OF HYDROLOGICAL SCIENCES: IAHS
Formerly called the International Association of Scientific Hydrology (IASH), IAHS has among its commissions the International Commission of Snow and Ice (ICSI), which sponsors many programs relating to the study of sea ice, including the AIDJEX project and the Baffin Bay-North Water Project. Another is the International Commission on Water Quality (ICWQ), formerly the International Hydrochemical Commission (IHC).

112. INTERNATIONAL ASSOCIATION OF METEOROLOGY AND ATMOSPHERIC PHYSICS: IAMAP

IAMAP cooperates with the World Meteorological Organization on the international program known as Global Atmospheric Research Program (GARP). Included in IAMAP are three commissions of interest: the Commission on Atmospheric Chemistry and Global Pollution (CACGP) which is concerned with the transport of pollutants from the atmosphere to the ocean; the International Advisory Commission on Marine Sciences (IACOMS); and the International Commission on Polar Meteorology (ICPM).

A proposal to change its name to the International Association for Atmospheric Science (IAAS) is being considered.

113. INTERNATIONAL ASSOCIATION FOR THE PHYSICAL SCIENCES OF THE OCEAN: IAPSO

Established in 1931 as the International Association of Physical Oceanography (IAPO), IAPSO assumed the functions of the Oceanographic Section of IUGG originally established in 1919. In 1967, in recognition of the broad spectrum of oceanography, which includes chemical and geological sciences as well as the physical sciences, its name was changed to the International Association for the Physical Sciences of the Ocean and its functions were broadened to reflect the changes. IAPSO's fundamental components are the Commissions on Marine Geophysics, Marine Chemistry, and Physical Oceanography. It also includes a Committee on Tides and Mean Sea Level, which serves as the scientific adviser to the Permanent Service for Mean Sea Level (PSMSL). The Committee on GEBCO which served as the scientific adviser to the International Hydrographic Organization (IHO) has been abolished and is now the responsibility of a Joint IOC/IHO Guiding Committee for GEBCO. When needed, IAPSO establishes working groups to explore specific questions. Together with IAMAP it has formed a Joint IAMAP-IAPSO Committee on Air-Sea Interaction.

114. INTERNATIONAL ASSOCIATION OF SEISMOLOGY AND PHYSICS OF THE EARTH'S INTERIOR: IASPEI

Founded in 1901, IASPEI collects and disseminates data on earthquakes, tsunamis and other oceanic waves of seismic origin, gravity anomalies, and related topics.

115. INTERNATIONAL ASSOCIATION OF VOLCANOLOGY AND CHEMISTRY OF THE EARTH'S INTERIOR: IAVCEI
Created in 1919 as the International Association of Volcanology (IAV), IAVCEI is responsible for collecting and disseminating data in its special fields, which include sea-floor spreading.

116. INTERNATIONAL UNION OF GEOLOGICAL SCIENCES: IUGS
Founded in 1961, IUGS aims to advance geological investigations. A component of special interest is the Commission for Marine Geology (CMG), which sponsors geological, geochemical, and geophysical investigations of the sea floor. CMG also supervises the preparation of the International Geological and Geophysical Cruise Inventory (IG/GCI) and is responsible for the inventory of marine geological and geophysical data taken before 1970. Another of interest is the Commission on Tectonics. IUGS also includes a Committee on Storage, Automatic Processing, and Retrieval of Geological Data (COGEO DATA), which prepares standards and formats for geological data and is compiling an index to the availability of data. Associations of some interest are the International Association of Geochemistry and Cosmochemistry (IAGC) and the International Association of Engineering Geology (IAEG).

117. INTERNATIONAL UNION OF THE HISTORY AND PHILOSOPHY OF SCIENCE: IUHPS
A Commission on the History of Oceanography (CHO) was recently included in IUPHS.

118. SPECIAL COMMITTEES OF ICSU
A number of special and scientific committees have been created within ICSU to concern themselves with interdisciplinary problems that overlap functions of two or more of the unions. Entries 120 through 126 cover those of interest to marine scientists.

119. COMMITTEE ON DATA FOR SCIENCE AND TECHNOLOGY: CODATA
Founded in 1966 to promote and encourage the production and distribution of compilations of critically selected numerical values of properties of substance and importance, CODATA determines needs, provides guidance, evaluates, and establishes standards. It is establishing a World Data Referral Center (WDRC).

120. COMMITTEE ON SPACE RESEARCH: COSPAR
COSPAR is concerned with remote sensing of Earth resources by satellite, including sensing of the marine environment.

121. SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH: SCAR
Founded in 1958, SCAR is responsible for coordinating scientific activity in the Antarctic and includes a working group on oceanography. It sponsors the Antarctic Research Program (ARP) which includes programs relating to oceanography and marine biology. SCAR includes Groups of Specialists, several of which are: the Group of Specialists on Marine Living Resources of the Southern Ocean, which is developing the BIOMASS program; the Group of Specialists on Ice Shelf Drilling Projects (ISDP); and the Group of Specialists on Environmental Impact Assessments of Mineral Resource Exploration and Exploitation in the Antarctic (EAMREA).

122. SCIENTIFIC COMMITTEE ON OCEANIC RESEARCH: SCOR
Founded in 1957 to further all disciplines of research in the oceans, SCOR is a scientific advisory body to IOC. It facilitates

the exchange of oceanographic data, establishes standards for data, and furthers international research in the oceans.

SCOR recently established a Committee on Climatic Changes and the Ocean (CCCCO), which replaced a Committee on Oceanography and GARP (COG). It includes many working groups (WGs) that are established and abolished as needed. Acronyms associated with these include NEADS--the North East Atlantic Dynamics Studies, a subgroup of the WG on Internal Dynamics of the Oceans, also sponsored by IAPSO; OAMEX, THE WG on Ocean-Atmosphere Exchange Processes, also sponsored by IAMAP and IAPSO; BIOMASS--the WG on Biological Investigations of the Marine Antarctic System and Stocks, also sponsored by ACMRR, IABO, and SCAR: and CER, the WG on Coastal and Estuarine Regimes, cosponsored by ECOR and IAPSO.

123. SCIENTIFIC COMMITTEE ON WATER RESEARCH: COWAR

Among its responsibilities, COWAR advised ICSU on the activities of the International Hydrological Decade (IHD).

124. SPECIAL COMMITTEE FOR THE INTERNATIONAL BIOLOGICAL PROGRAMME: SCIBP

Now abolished, SCIBP supervised the International Biological Programme (IBP), which included several subprograms relating to marine biology.

125. SCIENTIFIC COMMITTEE ON PROBLEMS OF THE ENVIRONMENT: SCOPE

Established in 1969 at the Stockholm Conference on the Environment, SCOPE is concerned with monitoring, evaluation, prediction, and modeling of environmental events. In 1974 it cosponsored, with UNEP, a Workshop on Impact Studies in the Environment (WISE).

126. INTER-UNION COMMITTEES OR COMMISSIONS

At times, two or more unions may elect to form a committee or commission to work on projects of mutual concern. Of interest are the Upper Mantle Committee (UMC), which includes special commissions to study the world rift systems and continental margins and which supervised the Upper Mantle Project (UMP); the Inter-Union Commission for Geodynamics (ICG), also known as the ICSU Inter-Union Commission for Geodynamics (IICG), which was established in 1970 to administer the International Geodynamics Project (IGP); the Special Committee on Solar-Terrestrial Physics (SCOSTEP), formerly known as the Inter-Union Commission on Solar Terrestrial Physics (IUCSTP); and the Inter-Union Committee on Radio-Meteorology (IUCRM), established to bridge the gap between scientists involved in radio meteorology and those involved in meteorology. A proposal to establish an Inter-Union Committee on Radio Oceanography (IUCRO) or Radio Geophysics (IUCRG) to be concerned with remote sensing and routine monitoring of the oceans was made in 1975. After some consideration, the proposal was dropped and IUCRM's constitution was revised in 1976 to include responsibilities in oceanography.

127. PANEL ON WORLD DATA CENTERS: PWDC

During the International Geophysical Year (IGY), ICSU established a Special Committee for IGY, known as CSAGI for its French title, Comité Spécial de l'Année Géophysique International. CSAGI was terminated in 1959, and many of its functions were assumed by the newly created Comité International de Géophysique (CIG), which was terminated in 1968. CSAGI and CIG were responsible for coordinating projects and programs of nations participating in IGY and for making the results of each program available to the world

scientific community. To this end, CSAGI conceived, established, and supervised a program of World Data Centers (WDCs), and CIG continued the program. Upon the termination of CIG, ICSU created a special Panel on World Data Centers to continue their functional supervision.

128. FEDERATION OF ASTRONOMICAL AND GEOPHYSICAL SERVICES: FAGS

ICSU provides 11 services, each responsible for the treatment of a specialized series of observations collected throughout the world. The Services are centralized in the Federation of Astronomical and Geophysical Services (FAGS). Though international in character, each service is in a national scientific institution. Those of interest to marine scientists are covered in entries 130 through 133.

In 1975, FAGS' executive board added a policy group to its structure, known as the Policy Group on Scientific Information (POGSI).

129. CENTRAL SEISMOLOGICAL BUREAU: BCIS

Located in Strasbourg, France, and known by the initials of its French name, Bureau Central International de Seismologie, BCIS is responsible for the collection of earthquake and related data. Theories on sea floor spreading, continental drift, and plate tectonics have been supported by data held by BCIS.

130. INTERNATIONAL GRAVIMETRIC BUREAU: IGB

Usually known by the initials of the French name, Bureau Gravimetric International (BGI), IGB is in Paris. Its data holdings are essential in telecommunications, navigation, geodesy, and geophysics. Among its holdings are gravity and bathymetric profiles at sea. Since 1970 it has been compiling the World Map of Sea Gravity Surveys.

131. PERMANENT SERVICE FOR MEAN SEA LEVEL: PSMSL

Located in the United Kingdom, PSMSL is responsible for data on sea-level heights above a fixed datum and for the collection of information about tide-gage installations and methods of processing tide-gage observations. It recently revised its format for the mean sea-level data base and has made it available in a published version that will be updated annually. It regularly publishes bibliographies on mean sea levels and tides.

132. PERMANENT SERVICE ON EARTH TIDES: SPMT

Located in Brussels, SPMT is known by the initials of its French title, Service Permanent des Marees Terrestres.

Other Nongovernmental Organizations

133. AMERICAN ASSOCIATION OF PORT AUTHORITIES: AAPA

Founded in 1906, AAPA is concerned with the development of ports and harbors in the Western Hemisphere.

134. ARCTIC INSTITUTE OF NORTH AMERICA: AINA

Founded in 1945 by Canadian and United States scientists, AINA furthers the scientific study and exploration of the Arctic. Its interests are not confined to the Arctic--it is also concerned with the Middle North, Alpine Regions, and Antarctica. In 1974 it organized a program called Arctic Development and the Environment (ADE), whose purpose is to influence the interplay of forces inherent in resource development with the protection of the total environment. It sponsors symposia, programs for exploration, and compiles the Arctic Bibliography, a comprehensive and exhaustive bibliography of Arctic

literature, which is currently in its 17th volume. It is now developing the Arctic Science and Technology Information System (ASTIS).

135. ASSOCIATION OF ISLAND MARINE LABORATORIES OF THE CARIBBEAN: AIMLC

AIMLC coordinates programs of common interest to the dozen or so marine laboratories in the Caribbean. It sponsors occasional meetings, but most of its activities are handled through correspondence.

136. ATLANTIC SALMON RESEARCH TRUST: ASRT

ASRT was established to support the study and development of the regeneration of populations of Atlantic salmon and to conduct research into their diseases.

137. BALTIC AND INTERNATIONAL MARITIME CONFERENCE: BIMCO

Founded in 1905 as the Baltic and White Sea Conference, BIMCO was given its present name in 1927. General meetings are held every 2 years, and problems affecting the shipping industry are considered. Between meetings, it is governed by an elected Board of Directors, an Executive Committee, and a Documentary Council.

138. BALTIC MARINE BIOLOGY ORGANIZATION: BMBO

Also known as the Baltic Marine Biologists (BMB), BMBO was formed in 1968 to arrange marine biological symposia on Baltic problems and to facilitate cooperation between Baltic biologists and laboratories. It met first in 1971 and plans annual meetings.

139. CARIBBEAN MARINE BIOLOGICAL INSTITUTE: CARMABI

Founded in 1955 as a center for scientific marine research and applied marine biology, CARMABI also concentrates on ecology of coral reefs. Though located in the Netherlands Antilles and supported by the Dutch Government, the Government of the Netherlands Antilles, and the Island of Curacao, the Institute is international in character.

140. CHARLES DARWIN FOUNDATION FOR THE GALAPAGOS ISLANDS

Founded in 1959 to administer the Charles Darwin Research Station on the Islands and to provide for the conservation of the flora, fauna, and habitat of the Islands and their surrounding seas.

141. CLEAN WORLD INTERNATIONAL: CWI

Founded in 1975, CWI is concerned with the protection of the total environment. At its sixth meeting, its member countries agreed to take concerted action to campaign against improper disposal of refuse at sea.

142. CONFERENCE OF BALTIC OCEANOGRAPHERS: CBO

A loose organization of oceanographers from countries bordering the Baltic Sea who confer at irregular intervals. There is no permanent headquarters, and meetings are called by a coordinator.

143. CONSERVATION OF CLEAN AIR AND WATER: CONCAWE

An international study group sponsored by oil companies.

144. CONSEJO LATINO-AMERICANO DE OCEANOGRAFIA: CLAO

Organized in 1961 and disbanded in 1966, CLAO, during its brief existence, was a cosponsor of the South Atlantic Cooperative Investigations (SACI), also known as TRIDENT.

145. DAVID DAVIES MEMORIAL INSTITUTE OF INTERNATIONAL STUDIES:
DDMIIS

Formerly the New Commonwealth Study, the Institute was established under its present name in 1951. Its principal aim is research into the causes of conflicts between states and projected means to ameliorate or remove such causes. Topics considered include the conservation and exploration of the seas and oceanic pollution.

146. EUROPEAN ASSOCIATION OF EXPLORATION GEOPHYSICISTS: EAEG
Established in 1951, EAEG provides a means to establish contacts and encourage cooperation between geophysicists in Europe and elsewhere.

147. EUROPEAN CENTER FOR MARINE ENVIRONMENTAL PROBLEMS: CEPEM
CEPEM, the acronym, commonly used for the Center, relates to its French title, Centre d'Etude Europeenne pour les Problemes de l'Environnement Marine.

148. EUROPEAN DIVING TECHNOLOGY COMMITTEE: EDTC
Formed in 1973 as a result of the initiative of the United Kingdom Society for Underwater Technology, EDTC includes nine member countries, each of whom sends two representatives, one representing commercial diving operations and the other medical knowledge. EDTC provides a forum for the discussion of standards and techniques of diving, types of equipment, and arrangements for monitoring the health of divers; it also encourages the development of safety standards and provides advice to government committees and other organizations and individuals concerned with diving.

149. EUROPEAN FEDERATION FOR THE PROTECTION OF WATERS: EFPW
Founded in 1956, EFPW encourages cooperation through exchange of ideas and coordinates treatment of basic problems in the protection of waters.

150. EUROPEAN GEOPHYSICAL SOCIETY: EGS
Organized in 1971, the society exchanges information and ideas and plans for cooperative research.

151. EUROPEAN MALACOLOGICAL UNION: EMU
Founded in 1962, EMU furthers the study of mollusca by individual malacologists or by societies and institutions in Europe and in countries bordering the Mediterranean Sea.

152. EUROPEAN MARICULTURE SOCIETY: EMS
Formed in 1976, it acts as a clearinghouse for information that it channels to the fish culturist, researcher, and administrator by means of a quarterly newsletter.

153. EUROPEAN MARINE BIOLOGICAL ASSOCIATION: EMBA
A loosely structured organization of marine biologists, EMBA holds frequent symposia, the first of which was held in 1961, the tenth in 1976. An executive committee, the Committee for European Marine Biological Symposia (CEMBS), is responsible for organizing the symposia, which are held in a different country each time.

154. EUROPEAN OCEANOGRAPHIC ASSOCIATION: EUROCEAN
Founded in 1970 to promote marine resources with a view both to exploring and studying them and protecting and using them,

EUROCEAN is primarily interested in coordinating and promoting the activities of Europe-based ocean-oriented industries.

155. EUROPEAN UNDERSEA BIOMEDICAL SOCIETY: EUBS

Founded in 1971, EUBS promotes scientific communications among European scientists in the field, primarily by holding scientific meetings.

156. FEDERATION OF INSTITUTIONS CONCERNED WITH THE STUDY OF THE ADRIATIC SEA: FICSAS

Founded in 1971, FICSAS coordinates activities, research, and training programs for those institutions involved in the scientific study of the Adriatic Sea.

157. GREAT LAKES STUDY GROUP: GLSG

An informal organization of representatives from Canadian and United States agencies engaged in basic and applied research and engineering investigations related to the development and use of Great Lakes water resources, GLSG was originally organized in 1962 as the Lake Erie Study Group. Its purposes are to facilitate information exchange and to provide opportunities for cooperation. It also sponsors the acquisition, storage, retrieval, and dissemination of basic data held by the Great Lakes Regional Data Center.

158. GULF AND CARIBBEAN FISHERIES INSTITUTE: GCFI

Established in 1948 and located at the University of Miami, Fla., GCFI holds annual meetings to review the status of the fishing industry in the Caribbean, assist Caribbean countries in the development of their programs, establish standards for seafood inspections, promote aquaculture and fishery research, and develop a program of coastal zone management. A frequent topic of discussion is the establishment of limits of fishing areas. Meetings are held yearly, and every third one is outside the United States. Membership is open to representatives of industries and scientists in countries bordering the Gulf of Mexico and the Caribbean Sea.

159. INTERNATIONAL AGENCY FOR ^{14}C DETERMINATION (MEASUREMENT OF PRIMARY PRODUCTIVITY IN THE SEA): (No initials ever used)

Established in 1958 as a service for biological oceanographers, this agency is responsible for producing standardized ampoules of ^{14}C (as $\text{Na}_2^{14}\text{CO}_3$), counting ^{14}C labeled plankton samples, and the calculation of carbon assimilation. It is funded by UNESCO. Since 1975, it has been an institute affiliated with the Danish Academy of Technical Sciences.

160. INTERNATIONAL ASSOCIATION FOR GREAT LAKES RESEARCH: IAGLR

Formed in 1967, IAGLR provides a formal organization to sponsor the Conference on Great Lakes Research, previously held under the auspices of the Great Lakes Research Division of the University of Michigan and the Great Lakes Institute of the University of Toronto. Its objectives are to promote and disseminate the results of all aspects of research in the Great Lakes.

161. INTERNATIONAL ASSOCIATION FOR MEDICAL OCEANOGRAPHY: IAMO

Founded in 1973.

162. INTERNATIONAL ASSOCIATION FOR POLLUTION CONTROL: IAPC

A nonprofit professional association formed in 1970, IAPC provides an opportunity for interdisciplinary forums and consolidates knowledge on pollution control. It sponsors an annual conference on pollution control in the marine environment.

163. INTERNATIONAL ASSOCIATION OF DREDGING COMPANIES: IADC

Founded in 1965, IADC promotes and defends the professional interests of its members, who are private dredging contractors. The Association itself is a member of both ECOR and PIANC.

164. INTERNATIONAL ASSOCIATION OF FISH AND WILDLIFE AGENCIES:
IAFWA

Established in the United States in 1902 as the National Association of Game Commissioners and Wardens, IAFWA was expanded to include all of North America in 1917 and its name was changed to the International Association of Game, Fish and Conservation Commissioners (IAGFCC). Its present name was adopted in 1976. It promotes research into conservation measures regarding fish and game and coordinates works of public conservation agencies in North America. A Marine and Estuarine Committee is included in its organizational structure.

165. INTERNATIONAL ASSOCIATION OF FISH MEAL MANUFACTURERS: IAFMM
Organized in 1959, IAFMM is a special consultant to FAO.

166. INTERNATIONAL ASSOCIATION OF INSTITUTES OF NAVIGATION: IAIN

Established in 1975, IAIN coordinates activities of navigation institutes. Membership is open to institutes throughout the world. IAIN was originally proposed to be called the International Association of Navigation Institutes (IANI).

167. INTERNATIONAL ASSOCIATION OF LIGHTHOUSE AUTHORITIES: IALA

Organized in 1957 in accordance with recommendations made at the 1955 Conference on Lighthouses and Other Aids to Navigation, IALA acts as a technical forum to bring lighthouse authorities together to discuss technical matters and other topics of mutual interest relating to aids to navigation and to establish international standards for these aids.

168. INTERNATIONAL ASSOCIATION OF SEDIMENTOLOGY: IAS

Formed in 1952, IAS coordinates international research in sedimentology and provides a medium for disseminating information. IAS meets every 4 years.

169. INTERNATIONAL ASSOCIATION ON PORTS AND HARBORS: IAPH

Founded in 1955, IAPH encourages cooperation with the exchange of information on the development of ports and harbors and encourages standardization of procedures governing international trade.

170. INTERNATIONAL ASSOCIATION ON WATER POLLUTION RESEARCH:
IAWPR

Founded in 1962 and formally constituted in 1965, IAWPR encourages cooperation and exchange of information in the field of water pollution research and water quality management.

171. INTERNATIONAL ATLANTIC SALMON FOUNDATION: IASF

Established in 1968, IASF is dedicated to the conservation and wise management of the Atlantic salmon and its environment. It

directs and supports programs in education, public information, research, and international cooperation. In 1974 it established the North Atlantic Salmon Research Centre (NASRC) in New Brunswick, Canada. The Centre receives financial support from many other organizations, principally Canada's Department of the Environment.

172. INTERNATIONAL CABLE PROTECTION COMMITTEE: ICPC

Founded in 1958 as the Cable Damage Committee, ICPC was given its present name in 1967. Its aim is to protect submarine cables from corrosion and other damages, including those caused by fishing gear. It investigates pollution in relation to cables, and it also produces cable warning charts. It draws its membership from telecommunications administrators and operating companies in 15 countries.

173. INTERNATIONAL CENTER FOR LIVING AQUATIC RESOURCES
MANAGEMENT: ICLARM

A nonprofit scientific center incorporated in 1977. ICLARM is in the Republic of the Philippines and receives funding from the Rockefeller Foundation. Its primary function is to investigate fish production as one of the means of increasing the availability of protein for the Southeast Asia and Southwest Pacific areas.

174. INTERNATIONAL CHAMBER OF SHIPPING: ICS

Founded in 1921 as the International Shipping Conference, ICS was given its present name in 1948. It aims to promote the interest of its members in all matters of general policy. Marine pollution, especially that caused by oil spills, is a major concern of ICS, which cooperates with GESAMP. Membership is drawn from national associations of private shipowners in 19 countries.

175. INTERNATIONAL COMMISSION ON ILLUMINATION: ICI

Founded in 1900 as the International Photometric Commission, ICI was given its present name in 1913. It provides an international forum for all matters pertaining to the science and art of illumination and promotes the study of such matters, including illumination in the marine environment.

176. INTERNATIONAL COMMISSION ON RADIOLOGICAL PROTECTION: ICRP

Founded in 1928 as the International X-Ray and Radium Protection Commission, ICRP was given its present name in 1950. It is responsible for the whole field of radiation protection and establishes maximum limits for radiation levels, including those in the marine environment; IAEA adopts the limits established by ICRP.

177. INTERNATIONAL CONGRESS OF MARITIME MUSEUMS: ICMW

Members include representatives from maritime museums throughout the world.

178. INTERNATIONAL COUNCIL FOR BIRD PRESERVATION: ICBP

Founded in 1922, ICBP stimulates interest in more adequate protection of wild birds. Recently it has taken an active part in promoting actions to prevent oil pollution of the sea.

179. INTERNATIONAL COUNCIL OF MARINE INDUSTRY ASSOCIATIONS:
ICOMIA

Founded in 1967 to promote boating as an international recreational activity, ICOMIA serves as a medium for promoting research on matters of safety, service, and quality of boats and marinas.

180. INTERNATIONAL FEDERATION OF SURVEYORS: FIG

The acronym FIG stands for its French title: Federation Internationale des Geometres. FIG, founded in 1878, promotes cooperation among surveyors. In 1968 it included hydrographic surveying on its program for the first time, and in 1972 established a Commission for Hydrographic Surveying.

181. INTERNATIONAL GEOLOGICAL CONGRESS: IGC

The First International Geological Congress, held in 1878, was organized to provide for international cooperation on matters of geological classification and nomenclature. It is loosely organized and has no permanent secretariat. Host countries administer the meetings, which are held every 3 to 4 years. Between sessions a Bureau, elected at the previous General meeting, conducts the business of the Congress. IUGG serves as the permanent steering committee; however, the Union and the Congress are separate entities.

Commissions are created by each congress, and some achieve a semi-permanent status. Commissions of concern to marine scientists include those on the Stratigraphic Lexicon, the Study of the Earth's Crust, the Geological Map of the World (CGMW), and the Division and Study of the Kiroo (Gondwana).

182. INTERNATIONAL INSTITUTE FOR PEACE AND CONFLICT RESEARCH: SIPRI

Established in 1966 and located in Stockholm, Sweden, SIPRI studies many aspects of peace and conflict and sponsors pertinent symposiums. The effective use of the oceans is a major topic of study.

183. INTERNATIONAL INSTITUTE OF MARITIME CULTURE: IIMC

This Institute is an organization of individuals interested in the literary, artistic, and sociological aspects of the study of the sea.

184. INTERNATIONAL INSTITUTE OF PHYSICAL OCEANOGRAPHY: IIPO

This Institute was proposed by the former Group of Experts on Long-Term Scientific Policy and Planning (GELTSPAP).

185. INTERNATIONAL LAW ASSOCIATION: ILA

Founded in 1873 to study and advance public and private international law, ILA includes committees on water resources law and on deep-sea mining. Both, especially the latter, have concentrated on questions relating to the breadth of the Continental Shelf; types of international regimes appropriate for the control of the ocean floor beyond the limits of national jurisdiction; pollution; and liability for methods of submarine research and activities that damage persons, property, and other users of the seas.

186. INTERNATIONAL MARITIME RADIO COMMITTEE: CIRM

Founded in 1928, CIRM, an acronym based on the French title, Comite International de Radio-Maritime, comprises representatives from communications and electronics manufacturers, ship radio operators, radio-manning organizations, radio repair and service companies, and others who provide service, advice, and guidance to their respective governments on international communications matters. CIRM participates as an observer in IMCO, ICAO, and ITU meetings, and this participation has helped promote a better understanding of ocean station vessel operations and search and rescue communications at sea.

187. INTERNATIONAL MARITIME COMMITTEE: IMC

Founded in 1897, IMC contributes to the unification of maritime law and encourages the creation of national organizations for unifying law and coordinating programs. It concerns itself with collisions, salvage, and assistance at sea; limitations of ship-owners' responsibilities; maritime mortgages and liens; exemption clauses in bills of lading; responsibilities towards passengers and stowaways; and maritime oil pollution.

188. INTERNATIONAL OCEAN INSTITUTE: IOI

Sometimes called the Pacem In Maribus (PIM) after the annual convocation of its sponsors, IOI was founded in 1972 and is located at the Royal University of Malta. It is supported financially by several national governments, private bodies, and one time by UNDP. Its interests are worldwide, and it sponsors studies on the political and economic implications of new developments in marine science and technology and on programs leading to a monitoring and control system for pollution in the marine environment. It is also planning to establish an information and documentation center.

189. INTERNATIONAL OCEANOGRAPHIC FOUNDATION: IOF

Founded in 1954, IOF encourages the scientific study of the seas, lends financial assistance to research organizations, awards graduate fellowships, and cosponsors the international exchange of scientists with the Nordic Council for Marine Biology. It publishes a semipopular journal and related publications popularizing and promoting oceanography and sponsors the annual International Game and Fish Conference.

190. INTERNATIONAL ORGANIZATION FOR STANDARDIZATION: ISO

Founded in 1946, ISO promotes the development of standards in the world with a view to facilitate international exchange of goods and services and to develop mutual cooperation in the sphere of intellectual, scientific, technological, and economic activity.

191. INTERNATIONAL PALEONTOLOGICAL UNION: IPU

Established in 1933 at the International Geological Congress, IPU promotes and coordinates international activities in paleontology. IPU sponsors an international directory of paleontologists and maintains a card index of specimens located throughout the world. Its meetings coincide with those of the International Geological Congress and are held every 3 to 4 years.

192. INTERNATIONAL PETROLEUM INDUSTRIES ENVIRONMENTAL CONSERVATION ASSOCIATION: IPIECA

Established in 1974, IPIECA is a coordinating body through which the oil industry responds to the environmental initiatives of UNEP and other UN bodies involved in the protection of the environment. Its membership includes 19 oil companies in 10 countries.

193. INTERNATIONAL SEAWEED SYMPOSIA: ISS

Impetus for the ISS stemmed from a 1948 conference held at Dalhousie University, Halifax, on the use of seaweed. The official symposia, which are generally held triannually, began in 1952. A permanent international advisory committee plans and administers the symposia.

194. INTERNATIONAL SHIP STRUCTURE CONGRESS: ISSC

Organized in 1961, ISSC meets every 3 years to give experts in different countries engaged in research work on strength and structure problems related to ships and other marine structures an opportunity to exchange information, recommend research, and otherwise cooperate. In addition to gathering information on ship structures, members are also interested in data about outside forces affecting marine structures, especially waves. Between meetings, ISSC is governed by an elected Standing Committee of 12 members, each from a different country.

195. INTERNATIONAL SOCIETY OF BIOMETEOROLOGY: ISB

Organized in 1956 to provide an international body to bring scientists in the field together, ISB meets at 3-year intervals. Included in the Society is a Special Committee on Nautical Biometeorology. Although unaffiliated with any other international organization, it is invited to send an observer to the meetings of the World Meteorological Organization.

196. INTERNATIONAL UNION FOR CONSERVATION OF NATURE
AND NATURAL RESOURCES: IUCN

An Office International pour la Protection de la Nature was established in 1928; in 1948, it was succeeded by the International Union for Protection of Nature, established following an International Conference sponsored by UNESCO and the Government of France. In 1956, it was renamed the International Union for the Conservation of Nature and Natural Resources to reflect the increasing popular concept that natural resources must be conserved and used wisely.

It is planning a World Conservation Strategy (WCS) to increase the effectiveness of international conservation action. UNEP is lending financial support to the program.

IUCN includes a Commission on Marine Habitats, which promotes the establishment of marine national parks and provides ecological guidelines for use in coastal, estuarine, and island areas, and is responsible for the preparation of the World Directory of National Parks and Protected Areas, which will include a separate section on marine parks and reserves.

197. INTERNATIONAL UNION FOR QUATERNARY RESEARCH: INQUA

Founded in 1928 as the International Association for the Study of the European Quaternary, INQUA had its scope and interest enlarged in 1932 to include the Quaternary throughout the world and its name changed to its present title. Meetings are held every 4 years. It is composed of eight permanent commissions, one of which is the Commission on Shorelines.

198. INTERNATIONAL WATER RESOURCES ASSOCIATION: IWRA

Organized in 1970, IWRA provides an international forum for discussing all aspects of water resources science and technology in an interdisciplinary manner.

199. INTER-PARLIAMENTARY UNION: IPU

Founded in 1889, IPU promotes personal contacts between members of parliaments and unites them in common actions. At its 1971 meetings at Caracas, IPU identified pollution of the seas by oil as one of two areas of particular urgency for consideration at the 1972 UN Conference on the Human Environment (UNCHE).

200. MEDITERRANEAN ASSOCIATION FOR MARINE BIOLOGY AND
OCEANOGRAPHY: MAMBO

Founded in 1964, MAMBO meets every 2 years to examine the marine biology programs in the Mediterranean area, identify needs and deficiencies, and recommend measures to correct the deficiencies and strengthen programs. It also establishes mechanisms to secure equipment and services for multiple users, establishes uniform standards for measurements, and develops programs for recruiting and training marine biologists.

201. NORDIC COUNCIL: NC

Established in 1952, NC includes all the Scandinavian countries as members. It is concerned with developing joint action to combat common problems, one of which is marine pollution.

202. NORDIC COUNCIL FOR MARINE BIOLOGY: NCMB

Founded in 1956, the Council promotes joint training research in marine biology in the Scandinavian countries. Four marine biology stations, one in each of the countries, collaborate to train marine biologists and to work in marine sciences.

203. NORDIC HYDROLOGICAL ASSOCIATION: NHA

The Association was founded in 1970, upon the recommendation of NUTSAM, the Joint Panel for NORDIC/IHD Cooperation.

204. NORDIC UNIVERSITY GROUP ON PHYSICAL OCEANOGRAPHY: NUGPO

Founded in 1955, NUGPO has members in the four Scandinavian countries.

205. OFFSHORE TECHNOLOGY CONFERENCE: OTC

OTC is a technical forum and exhibition on offshore research and development held yearly since its founding in 1968 and supported by eleven international engineering and scientific societies. An OTC Executive Committee plans the yearly conferences.

206. OIL COMPANIES INTERNATIONAL MARINE FORUM: OCIMF

Organized in 1970, OCIMF is a consultant to IMCO and includes as members 43 companies controlling 80 percent of crude and fuel oil moved by sea. It is a member of the International Petroleum Industries Environmental Conservation Association (IPIECA).

207. PACIFIC SCIENCE ASSOCIATION: PSA

Founded in 1920 to promote cooperative effort in the studies of scientific problems in the Pacific area, PSA sponsors congresses held every 4 or 5 years. Each congress appoints standing committees to study and report on areas of common interest; a marine sciences committee is regularly appointed.

208. PAN INDIAN OCEAN SCIENTIFIC ASSOCIATION: PIOSA

Founded in 1951 at the first Pan Indian Ocean Congress, PIOSA provides a common organization to discuss and promote concerted action in regard to the progress of countries around the Indian Ocean. Development of marine resources is a major topic of interest.

209. SOCIETY OF NAVAL ARCHITECTS AND MARINE ENGINEERS: SNAME

SNAME is a nonprofit society dedicated to the advancement of the art, science, and practice of naval architecture, shipbuilding, ship operating, and marine and ocean engineering. Membership is on an individual basis.

210. UNION OF INTERNATIONAL ASSOCIATIONS: UIA

Founded in 1907 as the Central Office of International Associations, UIA became a federation in 1910 and a Union in 1951. It serves as an information center for international organizations and provides advice and encouragement to them.

211. UNION OF INTERNATIONAL ENGINEERING ORGANIZATIONS: UIEO

Established in 1951, UIEO coordinates the activities of member organizations, which consist of 17 nongovernment international engineering organizations concerned with promoting international cooperation in clearly defined fields of engineering sciences. It also sponsors the Engineering Committee on Oceanic Resources (ECOR). Descriptions of ECOR and of the several UIEO-affiliated organizations of interest to marine scientists follow in entries 212 through 216.

212. ENGINEERING COMMITTEE ON OCEANIC RESOURCES: ECOR

Formally established in 1971, ECOR held its first General Assembly in 1972. Its functions include establishing and maintaining international professional engineering communications in marine affairs, providing engineering advice to other international, intergovernmental, or national organizations concerned with marine sciences, and assisting the engineering profession in the development of its capability in the use of the oceans and in the improvement of the quality of the marine environment.

It includes members from other international organizations including IAHR, ISSC, IADC, PIANC, WODA, IAWPR, IAEG, and ISSMFE. It has been formally accepted by IOC to serve as its advisory body on marine engineering and will provide an international focus for the engineering research and exploration necessary for LEPOR.

213. INTERNATIONAL ASSOCIATION FOR HYDRAULIC RESEARCH: IAHR

This association was organized in 1935 to promote hydraulic research and to exchange international information about such hydraulic research.

214. INTERNATIONAL GAS UNION: IGU

Founded in 1931, IGU studies everything pertaining to the gas industry, promotes progress, and promotes international cooperation and collaboration. It is concerned with the exploration for gas deposits, including those in the marine environment.

215. INTERNATIONAL SOCIETY FOR SOIL MECHANICS AND FOUNDATIONS ENGINEERING: ISSMFE

Founded in 1936, ISSMFE promotes international cooperation among scientists and engineers in the field of soil mechanics and its practical applications. It establishes standards for the classifications of geotechnical literature, static and dynamic penetration test methods, soil sampling and soil mechanics, and cone penetration tests.

216. PERMANENT INTERNATIONAL ASSOCIATION OF NAVIGATION CONGRESSES: PIANC

Established in 1900 as an amalgamation of the Inland Navigation Congress (founded in 1888) and the Ocean Navigation Congress (founded in 1889), PIANC promotes the development of inland and maritime navigation. Appointed study commissions work on projects that include the study of waves and seiches and their forces, development of oil tankers, sport and pleasure navigation, and ship-lifts.

217. WOODROW WILSON INTERNATIONAL CENTER FOR SCHOLARS: WWICS
Established in Act of Congress (U.S.) in 1968, WWICS sponsors a fellowship program for 40 scholars, half of whom are appointed from countries outside the United States. In cooperation with other international organizations, it sponsors a continuing, selective, annotated bibliographic service covering the documentation and papers prepared for the UN Conference on the Human Environment. It also publishes other bibliographic works, including bibliographies relating to marine sciences.
218. WORLD DREDGING ASSOCIATION: WODA
An international organization founded in 1967 with members from 32 countries dedicated to the advancement of dredging technology, WODA sponsors international conferences, identified as WODCON or World Dredging Conferences.
219. WORLD ENVIRONMENT AND RESOURCES COUNCIL: WERC
A forum organized in 1973, WERC provides a means for exchange of information on the environment and Earth resources. At one time its proposed name was the World Environment Institute (WEI). WERC is composed of national organizations; the U.S. representative is the U.S. Environment and Resource Council (USREC).
220. WORLD FEDERATION FOR THE PROTECTION OF ANIMALS: WFPA
Established in 1950, WFPA protects the welfare of animals and relieves their suffering wherever possible. It makes an active effort in preventing the exploitation of seals and controlling their slaughter.
221. WORLD FEDERATION OF ENGINEERING ORGANIZATIONS: WFEO
Founded in 1968 to advance engineering as a profession, WFEO lends support to ECOR.
222. WORLD FEDERATION OF UN ASSOCIATIONS: WFUNA
A nongovernmental organization founded in 1946, WFUNA promotes the interaction of people with groups sponsored by the United Nations.
223. WORLD UNDERWATER FEDERATION: CMAS
Founded in 1959, CMAS stands for its French title, Confédération Mondiale des Activités Subaquatiques. Its purposes are to develop underwater activities and encourage inventions and new production in the field.
224. WORLD WILDLIFE FUND: WWF
Founded in 1961, WWF holds a conference every 3 years. Its purpose is to conserve world fauna, flora, forests, landscapes, water, soils, and other natural resources. Two of its major interests have been to conserve whales and to prevent the destruction of the ecology of the Island of Aldabra in the Indian Ocean.

C. JOINT GOVERNMENTAL AND NONGOVERNMENTAL ORGANIZATIONS

Intergovernmental and nongovernmental organizations often cooperate in areas of mutual concern. In the marine sciences, every effort is made to encourage this cooperation and members of one group are often invited to attend meetings of another group. From time to time representatives of two or more organizations may form a specialized group. Several are described below.

225. JOINT OCEANOGRAPHIC ASSEMBLY: JOA

A joint assembly of marine scientists held intermittently since 1959. Sponsors have been various international agencies working cooperatively and have included ACMRR, ACOMR (now MAOAO), CMG, ECOR, IABO, IAPSO, and SCOR, and meeting sites have been New York (1959), Moscow (1966), Tokyo (1970), and Edinburgh (1976). The first assembly is often referred to as Ocean World.

226. JOINT ICES/ICNAF/IOC COORDINATING GROUP FOR THE NORTH ATLANTIC: NAT

An intersecretariat group established to coordinate the systematic studies of the North Atlantic, NAT meets biennially with the representatives of international marine research projects in the North Atlantic.

227. JOINT WORKING GROUP ON RIVER INPUTS TO OCEAN SYSTEMS: RIOS

Formed as a result of a GIPME resolution of 1971, RIOS includes members from ACMRR, ECOR, IAHS, and SCOR. Its programs include the identification of ongoing research pertaining to RIOS, execution of demonstration projects, training, and exchange of scientists.

228. WORLD SCIENCE INFORMATION SYSTEM: UNISIST

A joint UNESCO/ICSU effort organized in 1967, UNISIST studied the feasibility of a world science information system. Recommendations of the Central Committee, established to make the feasibility study, were published in 1971. The report concluded that the establishment of a world science information system is not only feasible but necessary. UNISIST is now a major component of UNESCO's General Information Program (GIP).

229. WORKING PARTY ON SCIENTIFIC ASPECTS OF INTERNATIONAL OCEAN RESEARCH: SAIOR

SAIOR was a joint group consisting of members from ACMRR, SCOR, and WMO.

D. DATA CENTERS AND OTHER FACILITIES

A number of international data centers, generally sponsored by one or more of the international organizations, have been established in selected areas. With the exception of the World Data Centers, each center is responsible either for specialized data or for data in a selected region.

230. AQUATIC SCIENCES AND FISHERIES INFORMATION SYSTEM: ASFIS

Proposed by FAO and IOC in 1971, and endorsed by IOC at its seventh session in 1971 and later by the U.N. Conference on the Human Environment, ASFIS has been developed with financial assistance from UNEP into an operating computer-oriented information system drawing on many different data sources to provide services of various types. At present ASFIS comprises three sponsoring bodies (FAO, IOC, and the United Nations) and national centers in the following countries: Canada, France, Federal Republic of Germany, Mexico, Portugal, U.S.S.R., United Kingdom, and the United States. FAO is the ASFIS coordinating center. The literature put into the system comes from 4,500 serial journal titles, reports, books, monographs, pamphlets, and information from seminars, workshops, and conferences all over the world and questionnaires distributed by the Secretariats. Products and services currently offered by ASFIS include: Marine Science Contents Tables (MSCT); Aquatic Sciences and Fisheries Abstracts

(ASFA); ASFA Related Tape Services; ASFIS World List of Periodicals in Marine and Freshwater Science; and ASFIS Register of Experts and Institutions. ASFA, which began in 1972, absorbed the former Current Bibliography for Aquatic Sciences and Fisheries (CBASF) produced by FAO and the Aquatic Biology Abstracts produced by Information Retrieval, Ltd. (IRL), London.

231. AZORES FIXED ACOUSTIC RANGE: AFAR

AFAR is an underwater acoustic facility established in 1973 with the encouragement of NATO by eight participating nations--Canada, France, Federal Republic of Germany, Italy, The Netherlands, Portugal, the United Kingdom, and United States. It is supervised by a steering committee composed of one member from each of the participating nations, an adviser from NATO, and senior staff members of the AFAR Directorate Office, the executive arm of the project.

The site, near Santa Maria Island in the Azores, was selected for its representative marine environment. Activities at the facility include the collection of acoustic and environmental data representative of deep ocean conditions.

232. CENTRO DE PRECLASIFICACION OCEANIA DE MEXICO: CPOM

Established in 1972, CPOM was a cooperative activity of UNESCO/IOC and the Mexican National Council for Science and Technology that sorted and stored biological samples. The center was established as a part of the Mexican contribution to CICAR.

233. FISHERY DATA CENTRE: FDC

Established within FAO, FDC is designated as a specialized world data center within the World Data Center System, responsible for fishery data collected during cooperative international expeditions sponsored by IOC and data collected as a part of IBP sponsored by ICSU. FDC also maintains inventories of specialized data holdings of other institutions such as biological sampling data and data pertaining to monitoring the harvesting of fish stocks.

234. INDIAN OCEAN BIOLOGICAL CENTRE: IOBC

Founded in 1962, IOBC receives, sorts, and distributes zooplankton samples collected during the International Indian Ocean Expedition (IIOE). While administratively a part of the Indian National Institute of Oceanography, IOBC receives support from UNESCO and ICSU/SCOR to handle data taken by the national expeditions participating in IIOE. It was the first of the three biological centers sponsored by UNESCO.

235. INTERNATIONAL SEISMOLOGICAL CENTRE: ISC

Established under the auspices of IUGG in 1964 and located at the University of Edinburgh, Scotland, ISC also receives support and direction from UNESCO and IASPEI. It is responsible for the collection and processing of worldwide seismological data and for the publication of related bulletins. To date, most of its activities have centered on the collection of information and publication of bulletins listing the occurrences of earthquakes, including those in marine areas.

236. INTERNATIONAL TSUNAMI INFORMATION CENTER: ITIC

Established by IOC in 1967, ITIC, located in Hawaii and working in close collaboration with the U.S. National Oceanic and Atmospheric Administration (NOAA), compiles and disseminates tsunami data

and information, organizes a visiting scientist program, and provides advice to developing countries on the establishment of national tsunami warning systems.

237. KUROSHIO DATA CENTRE: KDC

Established in 1964, KDC was sponsored by FAO (IPFC), INPFC, IAPSO, IOC, PSA, SCOR, and WMO. KDC, collocated with and operated by the Japanese Oceanographic Data Centre (JODC), acted as the Regional Data Center (RDC) for the Cooperative Study of the Kuroshio and Adjacent Regions (CSK).

238. MALTA POLLUTION CONTROL CENTER: MPCC

Established in 1976, MPCC is financed by UNEP and operated by IMCO. It is the repository for information relevant to oil pollution in the Mediterranean.

239. MARINE ENVIRONMENTAL DATA INFORMATION REFERRAL SYSTEM: MEDI

Proposed in 1975, MEDI is an automated, systematic method for recording and retrieving information and technical description of marine environmental data files that exist in international centers and national centers associated with an international network. MEDI is designed as the first step in the collection and organization of such data as may be required by agencies, scientists, and administrators--the systematic identification of what is available. IOC and numerous international organizations, such as WMO, FAO, ICES, IAEA, IHO, and UNEP, have joined together to operate as a MEDI network. The MEDI Co-ordination Centre is located in IOC. The Centre is aided by points of contact within each international organization.

240. MEDITERRANEAN MARINE SORTING CENTER: MMSC

Established in Tunisia in 1965 and terminated in 1974, MMSC was operated by the U.S. Smithsonian Institution. It functioned as the CIM Biological Center and cooperated with UNESCO in training technicians in the Mediterranean area in the fundamentals of evaluation of living marine resources.

241. MONITORING AND ASSESSMENT RESEARCH CENTRE: MARC

Sponsored by the Scientific Committee on Problems of the Environment (SCOPE) and the United Nations Environment Program (UNEP), MARC, located at Chelsea College, London, is exploring the feasibility of multipurpose monitoring by one station. It is developing training courses for monitoring the environment.

242. PHUKET MARINE BIOLOGICAL CENTER: PMBC

Established in 1971, PMBC is a cooperative venture between the governments of Denmark and Thailand. Located in Thailand, it serves as a research laboratory and training center for marine scientists from Thailand and other southeast Asian countries.

243. REGIONAL MARINE BIOLOGICAL CENTRE: RMBC

Established in Singapore in 1968, RMBC serves as a central depository for biological data taken during CSK. It is one of the three biological centers sponsored by UNESCO.

244. SERVICE HYDROGRAPHIQUE

Operated by the International Council for the Exploration of the Sea (ICES), the Service is responsible for storing and disseminating data falling in ICES areas of interest. It also served as

the Regional Data Center (RDC) for the Cooperative Investigations of the Northern Part of the Eastern Central Atlantic (CINECA), now terminated.

245. WORLD DATA CENTER: WDC

Established in 1957 by the International Council of Scientific Unions (ICSU), WDC's assemble and make available data collected by the varied and widespread observational programs of the International Geophysical Year (IGY). Original responsibility for supervision of the program was assigned to the Special Committee for the International Geophysical Year and later to the International Geophysical Committee (CIG). Upon the abolishment of CIG in 1963, responsibility for the world data centers was assigned to the ICSU Panel on World Data Centers (PWDC). Since the close of IGY, the centers' missions have been broadened to collect, catalog, archive, and exchange other data of international interest and to publish catalogs of holdings.

The United States, U.S.S.R., and several other countries have world data centers. Those in the United States are designated as WDC-A's, those in the U.S.S.R. as WDC-B's, and the rest, regardless of location, as WDC-C's. Each data center in each principal designated system, A, B, C, is responsible for an individual specialized field. The country in which the center is located is responsible for its financial support even though the system is international. All centers operate within the framework of the Guide to International Data Exchange through the World Data Centers, prepared by the former Comité International de Geophysique and published in 1965.

WDC's for oceanography are located in the United States and U.S.S.R. As yet, there is no WDC-C for Oceanography. WDC-A for Oceanography is collocated with and administered by the U.S. National Oceanographic Data Center, and WDC-B is in Moscow and is the responsibility of the Soviet Geophysics Committee. The National Academy of Sciences in the United States establishes policy guidance for WDC-A. WDC-B Oceanography also acts as the Regional Data Center (RDC) for the Cooperative Investigations in the Mediterranean (CIM), now in abeyance. Other world data centers of interest to oceanographers cover such topics as geomagnetism, longitude and latitude, meteorology and nuclear radiation, seismology, and tsunamis.

II. INTERNATIONAL PROGRAMS, PROJECTS, AND EXPEDITIONS

Cooperative studies of the oceans by two or more nations have existed for many years. However, the International Indian Ocean Expedition in 1961-63 is considered the first of the really large-scale cooperative programs.

Many programs or projects are lost in memory. The new entries include descriptions of those projects located in the literature reviewed for this publication. Most have acronyms or abbreviations; some do not.

246. ADRIATIC SEA EXPANDED REGIONAL OCEANOLOGICAL STUDIES: AS-EROS

To study pollution in the Adriatic Sea, AS-EROS is sponsored by ICSEM with Italy and Yugoslavia cooperating.

247. ALBATROSS

This joint United States-Soviet Union cooperative survey concerned plankton in the Gulf of Mexico and hydrography and fisheries of offshore waters of the North Atlantic between Capes Cod and Hatteras. Conducted in 1967 by the United States Bureau of Commercial Fisheries R/V ALBATROSS IV and the Soviet Ship R/V ALBATROSS under the auspices of ICNAF, the project was designed also to compare the data gathering and research techniques of both nations.

248. AMAZON EXPEDITION

A 1976 survey of the physical and biological phenomena of the Amazon River. Scientists from 13 countries participated.

249. ANTARCTIC RESEARCH PROGRAM: ARP

This program of scientific and engineering studies of Antarctica and surrounding oceans is coordinated by SCAR with participation by IGU, IUBS, IUGS, IUPAC, IUPS, IURS, and WMO. The program is of indefinite duration.

250. ARCTIC ICE DYNAMICS JOINT EXPERIMENT: AIDJEX

This cooperative study of ice deformation was begun in 1970 and terminated in 1976. It was supported internationally by AINA and ICSI. National participants were Canada, Japan, and United States. The University of Washington was the program coordinator in the United States.

251. ATLANTIC TRADEWIND EXPERIMENT: ATEX

In 1969 the Federal Republic of Germany, United Kingdom, and United States conducted this cooperative experiment to investigate air-sea interaction in the root region of the northeast tradewind zone of the Atlantic.

252. AUSTRALIA-NEW ZEALAND-UNITED STATES EDDY PROJECT: ANZUS

Conducted in 1975, ANZUS investigated the physical oceanography and underwater sound characteristics of eddies in the East Australian Current (EAC).

253. BAFFIN BAY NORTH-WATER PROJECT: BBNWP

Originated in 1966, the BBNWP, an ongoing project sponsored by the Arctic Institute of North America (AINA) and the International Commission of Snow and Ice (ICSI), consists of an exhaustive study of the polynya or semipermanent ice-free area in northern Baffin Bay. Programs in meteorology and biology as well as physical oceanography are included in the study of the polynya, also known as the North Water.

254. BALTIC OPEN SEA EXPERIMENT: BOSEX

Conducted in 1977, BOSEX was the largest joint international investigation in the Baltic to date. All seven countries bordering the Baltic participated in the Expedition, which was sponsored by the ICES/SCOR Working Group on the Study of Pollution in the Baltic. The program involved simultaneous observations of physical, chemical, and biological factors as well as levels of pollution in seawater, plankton, fish, and sediments.

255. BERING SEA EXPEDITION: BESEX

This joint Soviet Union-United States experiment studied microwave signatures of the atmosphere, ice, and open waters of the Bering Sea. The experiment, conducted in 1973, involved both surface and air vessels. A symposium on the results was held in the Soviet Union in 1974.

256. BIOLOGICAL INVESTIGATION OF MARINE ANTARCTIC SYSTEMS
AND STOCKS: BIOMASS

A research program proposed by the SCAR Group of Specialists on Living Resources of the Southern Ocean, BIOMASS was accepted by SCAR in 1976 and preliminary programs were begun in 1978. The first major program, to commence in 1980 and end in 1981, known as the First International BIOMASS Experiment (FIBEX), will be a multiship large-scale acoustic survey to determine data regarding krill. The second program planned is known as SIBEX. Future subprograms, to continue through 1984, are being developed by active participants which include the ACMRR, IABO, IOC, and SCOR.

257. BLACK SEA EXPEDITION: BSE

A 2-month program of studies in the Black Sea conducted in 1969 by Turkish and United States scientists studied the chemical and biological interaction between the oxygenated surface water and the anoxic deep water, the origin and geological history, and the source and nature of sediments in the sea.

258. CANADA/U.S. COOPERATIVE SURVEY OF THE GULF STREAM: CANUS

Conducted in 1964, CANUS involved the area of the Gulf Stream between Bermuda and Long Island. Ships and aircraft were used. Participating agencies were the Bedford Institute of Oceanography in Canada, the Canadian Navy and Airforce, and the U.S. Naval Oceanographic Office.

259. CIRCULATION ET PRODUCTION A L'EQUATEUR ATLANTIQUE: CIPREA

A study of the Gulf of Guinea being developed by France's Office de la Recherche Scientifique et Technique d'Outre-Mer (ORSTOM) with participation invited from other interested nations.

260. COOPERATIVE BLACK AND MEDITERRANEAN SEAS STUDY: COBLAMED

A series of air/sea interaction studies of the Mediterranean and Black Seas, sponsored by NATO. Originated in 1969, the operations have continued periodically.

261. COOPERATIVE INVESTIGATIONS OF THE CARIBBEAN AND ADJACENT
REGIONS: CICAR

Proposed by The Netherlands government and adopted by IOC in 1967, CICAR was a multinational program managed by an International Coordination Group (ICG) under the aegis of IOC. FAO and WMO were also collaborating. An Operations Coordinator, located at the

Caribbean Marine Biological Institute (CARMABI), Willemstad, Curacao, was responsible for communications and coordination.

Investigations began in 1970 and extended through 1975; a final symposium was held in 1976. Objectives of the program were to understand the air/sea interaction; circulation into, out of, and within the Caribbean; marine chemistry and related biological processes; and water-sediment interface. In 1975, upon recommendation of the ICG for CICAR, the University of Puerto Rico performed a CICAR Intercalibration Experiment (CINTEX) as a part of CICAR.

A special data inventory form, known as CICARDI, was designed to indicate all unclassified data collected by participants. The U.S. National Oceanographic Data Center (NODC) was the Regional Data Center (RDC) for CICAR and processed standard (physical/chemical) oceanographic data. The Mexican Oceanic Sorting Center (CPOM) holds the biological data.

At the close of CICAR in 1976, plans were formulated to continue regional activities in the Caribbean under the direction of the newly organized IOC Association for the Caribbean and Adjacent Regions (IOCARIBE).

262. COOPERATIVE INVESTIGATION IN THE MEDITERRANEAN: CIM

A UNESCO meeting of experts in 1965 conceived of a Cooperative Study of the Southern Mediterranean (CSSM) based upon recommendations from ICSEM for a study of the influence of Atlantic waters upon the Southern Mediterranean and a request from MAMBO for a biological research program for the southwestern part of the Sea. When the proposal was presented to IOC in 1966, it was recommended that the program involve the whole of the Mediterranean and include the Black Sea. CIM was originally organized in 1969 under the joint sponsorship of FAO/GFCM, ICSEM, and IOC, as a multiship program covering all aspects of oceanographic research for the Mediterranean with special attention to the protection of the area. The program is currently in abeyance.

A Group for Technical Coordination (GTC), composed of representatives from the three sponsoring organizations, coordinated and supervised the logistical organization and provided technical assistance to participants as needed. An International Group for Scientific Coordination (IGSC), composed of experts nominated by the participating countries, was responsible for the scientific programs. IGSC was dissolved in 1975. The Operational Unit was located in Monaco. WDC-B for Oceanography was designated the Regional Data Center (RDC), and MMSC, now abolished, was the official biological sorting center. A newsletter, published at irregular intervals, described programs and accomplishments. CIM was also responsible for the International Bathymetric Chart of the Mediterranean (IBCM).

263. COOPERATIVE INVESTIGATIONS IN THE NORTH AND CENTRAL WESTERN INDIAN OCEAN: CINCWIO

IOC, at the tenth session of its assembly held in 1977, approved recommendations made in 1976 to initiate CINCWIO and decided to convene a meeting of the countries in the region to initiate planning, identify requirements, and coordinate the projects under the program. The meeting was held in March 1979. At the 11th session of its assembly held late in 1979, IOC formed a Technical Advisory Group (TAG) for CINCWIO.

264. COOPERATIVE INVESTIGATIONS OF A LARGE OCEAN GYRE: CILOG

This is a proposed program.

265. COOPERATIVE INVESTIGATIONS OF THE NORTHERN PART OF THE EASTERN CENTRAL ATLANTIC: CINECA

This program, begun in 1970 and terminated in 1978, aimed at determining the biological, chemical, geological, meteorological, and physical features, including fishery aspects, of the West African coastal areas. It was sponsored jointly by FAO (CECAF), ICES, and IOC; 13 national states participated. The Service Hydrographique of ICES acted as the Regional Data Center (RDC) and irregularly published a newsletter describing the program.

A subprogram, associated with CINECA, but later conducted independently by the United States with assistance from Spain, used satellites to study the upwelling in the area. Known originally as the Skylab Upwelling Experiments, it was renamed the Sahara Upwelling Experiment. The acronym SUE applies to both names.

266. COOPERATIVE PROGRAM OF RESEARCH ON AQUACULTURE: COPRAQ

Sponsored by the General Fisheries Council for the Mediterranean (GFCM) and coordinated by the European Inland Fisheries Advisory Committee (EIFAC), COPRAQ's purpose is the promotion of aquaculture in the Mediterranean area. One area of research is on factors hampering aquaculture.

267. COOPERATIVE STUDY OF THE KUROSHIO AND ADJACENT REGIONS: CSK

Conceived in 1962 at a meeting of the Marine Science Experts in East and Southeast Asia and approved by IOC in 1964, CSK had the prime objective of understanding the water exchange between the Kuroshio and the Pacific Ocean. In 1970, the area was extended to include the South China Sea. CSK terminated in 1977. A newly formed IOC Working Group for the Western Pacific (WESTPAC) is proceeding with plans to continue a cooperative marine science program in this area.

The program had 11 contributors. An International Coordination Group (ICG) was responsible for the coordination of the program. The Regional Data Center (RDC) was the Kuroshio Data Centre (KDC), which co-exists with the Japan Oceanographic Data Centre (JODC). Regional Marine Biological Centre (RMBC) at Singapore was responsible for the biological data.

268. COOPERATIVE SURVEY OF THE NORTHERN PACIFIC: NORPAC

A synoptic survey of the North Pacific Ocean north of latitude 20°N, NORPAC was made in 1955 by oceanographers from Canada, Japan, and United States. Data from NORPAC are in the U.S. National Oceanographic Data Center and also in the publication "Oceanographic Observations of the Pacific, 1955, the NORPAC Data," prepared by the NORPAC Committee and published by the University of California Press in 1960. The data report has an extensive bibliography of reports resulting from the survey. In addition, the Committee prepared an atlas of NORPAC information, also published by the University of California Press in 1960.

269. COOPERATIVE SURVEY OF THE PACIFIC EQUATORIAL ZONE: EQUAPAC

This oceanographic study of the Pacific was made where the equatorial undercurrent was known to exist. Conducted in 1956, the participants were France (the Noumea Oceanographic Centre, New Caledonia), Japan, and United States.

270. COOPERATIVE SYNOPTIC INVESTIGATIONS OF THE BALTIC: CSIB

An ICES-sponsored multinational, multiship program to investigate the Baltic. The program was conducted in 1964 and received financial support from UNESCO.

271. CYANA-MEXIQUE: CYAMEX

An exploration of the East Pacific Rise (EPR) with participants from France, Mexico, and the United States. CYAMEX is patterned after FAMOUS and utilizes the French submersible Cyana. The first phase of CYAMEX, a study of the Rivera and Tamayo faults and known as RITA, was conducted in 1978.

272. EARTHWATCH

This worldwide environmental monitoring system was developed under the sponsorship of the United Nations Environment Program (UNEP). Its goals are to identify pollutants of international significance; coordinate monitoring of pollution levels around the world; investigate and compare the sources, pathways, and fate of pollutants in the environment; and establish standards for protection and procedures for determining pollution level limits. Monitoring goals of Earthwatch are implemented by a Global Environmental Monitoring System (GEMS), a coordinated effort to ensure that data on environmental variables are collected in an orderly and adequate manner. A plan of action for the monitoring of pollutants in open-ocean waters is being developed. The International Referral System (INFOTERRA, formerly IRS) was developed to supplement EARTHWATCH.

In 1976 UNEP and WHO established a data bank called the International Register of Potentially Toxic Chemicals (IRPTC) to be closely associated with Earthwatch. Resources to IRPTC will be made available through other international and national agencies. Earthwatch also cooperates closely with other environmental programs such as the First GARP Global Experiment (FGGE), the Integrated Global Ocean Station System (IGOSS), and World Weather Watch (WWW). Among the other international agencies participating in Earthwatch are FAO, ICES, IOC, and WMO.

273. EASTERN TROPICAL PACIFIC COOPERATIVE SURVEY: EASTROPIC

In 1955, Peru and United States made this survey of the currents and productivity of the equatorial countercurrent, the equatorial undercurrent, and the northern boundary of the Peru current.

274. EL NINO PROJECT

Sponsored by the Inter-American Tropical Tuna Commission (IATTC) with participation from IATTC member nations, the El Nino Project was conducted from 1963 to 1966. Its purpose was to test the several theories relating to the phenomenon known as El Nino of unusual oceanographic conditions off the east coast of South America between January and April and at periodic intervals of 2 to 12 years. The phenomenon consists of warm surface waters moving into normally temperate coastal regions and leading to the wholesale destruction of marine animal and plant life.

In 1965-66 the project expanded to include the Augmented Colombian El Nino Tuna Oceanography (ACENTO), an extension of a Colombian work to include a lengthier study of the Panama Bight area where the abundance of tuna and the environment vary seasonally.

275. ENGLISH-FRENCH GEOLOGICAL MAPPING OF THE SEABED BENEATH THE ENGLISH CHANNEL: GEOMANCHE

This cooperative program to map the seabed beneath the English Channel originated in 1970. The first map sheets were available in 1973. Participants are the French Bureau de Recherches Geologiques de Minieres (BRGM) and the Centre National d'Exploration des Oceans (CNEXO); and the British Institute of Geological Sciences (IGS), Bristol University, and the University College in London.

276. FIRST INTERNATIONAL SATURATION STUDY OF HERRING AND HYDRO-ACOUSTICS: FISSHH

An underwater research mission conducted by the National Marine Fisheries Service (NMFS) of the United States in cooperation with the Federal Republic of Germany and using their underwater laboratory, HELGOLAND. The study is being made off Rockport, Mass.

277. GLOBAL NETWORK FOR ENVIRONMENTAL MONITORING: GNEM

This proposed network would be capable of measuring biological and physical parameters to establish ecological baselines that will lead to a better understanding of human impact on the biosphere. Coordinating agencies as proposed include ICSU and UNEP.

278. GLOBAL NETWORK FOR MONITORING THE BIOSPHERE: MABNET

Proposed is a global network of environmental monitoring eco-stations, together with a communication network, an extensive data storage and retrieval system, and an international biosphere research center to develop ecosystem models for evaluating human impact on the environment and to develop plans for the rational management and conservation of the natural resources of the environment.

279. ICE SHELF DRILLING PROJECT: ISDP

Proposed by the SCAR Group of Specialists on Ice Shelf Drilling Projects, the ISDP program was accepted by SCAR and the first project, the Ross Ice Shelf Project (RISP), is being developed.

280. INTEGRATED GLOBAL OCEAN STATION SYSTEM: IGOSS

This cooperative program provides more extensive and timely ocean information and predictions of the state of the ocean and its interaction with the atmosphere, and supports research on ocean processes. IGOSS was conceived in 1967 and has been developed jointly by IOC and WMO to meet the need for global oceanographic information comparable to the meteorological information supplied by the World Weather Watch (WWW).

The IGOSS General Plan and Implementation Program for Phase I was adopted by IOC and later by WMO in 1969. The 1977-1982 plan was adopted by both in 1977. Organizations developed to implement IGOSS are described in entry 39.

IGOSS is intended to be an amalgamation of national environmental monitoring and prediction systems brought together as a dynamic worldwide system for measuring or observing the marine environment. The system, known as the IGOSS Observing System (IOS), will include expanded monitoring of the oceans from ships, buoys, aircraft, satellites, and shore or island-based stations. The basic component of IOS is collectively known as the IGOSS Basic Observation Network Design (IBOND). The IGOSS Data Processing and Services System (IDPSS) will provide an international basis for preparation of oceanographic analyses and forecasts by World Oceanographic Centres (WOCs), Specialized Oceanographic Centres (SOCs), and National Oceanographic Centres (NOCs), each of which has specific functions regarding the kind of data to be processed. Important to the system is the archiving and retrieval of IGOSS data. World Data Centers A and B for Oceanography (WDC-A and -B), responsible National Oceanographic Data Centers (RNODC's), and National Oceanographic Data Centers (NODC's) have been assigned specific procedures for handling IGOSS data. The procedures are outlined in the Manual on IGOSS Data Archiving and Exchange. IGOSS also provides for predictions of significant characteristics of the marine environment and the development of ocean behavior models for improved predictions. The IGOSS Pilot Project

for the Collection, Exchange, and Evaluation of Bathythermograph Data (BATHY Pilot Project) was conducted from 1972 to 1975. In 1975 it was converted into a permanent program called the IGOSS Operational Programme for the Collection and Exchange of Oceanographic Data (BATHY and TESAC). Operational instructions for the program are contained in the Guide to Operational Procedures for the Collection and Exchange of Oceanographic Data (BATHY and TESAC). The Marine Pollution (Petroleum) Monitoring Pilot Project (MAPMOPP) began in 1975 and continued through 1978. The IGOSS General Plan and Implementation Program for 1977-82 includes a pollution monitoring program linked to GEMS/EARTHWATCH. Operational instructions for this project are contained in the Guide to Operational Procedures for the IGOSS Pilot Project on Marine Pollution (Petroleum) Monitoring. IGOSS will include pilot experiments in select ocean areas where its products can be applied to oceanic analyses and forecasts relating to the determination of fish distribution and in support of scientific experiments.

Essential to IGOSS is the means for rapid communication of data. To assist, the 1967 World Administrative Radio Conference (WARC) allocated radio frequencies for the transmission of ocean data. In 1974, the World Maritime Administrative Radio Conference (WMARC) agreed to the retention of these HF bands.

281. JOINT AIR/SEA INTERACTION EXPERIMENT: JASIN

A separate IGOSS program, JASIN, included experiments on the mixed layer and seasonal thermocline in the Atlantic Ocean. JASIN I, a preliminary program, was held in 1972; its participants were the United Kingdom and the United States. JASIN II was conducted in 1977-78, and its participants were Canada, the Federal Republic of Germany, and the Netherlands.

282. INTERNATIONAL COOPERATIVE INVESTIGATIONS OF THE TROPICAL ATLANTIC: ICITA

At its first meeting in 1961, the Intergovernmental Oceanographic Commission (IOC) considered a proposal for a cooperative study of the tropical Atlantic and Gulf of Guinea. The proposal was adopted at the 1962 sessions of the Commission and became the first international cooperative investigation to be organized by the newly established IOC. Investigations taken include measurements of physical, chemical, biological, meteorological, geological, and geophysical aspects of the areas. The studies were in three phases, known as EQUALANT I, II, and III. The first two phases were in 1963, and the third in 1964. Ten nations participated in one or more of the phases. Associated with EQUALANTS II and III was the Guinean Trawling Survey, described in entry 229.

Data from the investigations are in the archives of the U.S. National Oceanographic Data Center (NODC). Results of the three are published in NODC's General Series of publications, numbers 3, 5, and 7, respectively.

283. GUINEAN TRAWLING SURVEY: GTS

Conducted in 1963-64 to correspond with phases II and III of EQUALANT, GTS consisted of trawling surveys of the continental shelf and Gulf of Guinea. The Commission for Technical Cooperation in Africa South of the Sahara (CCTA) was the primary sponsor; UNESCO and its IOC, and FAO assisted. The Department of Technical Cooperation of the United Kingdom and the United States Agency for Economic Development provided principal funding.

Bathythermograph and oceanographic station data taken during the GTS were processed by and are available from the U.S. National

Oceanographic Data Center (NODC). They are also available in a separate report prepared by NODC and published by the Scientific, Technical, and Research Commission of the Organization of African Unity (OAU/STRC), successor to the CCTA. The report, entitled "Report on the Guinean Trawling Survey, volume III, Data Report," is OAU/STRC publication no. 99. It is also no. 8 in the NODC General Series.

284. HISTORICAL SEA SURFACE TEMPERATURE DATA PROJECT: HSSTD

This WMO-sponsored project aims to prepare and publish monthly means of meteorological data over ocean areas for the period 1860-1960, where data are available. Four countries, Federal Republic of Germany, The Netherlands, United Kingdom, and United States, have the bulk of the data and are participants.

Marine meteorological data collected since 1960 are being published in a series of "Marine Climatological Summaries." Nine member nations are participating in these publications under the direction of WMO. Several summaries have been published to date.

285. INTERNATIONAL BALTIC YEAR: IBY

In 1969 and 1970, a series of expeditions were made by research vessels from all Baltic countries with support from the International Council for the Exploration of the Sea (ICES) and the Conference of Baltic Oceanographers (CBO).

286. INTERNATIONAL BIOLOGICAL PROGRAMME: IBP

UNESCO and ICSU sponsored IBP, which was established in 1966. ICSU in turn created a Special Committee to supervise the program (SCIPB). The program included many subprograms. Those dealing with marine productivity were referred to as IBP/PM. IBP was concluded in 1974. The Man and the Biosphere Program is being designed to continue many projects initiated during IBP.

One of the marine productivity subprograms was the Upwelling Biome Integrated Research Program, conducted in March 1972 off the coast of Punta San Hipolito, Baja California. Also called the MESCAL program, it was one of the forerunners of the Coastal Upwelling Ecosystem Analysis (CUEA) program of the International Decade of Ocean Exploration (IDOE).

287. INTERNATIONAL COOPERATIVE EFFORT TOWARD UNDERSTANDING OF THE EASTERN TROPICAL PACIFIC OCEAN: EASTROPAC

A cooperative survey of the Eastern Tropical Pacific Ocean was conceived at the 1960 meeting of the Eastern Pacific Oceanographic Conference (EPOC), an advisory group of U.S. oceanographers. The concept of the survey was supported by IOC in 1961, and the first scheduled cruise was in 1967. Other participants included the Inter-American Tropical Tuna Commission (IATTC) and the five member governments of IATTC at that time.

The U.S. National Marine Fisheries Service has published a comprehensive 11-volume Atlas incorporating data from the cruises. Following production of the atlas, the data were forwarded to the U.S. National Oceanographic Data Center for archiving.

288. INTERNATIONAL GEODYNAMICS PROJECT: IGP

Established in 1970 at the instigation of IUGG and IUGS and administered by the ICSU Inter-Union Commission for Geodynamics (IICG), the project is in a sense a successor to the Upper Mantle Project (UMP). It was conceived as a result of the new premises

regarding continental drift, plate tectonics, and ocean floor spreading, and the concept achieved during UMP on the need for continuing close collaboration of Earth scientists of all types. Over 50 countries participated in IGP programs which included studies of the ocean floor, the continental shelves, and ocean-continent tectonic correlations. IGP ended in December 1979. A new program to continue this research was approved by ICSU in September 1980. Formally titled Dynamics and Evolution of the Lithosphere: the Framework for Earth Resources and the Reduction of Hazards, it is commonly called the International Lithosphere Program. It is directed by the International Commission on the Lithosphere (ICL).

289. INTERNATIONAL GEOPHYSICAL YEAR: IGY

One of the largest global science research programs, and one of the first, IGY consisted of cooperative investigations of the Earth's interior, crust, and oceans. It was recommended in 1950, approved by ICSU in 1951, undertaken from July 1, 1957, to December 31, 1958, and continued during 1959 when it was known as the International Geophysical Cooperation or IGC. ICSU established a special committee, known as CSAGI, to coordinate the scientific planning of IGY, and data from the many programs were deposited in the newly created World Data Centers (WDC's) supervised by CSAGI.

Programs in oceanography centering on shore-based operations were mainly directed to determine the sea-surface oscillations of frequencies between one per year and one per minute. Strategic locations, designated as "Island Observatories," were chosen to expand observations of tidal oscillations. Serial observations, that is, the measurement of water temperature and salinity to a depth of 900 feet, were also taken in the vicinity of the island observatories. The deepwater observations, taken from ships, included standard hydrographic work, continuous bathymetry, and marine geology, with the emphasis placed on obtaining better information on the general circulation of the oceans, particularly that of subsurface currents.

290. INTERNATIONAL HYDROLOGICAL DECADE: IHD

A UNESCO-sponsored program designed to promote cooperation in developing hydrological research techniques, to disseminate hydrologic data, and to plan for hydrological installations. The Decade, 1965-74, was administered by a Coordinating Council selected at the general conference of UNESCO together with members from the other participating agencies, which included WMO, IAEA, WHO, and FAO of the United Nations; and IAHS, IAH, and IBP of ICSU. IAHS was the principal scientific adviser. One of the panels for IHD was the Panel on Systems for the Acquisition, Transmission, and Processing of Hydrological Data, known as SAPHYDATA. Entry 291 describes one of the IHD subprograms.

291. INTERNATIONAL FIELD YEAR FOR THE GREAT LAKES: IFYGL

Subprograms within IHD were generally performed at the national level, though two or more nations could cooperate in a program of mutual concern. One such program was the International Field Year for the Great Lakes (IFYGL), established jointly by Canada and the United States. IFYGL went into operation in 1972 and consisted of a multidisciplinary survey of Lake Ontario. Purposes of the survey were to understand the drainage basin, to ensure that its waters will remain sufficient in quantity and quality, and to assist operations affected by the environment.

292. INTERNATIONAL HYDROLOGICAL PROGRAM: IHP

In 1972, to ensure continuing cooperative research in hydrology, the Coordinating Council of IHD approved an International Hydrological Program to begin in 1975 at the close of IHD. Objectives of IHP include investigations of large-scale processes of moisture transfers; quantitative and qualitative assessments of the effects of human activities on the water cycle; dissemination of information on new methods for measuring, computing, and forecasting water balance elements; and education and training of people in hydrology and the field of water resources. Details for IHP were worked out at the End-of-the-Decade Conference held in September 1974.

293. INTERNATIONAL INDIAN OCEAN EXPEDITION: IIOE

Conceived by SCOR in 1957 as a large-scale, multinational, multi-ship, multidisciplinary coordinated study of the Indian Ocean, IIOE lasted from 1959 to 1965. In 1962, responsibility for coordinating the program was transferred to IOC; SCOR retained an advisory role regarding scientific disciplines. WMO and FAO also participated.

An Indian Ocean Biological Centre (IOBC) was established in Cochin in 1963 to serve as a sorting station for zoological samples. An International Meteorological Centre (IMC) was established in Bombay under the supervision of WMO to handle meteorological data. Copies of all data are in or will be sent to the two world data centers for oceanography.

Numerous publications relating to IIOE have or are being compiled. UNESCO has published an eight-volume series of collected reprints, accompanied by a separate index, based on the research. Atlases showing physical/chemical oceanographic data, geology, and meteorological data are now available.

294. INTERNATIONAL INDIAN OCEAN FISHERY SURVEY AND DEVELOPMENT PROGRAMME

The programme, which was proposed in 1971, is sponsored by IOFC/FAO and funded by UNDP.

295. INTERNATIONAL PHASE OF OCEAN DRILLING: IPOD

IPOD had its origins in the Deep Sea Drilling Project (DSDP) sponsored by the U.S. National Science Foundation (NSF). It began in 1968 and was largely conducted by the Scripps Institution of Oceanography (SIO) with technical support and advice from the Joint Oceanographic Institutions for Deep Earth Sampling (JOIDES). Since 1973 a number of other countries have participated in the program, renamed the International Program of Ocean Drilling (IPOD) to reflect this international cooperation.

IPOD was scheduled to end in 1979. However, with the many improvements in ocean drilling technology being developed, a conference on the Future of Scientific Ocean Drilling (FUSOD) was held in 1977, and recommendations were made to extend IPOD into the 1980's.

296. INTERNATIONAL WEDDELL SEA OCEANOGRAPHIC EXPEDITION: IWSOE

The first IWSOE was conducted from 1968 to 1970 and consisted of physical, biological, geological, and current observations in the southern Weddell Sea where the major portion of the Antarctic Bottom Waters (AABW) originate. Argentina, Norway, and United States participated.

A second IWSOE was held in 1975 to extend the physical oceanographic investigations to the unexplored western part of the Sea and to set two long-term current meter moorings in the northern part of the Sea.

297. JOINT INVESTIGATION OF THE SOUTHEASTERN TROPICAL ATLANTIC:
JISETA

This joint Angola-United States program studied the ecology of the tropical Atlantic tuna off the coast of Africa from the Equator to latitude 17°S. Conducted in 1968, the program centered on the relation between the distribution of surface schooling tunas and seasonal environmental changes. Physical/chemical data are included in the U.S. National Marine Fisheries Service Data Report No. 82.

298. JOINT NORTH SEA INFORMATION SYSTEM: JONSIS

Originated in 1970, JONSIS is a joint Belgium, British, Dutch, German Federal Republic, and Swedish effort to develop a network of moored ocean data stations to collect data for the mathematical modeling of North Sea circulation. The group working on the project is known as the Joint North Sea Modeling Group (JONSMOD). By 1971, a pilot network of 24 stations was operational, serving as a test for practical problems of data recording and exchange. Since its inception, the project has been expanded to include the establishment of a network of permanent installations for providing data related to a number of oceanographic and meteorological problems. The project coordinator is the Study Committee on Ocean Data Stations (SCODS) of the United Kingdom's Natural Environment Research Council (NERC).

The program of deployment of the tide gages and current meters is known as the Joint Oceanographic North Sea Data Acquisition Programme (JONSDAP).

The first phase was called JONSDAP '73. A 1976 continuation, called JONSDAP '76, included two subprograms: FLEX, also called FLEX BOX, consisting of an investigation of coupled biological, chemical, and interaction processes in the Fladden Ground area during the first spring heating and the beginning of the spring plankton bloom; and INOUT, a study of the inflow and outflow as well as the modeling of tidal and residual circulation, originally conducted at the northern boundary of the North Sea and later enlarged to include the whole of the North Sea. JONSDAP terminated with the 1976 program.

299. JOINT NORTH SEA WAVE ANALYSIS PROJECT: JONSWAP

A study of the relation between surface waves and prevailing wind conditions, JONSWAP features cooperative gathering of data from sensors placed on towers and buoys in the sea and from aircraft overflights.

Planning for JONSWAP began in 1968, and trial experiments were made in 1973. Extensive operations were held in the summer of 1975. Data from JONSWAP will be used in the North Sea Wave Model (NORSWAN), an international cooperative project developed by the British.

300. JOINT SKAGERRAK EXPEDITION

The multiship, multination expedition sponsored by ICES with financial support from UNESCO was undertaken in 1966 to explore the Skagerrak. Current and chemical data as well as standard oceanographic data were taken.

301. JOINT UNESCO-IUGS INTERNATIONAL GEOLOGICAL CORRELATION
PROGRAM: IGCP

Organized in 1972. IGCP is a cooperative program consisting of many subprograms. Its objective is a better understanding of the geology of the Earth, including that of the ocean floors, and a better knowledge of mineral resources through regional, interregional, and intercontinental correlation of geological formations and phenomena.

302. LONG-TERM AND EXPANDED PROGRAM OF OCEANIC EXPLORATION AND RESEARCH: LEPOR

LEPOR is the scientific program that IOC adopted at its ninth session in 1969. The first phase of LEPOR, known as the acceleration phase, is the International Decade of Ocean Exploration (IDOE), which incorporates all projects to be carried out during the decade 1971-80. Entries 303 through 324 describe these projects.

The broad purpose of LEPOR is ". . . to increase knowledge of the ocean, its contents, the contents of its subsoil, and its interfaces with the land, atmosphere, and ocean floor, and to improve understanding of the processes operating in or affecting the marine environment with the goal of enhanced utilization of the ocean and its resources for the benefit of mankind."

303. INTERNATIONAL DECADE OF OCEAN EXPLORATION: IDOE

IDOE was proposed by the United States in 1968 and accepted internationally in the same year as the acceleration phase of LEPOR. IDOE consists of national programs that are so comprehensive and so large that participation of scientists is actively sought. IDOE can be coordinated through bilateral, multilateral, regional, or broad international arrangements. The Decade is to last from 1971 to 1980. Plans to continue cooperative programs in the post-IDOE are currently under review.

IDOE programs generally fall into one of four major areas. Those identified to date are described according to the major area.

Environmental Quality

Major research areas for the IDOE program in environmental quality include baseline data collection, studies of the transfer and effects of pollutants, and the use of geochemical analysis in the study of diffusion, mixing, and large-scale ocean circulation. Entries 304 through 311 describe the programs identified to date.

304. GLOBAL INVESTIGATION OF POLLUTION IN THE MARINE ENVIRONMENT: GIPME

A comprehensive plan, GIPME was proposed by IOC's GELTSPAP and accepted in 1972. An IOC International Coordination Group, later replaced by a Working Committee, finalized the plans in 1976. The plan provides for an internationally coordinated research program that will develop criteria for marine pollution monitoring. Studies being developed include baseline studies; terrestrial, atmospheric, and river inputs of pollutants to the oceans; process-determining pathways and distributions of pollutants; mass balances of pollutants; close-response relations between pollutants and marine organisms; bioaccumulation of pollutants; monitoring biological effects; long-term effects of pollutants on marine ecosystems; periodic review of the state of "health" of the ocean; the organization of laboratory networks; the development of training programs; and the exchange of scientific data.

305. CONTROLLED ECOSYSTEM POLLUTION EXPERIMENT: CEPEX

A 6-year program, announced in 1973, CEPEX is to learn how pollutants affect plant and animal life in the world oceans. Specifically, the program will study the effects of chemical pollutants on plankton. Canada, United States, and United Kingdom are participating, and test sites are in British Columbia, Canada, and Scotland. Associated with CEPEX is the term "Controlled Experimental Ecosystem (CEE)," a plastic cylinder in which water is impounded and studied during CEPEX experiments.

306. GEOCHEMICAL OCEAN SECTION STUDY: GEOSECS

A global program for studying oceanic processes, GEOSECS included the measurement of all important geochemicals and the study of their relation to large-scale ocean circulation problems. The Atlantic Ocean Study was held in 1972-73, the Pacific Ocean Study in 1974-75, and the Indian Ocean Study in 1975-76. The latter is also referred to as INDOCHEM. Participating countries included Belgium, Canada, Federal Republic of Germany, France, India, Japan, United Kingdom, and United States. A GEOSECS Operations Group was known as GOG.

307. BIOLOGICAL EFFECTS PROGRAM: BEP

Initiated in 1973, BEP, conducted by U.S. scientists, was terminated in 1978. Its purpose was to evaluate sublethal low-level effects of trace metals, petroleum, chlorinated hydrocarbons, and phthalates on the growth, behavior, and biochemical processes of several classes of marine organisms.

308. GULF UNDERWATER FLARE EXPERIMENT: GUFEX

An IDOE field program, GUFEX was designed to study the effects of aliphatic and aromatic hydrocarbons (C_1 through C_{10}) on marine phytoplankton with program components involving the fates and transfers of these hydrocarbons in and between the various geospheres and the biosphere. It was conducted off the coast of Louisiana.

309. POLLUTANT RESPONSES IN MARINE ANIMALS: PRIMA

Initiated in 1978, PRIMA coordinates several of the efforts of BEP with new products. It focuses on the development and evaluation of a set of physiological, biochemical, and morphological criteria that can be used to assess the health of marine animals. Results of PRIMA will establish biological indicators that will provide an early warning of pollutant stress in the marine environment.

310. POLLUTANT TRANSFER PROGRAM: PTP

Initiated in 1972, PTP is concerned with the processes that transfer pollutants from land sources to the oceans and the movement and concentration of pollutants in the oceans. Objectives include the identification of important transfer pathways and mechanisms; the evaluation of major environmental factors influencing transfer processes; and the development of principles governing the transfer of pollutants.

311. SEA/AIR CHEMICAL EXCHANGE: SEAREX

SEAREX is a program to explore the sources and concentrations of inorganic and organic, manmade and natural chemicals found in air over the ocean; to find how these chemicals exchange with the sea; and to find the rate they move from the air to the ocean and from the ocean to the air. Major field experiments will begin in 1979 on islands in the trade-wind belts of the North and South Pacific. A sampling control system developed for the program and known as the Automated System for the Control of Atmospheric Sampling (ASCAS) will be connected to a computer-based Meteorological Integrating Data Acquisition System (MIDAS). A study of particle transport into the atmosphere by breaking bubbles will be carried out by using the Bubble Interfacial Microlayer Sampler (BIMS), developed for the program. France and United States are the participants. The University of Rhode Island serves as the SEAREX Data Analysis Center.

Environmental Forecasting Program

The purpose of this program is to provide the scientific base necessary for an improved capability to predict changes in the environment. Understanding the state of the oceans and the conditions in the atmosphere is critical for long-range and accurate environmental forecasting. Four major programs to date focus on these areas and are described in entries 312 through 315.

312. CLIMATE: LONG-RANGE INVESTIGATION, MAPPING, AND PREDICTION STUDY: CLIMAP

A U.S.-sponsored project, CLIMAP aims to understand and describe climatic changes over the past 700,000 years by recreating surface ocean changes associated with glacial and interglacial transitions using ocean sediment cores.

313. INTERNATIONAL SOUTHERN OCEAN STUDIES: ISOS

Proposed by the U.S. Committee on Polar Research, ISOS as recommended will consist of many field studies of ocean dynamics and monitoring and will cooperate closely with the Global Atmospheric Research Program (GARP) and its subprogram, the Polar Experiment in the Southern Hemisphere (POLEX-SOUTH). IOC is collaborating in the development of the program through its International Coordination Group for the Southern Oceans (SOC). Preliminary planning began in 1973.

The first field program, known as F DRAKE--First Dynamic Response and Kinematics Experiment in the Drake Passage--began in 1975 and terminated in 1977. It was concerned with a study of the Antarctic Circumpolar Current (ACCP). A Second Dynamic Response and Kinematics Experiment (S DRAKE) is planned for 1979. In 1978, a program to study the interaction of the ACC with the Macquarie Ridge was included in ISOS. Known as the Ridge Interaction and Downstream Gradient Experiment (RIDGE), it involved a cluster array of current meters operated by the New Zealand Oceanographic Institute (NZOI) in cooperation with the United States.

314. JOINT U.S.-U.S.S.R. MID-OCEANS DYNAMICS EXPERIMENT: POLYMODE

POLYMODE is a combination of two programs: the U.S.S.R. POLYGON project, a continuing series of experiments investigating mesoscale phenomena in the Atlantic and Pacific Oceans, and the Mid-Ocean Dynamics Experiment (MODE), a United States-United Kingdom experiment to investigate the role of medium-scale, geostrophic eddies in the general circulation of the oceans.

A Joint POLYMODE Organizing Committee (JPMOC) composed of representatives of the Union of Soviet Socialist Republics and the United States was established under the terms of the U.S.S.R.-U.S. Cooperation in Studies of the World Ocean. Other countries were invited to participate. Scientific advice is provided by SCOR's Working Group on Internal Dynamics of the Ocean, formerly the Working Group on Oceanographic Basis of Monitoring and Prediction Systems.

Preliminary testing experiments for MODE were conducted from 1971 to 1972 in a 2-degree square southwest of Bermuda at about 29°N 69°W. These, known first as Pre-Mode, were later redesignated as MODE-0 and MODE-I. The POLYGON site was at about 17°N 33°W. POLYMODE is now concentrated in the Western North Atlantic between about 5° and about 40°N. Field experiments include the Statistical Geographical Experiment designed to explore the nature of eddy phenomena and their geographic variability through the use of several moored arrays

spread widely throughout the western North Atlantic and the Local Dynamics Experiment (LDE), conducted in 1977 and 1978 at about 29°N 70°W to provide for a complete and detailed description of a local eddy field. POLYMODE's major field activities are coming to a close and analysis and interpretation of the data are expected to be accomplished in 1979-80.

315. NORTH PACIFIC EXPERIMENT: NORPAX

A program to study the long-period, large-scale interaction of the oceans and the atmosphere and to understand the processes responsible for air/sea coupling in the entire North Pacific, NORPAX was initiated in 1967 under the U.S. Office of Naval Research. Owing to its complexity, it was later cosponsored by the U.S. National Science Foundation and added to the IDOE program. It is now a U.S. project, but other interested nations are asked to participate.

The program includes the centralizing of a comprehensive data base for the North Pacific that includes bathythermograph and station data from the U.S. National Oceanographic Data Center, marine meteorological data from the U.S. National Climatic Center, and sea-level data from the Permanent Service for Mean Sea Level (PSMSL). Other sources of data are being sought.

One of the first of the NORPAX experiments is known as POLE. It covered a limited horizontal area of 200 square miles where intensive vertical samplings were taken to describe the intense wintertime interactions in thorough detail. POLE led to further plans for experiments covering larger areas of the ocean. POLE is a part of a larger program known as the Process Oriented Observation Program (POOP), whose purpose is to gain insight into the processes governing the thermal weather of the upper layer of the North Pacific Ocean.

Other NORPAX programs include AIRPAX, a field program begun in 1974 to take Aircraft Expendable Bathythermographs (AXBT) observations at fixed locations along long. 158° and 170°W between latitudes 30° and 50°N in order to describe and explain qualitatively the observed temporal and spatial fluctuations of the near-surface thermal field; TRANSPAC, a program initiated in 1974 to place observers on commercial ships crossing the Pacific to monitor the thermal structure of the mid-latitude Pacific; the Anomaly Dynamics Study (ADS), a program associated with TRANSPAC to study causes of changes in the thermocline structure of the Pacific; the Equatorial Dynamics Study (EDS) of the east-west current system in the low-latitude Pacific; and the Atmospheric Climate Study (ACS) to develop statistical/phenomenological models of the response of the atmospheric circulation to sea-surface temperature anomalies.

NORPAX's programs were expanded in 1977, during the First GARP Global Experiment (FGGE), to include investigations of the equatorial Pacific to provide a description of the processes that account for the low-frequency change in the heat content of the surface layer of the tropical Pacific.

Seabed Assessment Program

This program is designed to increase the understanding of the geologic processes active along the continental margins, the mid-oceanic ridges, and the deep ocean basins that generate raw materials needed by our civilizations. Individual programs are described in entries 258 through 261.

316. FRENCH-AMERICAN MID-OCEAN UNDERSEA STUDY: FAMOUS

A 3-year cooperative program of France and the United States to undertake a detailed study of the Mid-Atlantic Ridge and rift valleys, FAMOUS is using submersibles. Participating in the program are the Centre National pour l'Exploitation des Oceans (CNEXO) in France, and the Woods Hole Oceanographic Institution (WHOI), in the United States.

317. MANGANESE NODULE PROGRAM: MANOP

Formulated in 1972, MANOP studies have evolved into three phases: Phase I involved compiling existing manganese nodule data into a baseline for defining future field work; Phase II involved a series of cruises into areas of the northern equatorial Pacific where extensive deposits of nodules are located; and Phase III involves a detailed study of the influx, remobilization, and final disposition of transition metals supplied to the deep-sea floor of the central eastern Pacific.

A Bottom Ocean Monitor (BOM) package was developed, deployed, and recovered during Phase II. Deployed for 4 months, it contained a camera, current meter, and nephelometer for measuring suspended sediment concentration in the near-bottom water.

318. NAZCA LITHOSPHERIC PLATE STUDY

This is a detailed study of the processes of crustal formation and destruction that take place at the diverging and converging edges of a well-defined lithospheric plate. The Nazca Plate, selected for the study, is in the southeastern Pacific Ocean and borders the western coast of South America.

319. TRANSATLANTIC GEOTRAVERSE: TAG

Partly included in IDOE, TAG began in 1970 and lasted to 1974. The area traversed lies between Cape Hatteras in the United States and Cap Blanc on the west coast of Africa, the path calculated to be the track left by North America and Africa as the two receded from each other 200 million or so years ago.

320. CARIBBEAN ATLANTIC GEOTRAVERSE: CAG

Partly included in IDOE, CAG, completed in 1974, was a project to define plate margins through the identification and correlation of magnetic anomalies, interpretation of gravity and seismic reflection data, and observation of changes of sea-floor morphological provinces. Most of the tracklines for the project were oriented east-west between the Lesser Antilles and the Mid-Atlantic Ridge and were spaced about 36 km apart.

321. SOUTHWEST ATLANTIC CONTINENTAL MARGIN STUDIES: SWACM

A program, complete in 1976, SWACM gathered geological and geophysical data along the continental margin of South America from the Scotia Arc to the northeast coast of Brazil. The Brazilian portion of the program was known by the acronym REMAC--Reconhecimento da Margem Continental Brasileira.

Living Resources Program

The goal of the Living Resources Program is the improved understanding of the processes and relations that exist between the biological aspects of marine organisms and their chemical, physical, and geological environment. The program emphasizes the analysis of marine ecosystems. Entries 322 and 323 describe two programs established to date.

322. COASTAL UPWELLING ECOSYSTEMS ANALYSIS: CUEA

A program to develop simulation models of coastal upwelling ecosystems, CUEA aims to monitor a few key biological, oceanographic, and meteorological variables and predict how the system responds to change.

Six field experiments have been completed: CUE I and II (Coastal Upwelling Experiments) conducted off the coast of Oregon in 1972 and 1973, consisted of time series measurements of environmental variables and associated biological processes; MESCAL I and II, conducted in 1972 and 1973 off the coast of Baja California, consisted primarily of biological studies; and JOINT I and II. JOINT I, conducted in 1974, was an integrated biological and physical field study off the northwest coast of Africa. JOINT II, conducted off the coast of Peru in 1976-77, especially from March to May (MAM) 1977, was an intensive collaborative ecosystem study of the Peruvian upwelling region.

Other programs associated with CUEA projects off the coast of Oregon include OARS--Ocean Atmosphere Response Studies and SDP--Shelf Dynamics Program, a continuing program of current meter and sea-level measurements; and SYNAPSE, Synthesis and Publication Segment, which began after the completion of JOINT-II and will be the full CUEA project effort for about 2 years during which data processing and analysis, meetings and workshops, and publication efforts will be conducted for presentation of the data.

The Inter-Active Real-time Information System (IRIS), a shipboard computing system that acquires data in real time from an instrument array, constructs an image of the real-time environmental conditions, and represents the data graphically, was developed during CUEA.

323. SEAGRASS ECOSYSTEM STUDY: SES

Once referred to as the Seagrass Ecosystem Component Study (SECS), SES was begun in 1974 to provide information about the benthic marine ecosystem, particularly the dynamic processes by which sea grass ecosystems are maintained, their distribution, and their contribution to the seas. An International Seagrass Committee is responsible for collaboration of the program.

324. MARINE ECOSYSTEM STUDY IN TROPICAL AREAS: MESTA

Sponsored by Japan for inclusion in IDOE, MESTA began to be planned in 1975.

325. MAN AND THE BIOSPHERE: MAB

An ecological and interdisciplinary program, MAB was conceived during the 1968 UNESCO Conference on the Rational Use and Conservation of the Resources of the Biosphere and adopted in 1970. MAB includes several panels, one of which is concerned with the ecological effects of human activities on the value and resources of coastal zones, deltas, estuaries, lakes, marshes, and rivers, MAB is a continuing program, intended to be a follow-up to the International Biological Programme (IBP). It is sponsored by UNESCO, and many other international organizations are active participants; among these are FAO, ICSU/SCOPE, IUCN, WHO, and WMO.

326. MEDITERRANEAN ACTION PLAN: MAP

A UNEP-sponsored cooperative program for protecting the marine environment of the Mediterranean Sea, MAP was conceived at the 1972 Stockholm Conference and adopted in 1975. Participants include FAO/GFCM, ICSEM, IOC, and 17 of the 18 states bordering the Mediterranean.

One of the major programs approved for MAP is the Mediterranean Pollution Monitoring and Research Programme (MPMRP, or more popularly, MED POL). Ten pilot projects have been approved for MED POL, and work has begun on seven of them. They are identified as MED I, II, ... X and are largely conducted in beach or resort areas and areas where shellfish are produced.

Other components of MAP will include environmental management, negotiations for environmental laws, establishment of regional and subregional oil combating centers, standardizing measurements and analyses among participating countries, and training scientists, especially those in developing countries.

327. MEDITERRANEAN OCCIDENTAL SURVEY: MEDOC

Conducted in February and March 1969 with participation by France, Italy, the United Kingdom, and United States, MEDOC aimed to observe the process of deepwater formation in the Algerian-Provencal basin of the western Mediterranean Sea caused by the flow of continental air masses, which increases the density of the waters in winter by increasing salinity and lowering the temperature of surface waters.

328. NORTHEAST ATLANTIC DYNAMICS STUDIES: NEADS

Organized in 1976 and sponsored by SCOR, NEADS is complementary to and closely associated with POLYMODE. It consists of a number of subprograms concentrated in the northeast Atlantic and conducted by participating countries including Canada, France, Federal Republic of Germany, United Kingdom, United States, and Union of Soviet Socialist Republics.

329. NORTHWESTERN ATLANTIC ENVIRONMENTAL SURVEY: NORWESTLANT

An environmental study of the waters around Greenland in 1963, NORWESTLANT was sponsored by ICNAF. The study was to determine the distribution of redfish larvae, and cod eggs and larvae and associated environmental conditions. Reports and data resulting from the survey are published in the ICNAF Special Publication no. 7, which includes four parts: Part I, text and figures; Part II, atlas; Part III, data record in three volumes; and Part IV, biological data.

330. OVERFLOW PROGRAMS

Programs, sponsored by ICES, to study the overflow process of cold arctic water in the North Atlantic. The first, known as the "IGY Polar Front Survey," was conducted in 1957-58 and dealt with the hydrography in the North Atlantic. Two latter programs, designated "Overflow," are known as Overflow 1960, which concentrated on an investigation of the overflow over the Iceland-Faroe Ridge; and Overflow 1973, which studied the dynamics of water masses and their environmental significance in the Greenland-Scotland Ridge.

331. PERSPECTIVE STUDY OF WORLD AGRICULTURAL DEVELOPMENT: PSWAD

Originally established as the Indicative World Plan for Agriculture (IWP), PSWAD is an FAO-sponsored program to project and influence the future of agriculture and fisheries by improving technology. Included in the study is the World Appraisal of Fishery Resources (WAFR). As a part of the study, FAO is sponsoring or participating in several projects for studying coastal upwelling to gain a better knowledge of factors affecting fisheries.

332. PROGRAMME FOR THE ANALYSIS OF WORLD ECOSYSTEMS: PAWE

An outgrowth of the United Nations Conference on the Human Environment (UNCHE), PAWE will consist of a series of subprograms that are now being developed.

333. PROJECT LITTLE WINDOW

This was a cooperative calibration study to obtain information across the air-sea interface and extending into the troposphere so that that high-resolution infrared radiometer (HRIR) sensors aboard the satellites observing the area could be calibrated and a check made on their areal resolution. The field operations took place in March 1970 in the lower Gulf of California. Participants included IATTC, the Mexican Navy, United States National Oceanic and Atmospheric Administration, and United States Navy. IATTC processed the data.

334. REGIONAL POLLUTION STUDIES IN THE LIGURIAN SEA: RAMOGE

ICSEM sponsored RAMOGE; France, Italy, and Monaco participated.

335. RHODAMINE EXPERIMENT IN THE NORTH SEA: RHENO

An ICES-sponsored project in 1965, RHENO gained a deeper insight into how turbulence influences the characteristics of mixing of seawater. A large amount of Rhodamine-B dye was added to the seawater in the North Sea, and a number of strategically placed ships measured the resulting discolored patch to determine its spread and intensity.

336. RUMPHIUS EXPEDITION

Organized by the National Institute of Oceanography of Indonesia (Lembaga Oseanologi Nasional) in 1971, the expedition was conducted in 1973. It received support from UNESCO. Named in honor of Georgius Everhardus Rumphius (1627-1702), who contributed to the knowledge of flora and fauna of Malaku, its main objective was an inventory of the fauna of Malaku. Rumphius II is now being planned.

337. SOUTH ATLANTIC COOPERATIVE INVESTIGATIONS: SACI

A descriptive oceanographic expedition to survey the east coast of South America from 23° to 46°S, SACI was sponsored by IOC with participation by the Consejo Latino-Americano de Oceanografia (CLAO), Argentina, Brazil, and Uruguay. Phases of the expedition were labeled "TRIDENT." The expedition took place from 1962 to 1963.

338. SOUTH CHINA SEA FISHERIES DEVELOPMENT AND COORDINATION PROGRAMME

This aquaculture project, also called the South China Sea Project, is funded by the United Nations Development Programme (UNDP) and managed by the Indo-Pacific Fisheries Commission (IPFC). The program became operational in 1973. Participants are Indonesia, Khmer Republic, Malaysia, Republic of the Philippines, Singapore, Thailand, and the United Kingdom (Hong Kong).

339. UN PROGRAMME IN MARINE AND COASTAL TECHNOLOGY: MACTECH

A cooperative program for developing countries, MACTECH began in 1973 and was formulated in 1977 into regional and national programs to develop coastal areas. A major concern of MACTECH is increasing communications and coordination between existing programs. A referral service, the Marine and Coastal Technology Information Service (MACTIS), developed to serve as a focal point for MACTECH, is now a component of the Aquatic Sciences and Fisheries Information System (ASFIS).

340. UPPER MANTLE PROJECT: UMP

Also called the International Upper Mantle Project (IUMP), UMP was sponsored by ICSU and coordinated by the Upper Mantle Committee (UMC). Its projects included the seaward extension of the Transcontinental Geophysical Traverse of the United States and studies of the ocean floors. UMP originated in 1964 and terminated in 1970. Many of the theories it offered are being studied under the International Geodynamics Project (IGP).

341. WORLD MOLLUSCA CENSUS

Begun in June 1972 and conducted by the Paleontological Research Library, Charlotte, N.C., as a means of compiling field data on the marine biota of mollusca from the world's oceans. Data will be stored in the world data centers for oceanography.

342. WORLD WEATHER PROGRAM

Conceived by WMO in 1966, the program consists of a systems design and technological effort and two major subprograms, GARP and WWW, described in entries 343 through 353.

The goals of the World Weather Program are to extend the time range and scope of weather predictions, develop means for assessing the consequences to global environmental quality of man's pollution of the atmosphere, determine the feasibility of large-scale weather modification and the consequences of human interference with weather processes, and establish new bonds of international cooperation and joint activity to meet the needs of nations concerning atmospheric conditions.

343. GLOBAL ATMOSPHERIC RESEARCH PROGRAMME: GARP

Conceived by WMO in 1965 as a global experiment to study the general circulation of the atmosphere, GARP is a joint WMO/ICSU enterprise. GARP has many subprograms; because of the interaction between the atmosphere and the oceans, many, if not most, subprograms include activities with oceanographic interests. GARP programs may be national or international depending on how much interest nationals have in the various proposals. Programs, subprograms, and other terms associated with GARP are described in the entries 344-352.

A GARP Activities Office (GAO), established in 1975, manages the various GARP subprograms. Upon its creation, it undertook the management of GATE, formerly handled by an International Scientific and Management Group (ISMG). A Joint Organizing Committee (JOC) composed of scientists from ICSU and WMO establishes scientific goals and develops overall plans for GARP.

344. AIR-MASS TRANSFORMATION EXPERIMENT: AMTEX

A subprogram conducted in 1974 and 1975, AMTEX was originated by the Japanese. The purpose of AMTEX was to clarify the transfer processes by which energy and momentum are supplied from the sea surface to the air and transported to the free atmosphere through the planetary boundary layer. The area chosen for study is the East China Sea and the area surrounding the southwest Japanese Islands.

345. BARBADOS OCEANOGRAPHIC AND METEOROLOGICAL EXPERIMENT:
BOMEX

Sponsored by the United States, initiated in 1967, and conducted in 1969, BOMEX had the primary goal of measuring the fluxes of heat, moisture, and momentum between the ocean and atmosphere using as many platforms as possible--ships, buoys, aircraft. Data from BOMEX were reduced by the Barbados Oceanographic and Meteorological

Analysis Project (BOMAP) and are available from the Environmental Data and Information Service of the U.S. National Oceanic and Atmospheric Administration.

Programs proposed for the continuation of BOMEX, known as the Global Oceanographic and Meteorological Experiment (GLOMEX) and the Tropical Oceanographic and Meteorological Experiment (TROMEX) were superseded by other GARP projects before they could materialize.

346. FIRST GARP GLOBAL EXPERIMENT: FGGE

Proposed as the Global Weather Experiment (GWE) but more commonly called the First GARP Global Experiment, FGGE is basically a period during which the entire atmosphere of the Earth is to be observed by data collecting stations including satellites, balloons, buoys, and ships. Some of the ships involved are Voluntary Observing Ships (VOS), not directly affiliated with a participating agency. A build-up year began in December 1977 and the FGGE Operational Year (FOY) or GWE Operational Year (GOY) began in December 1978 and ended in November 1979. Two intensive observing periods were carried out from January 15 to February 13 and from May 10 to June 8. A research and evaluation phase will extend into the 1980's.

A preliminary or Data System Test (DST) was performed by the United States in 1974. In 1977 South Africa and the United States participated in the Southern Ocean Float Experiment (SOFEX), whose purpose was to establish whether it would be feasible to launch and maintain free-floating buoys operating sensors for a sufficient length of time to be usable for FGGE. Special Tropical Wind Observing Ships (TWOS) and Synchronous Meteorological Satellites (SMS) were developed for FGGE.

347. GARP ATLANTIC TROPICAL EXPERIMENT: GATE

The first major subprogram of GARP involving international participation, GATE took place in 1974. Its purpose was to investigate the interaction of tropical weather systems and large-scale circulation systems in the Intertropical Convergence Zone (ITCZ), a 20-million-square-mile area extending from the eastern Pacific, across Latin America, the Atlantic Ocean, Africa, and ending in the western Indian Ocean. A GATE subprogram entitled GATE Equatorial Profiling Experiment (GEPE) was held in 1974. Preliminary experiments for GATE are known as the GATE International Sea Trials (GIST). A Boundary Layer Instrument System (BLIS) was designed for use during GATE. GATE was managed by an International Scientific and Management Group (ISMG), the Tropical Experiment Board (TEB), and the Tropical Experiment Council (TEC). The GATE Operational Control Center (GOCC) was at Dakar, Senegal. Subprogramme Data Centres (SDC's) for receiving GATE data include the Synoptic-Scale Subprogramme Data Centre (SSDC) at Bracknell, United Kingdom; the Boundary-Layer Subprogramme Data Centre (BSDC) at Hamburg, Federal Republic of Germany; the Convection Subprogramme Data Centre (CSDC) in Washington, D.C., United States; the Radiation Subprogramme Data Centre (RSDC) in Leningrad, U.S.S.R.; and the Oceanographic Subprogramme Data Centre (OSDC) in Brest, France. National Processing Centers (NPC's) are responsible for data taken nationally. Copies of all data processed either by the SDC's or the NPC's are on file in the two world data centers, A and B.

348. MONSOON EXPERIMENT: MONEX

The Monsoon Experiment, whose purpose is a study of the capability of using models to simulate the onset of the monsoon over Asia, includes two phases, Summer MONEX conducted December 1978 to March 1979, and Winter MONEX conducted May 1979 to August 1979.

It was preceded by the Indo-Soviet Monsoon Experiment (ISMEX) performed in 1973 within the framework of the GARP Air-Surface Interaction Subprogramme and by a 1977 experiment called MONSOON '77.

Subprogrammes of MONEX include the Indian Ocean Experiment (INDEX) and the West African Monsoon Experiment (WAMEX). INDEX began in 1975 and will continue through the major portion of MONEX. The Somali Current Monitoring System (SCMS) was a part of INDEX. INDEX also includes studies of the existence and behavior of the equatorial undercurrent, coastal and estuarine upwelling, and the fine thermohaline structure of the upper ocean.

WAMEX was planned by the WAMEX Scientific and Management Regional Commission (WSMRC). It was conducted at the same time as the summer phase of MONEX.

349. OBSERVING SYSTEMS SIMULATION EXPERIMENT: OSSE

This is a subprogram to evaluate observing subsystems such as satellites, buoys, and balloons, in terms of accuracy, density, and frequency of observations.

350. POLAR EXPERIMENT: POLEX

A Soviet-proposed program to determine the energy exchange between the temperate latitudes and the polar regions, POLEX will take place from 1975 to 1980. It is sometimes referred to as POLEX NORTH for the Arctic portion of the experiment and POLEX SOUTH for the experiments in the Antarctic regions.

351. TROPICAL EXPERIMENT: TROPEX

A Soviet program in preparation for GATE and FGGE, TROPEX consisted of a multiship program to study atmospheric circulation in the tropical Atlantic with emphasis on processes of convection and a study of the variability of physical parameters in the upper layers of the ocean and at the sea surface. Aerological, meteorological, and oceanographic observations were taken.

352. CLIMATIC DYNAMICS SUBPROGRAMME

A JOC/SCOR Joint Study Conference on General Circulation Models of the Ocean and Their Relation to Climate, held in May 1977, included recommendations for research into the vital role of the ocean in global climatic dynamics. GARP's Joint Organizing Committee is developing the subprogram.

353. WORLD WEATHER WATCH: WWW

A global observing, telecommunications, and processing system, WWW makes available to each member country of WMO the basic meteorological and related geophysical environmental data each requires. It is the basic system providing support for the WMO program, Interaction of Man and His Environment, and other WMO research programs.

Essential elements of WWW are: the Global Observing System (GOS) consisting of regional networks and other land, sea, atmospheric and space stations established to take necessary observations for WWW; the Global Data Processing System (GDPS) designed to make basic processed data obtained through GOS available through a system of world, regional, and national meteorological centers; and the Global Telecommunications System (GTS) designed for the collection, exchange, and distribution of observed data among national, regional, and world meteorological centers.

III. UNITED STATES NATIONAL ORGANIZATIONS

A. FEDERAL GOVERNMENT

Legislative Branch

354. CONGRESSIONAL COMMITTEES

Committees of both houses of Congress do most of the work of preparing and considering legislation. Each house has standing committees, special committees, and commissions.

The standing committees of the Senate most concerned with marine affairs are the Committees on Commerce, Science and Transportation; Energy and Natural Resources; and Environment and Public Works. These committees have jurisdiction over appropriate aspects of the Outer Continental Shelf (OCS) lands. The National Ocean Policy Study (NOPS), originally established in 1974 as the focus of Senate discussions on ocean matters, is under the Committee on Commerce, Science, and Transportation. The Committee on Foreign Relations, especially its Subcommittee on Arms Control, Oceans, International Operations, and Environment, also deals with marine affairs.

In the House of Representatives, major jurisdiction over marine affairs rests with the House Merchant Marine and Fisheries Committee (HMMFC or MM&F). HMMFC contains Subcommittees on Coast Guard and Navigation; Fisheries, Wildlife Conservation, and the Environment; Merchant Marine; and Oceanography; and an Ad Hoc Subcommittee on Maritime Education and Training. The House included the House Select Committee on the Outer Continental Shelf (HSCOCS) Until June 30, 1980, when this committee was terminated. Upon its dissolution, jurisdiction over OCS matters reverted to the standing committees.

355. LIBRARY OF CONGRESS: LC

Besides serving as a library depository and providing normal library reference services, LC operates the National Referral Center (NRC), which maintains a register of sources of information on scientific and technological activities of Federal and State agencies, professional societies, universities, colleges, industrial laboratories, and others engaged in research.

The Congressional Reference Service (CRS) is a separate office within LC. CRS functions exclusively for the legislative branch of the Government and provides information as requested. It is active in researching marine matters and often publishes reports on its findings.

356. OFFICE OF TECHNOLOGY ASSESSMENT: OTA

OTA was established by the Technology Assessment Act of 1972 to help Congress anticipate, and plan for, the consequences of uses of technology. It provides an independent and objective source of information about impacts, beneficial and adverse, of technological applications and identifies policy alternatives for technology-related issues. It includes an Ocean Assessment Program Manager and an Energy Assessment Program Manager. The latter is involved in programs relating to energy from the oceans.

Executive Branch

Office of the President

357. PRESIDENT'S SCIENCE ADVISORY COMMITTEE: PSAC

Established in the Office of Science and Technology in 1951 to advise the President, PSAC was composed of a number of panels, one of

which was the Panel on Oceanography (POO or PSACPOO) created in 1965 to assess current and planned oceanographic programs, identify opportunities for new programs, and recommend measures to effect new programs.

358. COUNCIL ON ENVIRONMENTAL QUALITY: CEQ

Established in 1970 under the authority of the National Environmental Protection Act (NEPA) of 1969, CEQ serves as the principal environmental advisory unit within the Executive Office of the President. It develops and recommends national policies to promote environmental quality, analyzes changes or trends in the national environment, and prepares the President's annual environmental quality report to the Congress. CEQ made the Floating Nuclear Power Plant study (FNPP) to determine the advisability of putting floating nuclear powerplants in coastal waters.

Advisory and Interagency Bodies

Established by Congressional or Presidential action, advisory and interagency bodies are not limited to internal operations of an executive department or agency. Entries 359 through 363 describe those of major interest for marine scientists.

359. ADVISORY BODIES

The Marine Resources and Engineering Development Act (MREDA) of 1966 authorized the establishment of two complementary bodies, the National Council on Marine Resources and Engineering Development (NCMRED) and the Commission on Marine Science, Engineering and Resources (CMSER).

NCMRED was composed of Government officials (see entry 361); in contrast, CMSER was composed largely of advisers outside the Federal Government. Chaired by Julius A. Stratton of the Ford Foundation and more frequently referred to as the Stratton Commission, its aims were to formulate a national program for marine science affairs and to recommend a place for Government organizations in support of the program. Its plan was published in the report "Our Nation and the Sea," referred to as the "Stratton Report." Upon publication of the plan in 1969, the Commission ceased to exist.

NCMRED proposed the establishment of a National Advisory Committee on Oceanography (NACO). Its proposal was broadened to reflect the creation of the National Oceanic and Atmospheric Administration (NOAA), enacted by Public Law 92-115, dated August 16, 1971, which also authorized the establishment of the National Advisory Committee on Oceans and Atmosphere (NACOA). Originally to comprise 25 members, it was recently reorganized to 18 members appointed by the President from the private sector. It is responsible for a continuing review of the progress of marine and atmospheric science and service programs of the United States. It advises the Secretary of Commerce with respect to NOAA's mission and whether the mission is being fulfilled.

NACOA was directed to submit a comprehensive annual report to the President and Congress setting forth an overall assessment of the status of the Nation's marine and atmospheric activities. Its proposals include the establishment of an Institute for Engineering Research in the Oceans (IERO) to be administered by NOAA, the establishment of a Marine Affairs Council (MAC) at the cabinet level, and establishment of an independent agency for ocean and atmospheric sciences.

Another advisory board is the Outer Continental Shelf Advisory Board (OCSAB), established in 1975 and composed of representatives from the Departments of Defense, Energy, and Transportation, and the Environmental Protection Agency.

360. COMMISSIONS

The Marine Mammal Protection Act of 1972 (MMPA) authorized the establishment of an independent commission, known as the Marine Mammal Commission (MMC) to develop and review information, actions, and policies to obtain the objectives established by the Act. It comprises three members appointed by the President from the private sector, and in turn it may establish committees and appoint members to them.

361. INTERAGENCY BODIES

The Interagency Committee on Oceanography (ICO) was established in 1960 to develop a National Ocean Program (NOP). It supported a number of committees or panels including the Coordinating Committee on Oceanography (CCO), the Marine Biology Sub Panel, the Ocean Survey Advisory Panel, and the Panel on International Program of the Interagency Committee on Oceanography (PIPICO). PIPICO remains as an interagency panel under the aegis of the Department of State. The acronym has been carried on and the present title is now the Panel on International Programs and International Cooperation in Ocean Affairs. Its purpose is to coordinate U.S. participation in international programs.

The ICO terminated in 1967 upon creation of the National Council on Marine Resources and Engineering Development (NCMRED) following passage of the Marine Resources and Engineering Development Act of 1966 (MREDA). The Council, sometimes called the Marine Sciences Council (MSC), or Marine Resources Council (MRC) was chaired by the Vice-President of the United States and comprised officials from the several Federal agencies with marine science interests. It came under the Executive Office of the President, and its mission was to provide assistance to the President in the development and coordination of a national oceanographic program and to assure that marine science and technology were used effectively in the interests of national security and the general welfare. Its plan for the U.S. Federal effort was known as the Ten-Year Plan for Ocean Exploration (TYPOE).

The Council created four interagency committees to coordinate policies and programs and to develop recommendations as to issues requiring the Council's attention: Marine Research, Education, and Facilities (CMREF) or (ICMREF); Ocean Exploration and Environmental Services (COEES or ICOEES), later superseded by the Committee on Policy Review; Food From the Sea (CFFS or ICFFS); and Multiple Use of the Coastal Zone (CMUCZ or ICMUCZ). The Secretary of State established a fifth committee, the Committee on International Policy in the Marine Environment (CIPME).

In 1968 ICMUCZ sponsored a Task Group on Identification of Problems, Opportunities, and Needs (IPON) and a Task Group on Interagency Coordination, Federal-State Relationships, and Legal Problems (COSREL). Both groups were short lived.

In 1971 the Council was superseded by the Interagency Committee for Marine Science and Engineering (ICMSE) created by the Federal Council for Science and Technology (FCST). ICMSE comprised officials from 11 departments and agencies involved in marine science activities. The NOAA administrator was appointed the chairman. ICMSE was responsible for ensuring, planning, and coordinating Federal activities in marine sciences and related matters; identifying the need for and

fostering appropriate studies and investigations; and making an annual review of the Federal Ocean Program (FOP) and budget. In 1976 ICMSE was replaced by the Committee on Atmosphere and Oceans (CAO). CAO, a part of the Federal Coordinating Council for Science, Engineering, and Technology (FCCSET) in the Office of Science and Technology Policy, consists of two subcommittees, one responsible for oceans and the other for the atmosphere. The latter succeeded to the activities of the former Interdepartmental Committee for Atmospheric Sciences (ICAS) established in the FCST in 1959.

Other interagency bodies of interest are the Interagency Arctic Coordinating Committee (IARCC), established in FCST in 1968 to coordinate Federal research in the Arctic; the Committee on Earth Resources Satellite Systems (CERSS) established in 1977; the Interagency Committee on World Weather Programs (ICWWP) established to coordinate U.S. participation in the World Weather Watch (WWW) and the Global Atmospheric Research Program (GARP); the Advisory Committee on the Law of the Sea (ACLOS) established to review the U.S. position at the U.N. Law of the Sea Conference (UNCLOS); and the Interagency Committee on Marine Environmental Prediction (ICMAREP) established to coordinate the basic Marine Environmental Prediction Service (MAREP) involving a composite of interagency activities specified by formal and informal agreements.

362. COUNCILS

The Water Resources Council (WRC), established in 1965 and composed of heads of selected Federal departments with major interests in water resources and associate members from other agencies with peripheral interests in management of water resources, has cognizance over the activities of the several Federal-State river basin commissions. Those commissions that have some marine science related activities, particularly in the estuarine areas, are the Delaware River Basin Commission (DRBC), established in 1961; the Great Lakes Basin Commission (GLBC), established in 1967; the New England River Basin Commission (NERBC); and the Pacific Northwest River Basin Commission (PNWRBC). All are concerned with estuarine research, pollution control measures, conservation of resources, and long-range planning.

363. INTERDEPARTMENTAL BOARDS

The Board on Geographic Names (BGN), originally established in the Department of Interior in 1890 as the United States Geographic Board and renamed the Board on Geographic Names in 1934, was made an interdepartmental agency in 1968. Its primary function is to promote the standardization of geographic names; it serves both military and civilian agencies.

Executive Departments

364. DEPARTMENT OF COMMERCE: DOC

The largest civilian agency with marine science activities, DOC includes NOAA and the Maritime Administration (MARAD). Its National Bureau of Standards (NBS) and National Technical Information Service (NTIS) provide services of value to marine scientists. These four agencies are described further in entries 365 through 379. Its Bureau of the Census (BC) and Bureau of Economic Analyses (BEA) have peripheral interests as together they are compiling estimates of the volume of pollutants emitted into the environment.

Departmental secretaries may establish advisory committees to serve their interests and the interests of the agencies or bureaus they supervise. The Secretaries of Commerce have established the Marine

Fisheries Advisory Committee (MAFAC), which ensures that policies and programs relating to marine fisheries are adequate to meet the needs of commercial and sport fishermen, consumers, and other national interests; the Coastal Zone Management Advisory Committee (CZMAC) whose members are selected on a geographic basis and who possess a broad range of experience and knowledge relating to problems in the management of coastal resources; and the Marine Petroleum and Minerals Advisory Committee (MPMAC), which is especially concerned with the Deep Ocean Mining Environmental Study (DOMES).

365. MARITIME ADMINISTRATION: MARAD

Established in 1950 as a successor to certain functions of the former U.S. Maritime Commission originally established in 1936, MARAD administers programs to help develop, promote, and operate the U.S. Merchant Marine. It operates the U.S. Merchant Marine Academy (USMMA) for potential merchant marine officers and provides training courses in marine specialties for merchant seamen. Its National Maritime Research Center (NMRC), established in 1971, serves as the national center for coordination and dissemination of information on new technologies including providing technical support to MARAD's research programs and testing products and innovations produced by MARAD. NMRC operates a Computer-Aided Operations Research Facility (CAORF) that provides information on the avoidance of collisions, ship handling operations, human factors in vessel handling, and 'what if' situations regarding ship operations.

366. NATIONAL BUREAU OF STANDARDS: NBS

Established in 1901 to bring the United States into compliance with measurement standards used by other nations, NBS has recently assumed broader responsibilities by fostering applied research. Its major responsibilities include materials research, applied technology, experimental technology, computer sciences and technology, and basic standards. It is concerned with water pollution measurements, developing standards for the measurement of pollution, evaluating the accuracy of instruments and methods for measuring concentrations of pollutants in water and sediments, and compiling physical and chemical properties of pollutants.

367. NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION: NOAA

Organized in 1970, NOAA assumed the functions of the environmental science programs administered by a number of Federal agencies including the Departments of Commerce, Interior, Transportation, Army, Navy, and the National Science Foundation.

Its wide range of responsibilities include managing the National Weather Service and the National Marine Fisheries Service, developing environmentally sound coastal zone management programs, sponsoring atmospheric and oceanic research, overseeing and operating the nation's environmental satellite system, making extensive geodetic and oceanographic surveys, and developing data management systems.

In cooperation with the Department of the Navy, several of NOAA's agencies participate in the Joint Ice Center (JIC), established to forecast and report on ice formations in the Northern Hemisphere.

Entries 368 through 378 cover the major offices within NOAA.

368. OFFICE OF COASTAL ZONE MANAGEMENT: OCZM

OCZM, also referred to as CZM, was created by the Coastal Zone Management Act (CZMA) of 1972 to direct a comprehensive program to help coastal States reconcile the increasing demands on their coastal zone lands and resources with the national goal of preserving coastal

environments. It is also responsible for administering the marine sanctuaries program established by the Marine Protection, Research, and Sanctuaries Act (MPRSA) of 1972. It developed and is managing the Coastal Energy Impact Program (CEIP) to provide financial assistance to help coastal States and local communities affected by new and expanded coastal energy activities.

In 1978 OCZM was given the responsibilities for NOAA's Office of Ocean Management (OOM), established to review programs and projects.

369. OFFICE OF FISHERIES: OOF

This office consists of the National Marine Fisheries Service (NMFS) created when Bureau of Commercial Fisheries (BCF) of the Fish and Wildlife Service (FWS) in the Department of the Interior was transferred to the newly created NOAA in 1970. The service supports biological research on economically important fish species, analyzes economic aspects of fisheries operation, develops methods for improving fish catches, and supports studies of game fish behavior and resources. With the U.S. Coast Guard (USCG), it carries out enforcement and surveillance operations in territorial waters and on the high seas within the Fishery Conservation Zone (FCZ) or 200-mile limit as established by the Fisheries Conservation and Management Act of 1976 (FCMA).

NMFS has four regional centers: the Northeast Fisheries Center (NEFC), which includes the former Middle Atlantic Coastal Fisheries Center (MACFC); the Northwest and Alaska Fisheries Center (NWAFC) created in 1976 by a merger of the Northwest Fisheries Center (NWFC) with the Alaska Fisheries Center (AFC); the Southeast Fisheries Center (SEFC), which incorporated the functions of the Atlantic Estuarine Fisheries Center (AEFC), the Gulf Coastal Fisheries Center (GCFC), and the Tropical Atlantic Biological Laboratory (TABL); and the Southwest Fisheries Center (SWFC) formed by a merger of the La Jolla, Calif. and Honolulu, Hawaii, biological laboratories. The Atlantic Environmental Group (AEG) falls within the purview of the NEFC and the Pacific Environmental Group (PEG) within the SEFC. The Southwest Fisheries Center is responsible for the Fisheries Engineering Laboratory (FEL). In 1973 SEFC conducted the Oceanic Gamefish Investigations (OGI), also called SKYLAB. It was also responsible for the development of the Remote Underwater Fishery Assessment System (RUFAS), a towed sled containing equipment to assess fishery resources. Two of the centers include utilization research centers to perform research on fishery products, especially the underused varieties; one in the northeast is identified as NURC, and the other, on the Pacific coast is called PURC.

With the passage of FCMA of 1976, NMFS established Regional Fisheries Management Councils (RFMC) to prepare and implement fishery management plans for the FCZ that will achieve and maintain on a continuous basis the optimum yield from each fishery. Each RFMC includes in its membership the regional director of NMFS, the principal State official responsible for marine fishery management in each region, and designated individuals having knowledge or experience with regard to fish resources in each region. The number of the latter categories varies according to the number of States in the region. The councils are the NEFMC--New England Fishery Management Council; WPFMC--Western Pacific Fishery Management Council; NPFMC--North Pacific Fishery Management Council; PFMF--Pacific Fishery Management Council; MAFMC--Mid Atlantic Fishery Management Council; SAFMC--South Atlantic Fishery Management Council; CFMC--Caribbean Fishery Management Council; and GMFMC--Gulf of Mexico Fishery Management Council.

NMFS and its Centers sponsor many programs. Among these are MARMAP--Marine Resources Monitoring, Assessment, and Prediction, which is jointly sponsored by FAO; OFW--Operation Fish Watch, a program to take monthly surveys of seafood prices in 10 U.S. cities; SAFE--Stock Assessment and Fishery Investigations, a cooperative project of the La Jolla, Calif. Laboratory and the California Department of Fish and Game; CALL--Communications Alert and Liaison System, to gather and document pertinent information when there is a question as to whether fishery products are linked to a public health problem; a Platform of Opportunity (POO) or Ships of Opportunity Program (SOOP), operated in conjunction with the Maritime Administration to use volunteer observers to collect data where U.S. fishing fleets operate (the data will then be added to an all-seasons data base of temperatures and salinity at all depths); and PRIME--Processing, Research, Inspection, and Marine Extension--a mobile laboratory for on-site inspection of seafood processing plants.

It operates the Fishery Statistics Data Base (FSDB), a partially automated data base with information and data about commercial fisheries, fishery landings, and fishery management. It administers the Marine Mammal Protection Act (MMPA) of 1972 and the Endangered Species Act (ESA) of 1973 in so far as marine life and their ecosystems are concerned. It developed the Towed Optical Assessment Device (TOAD) for fishery research.

370. OFFICE OF RESEARCH AND DEVELOPMENT: ORD

Three major components constitute ORD: the Environmental Research Laboratories (ERL), the Office of Ocean Engineering (OCE), and the Office of Sea Grant (OSG). They are described separately in entries 371 through 373.

371. ENVIRONMENTAL RESEARCH LABORATORIES: ERL

Antecedents of NOAA's Environmental Research Laboratories are the former Central Radio Propagation Laboratory and certain research functions of the Weather Bureau and the Coastal Geodetic Survey, which formed the Institutes for Environmental Research (IER) in the Environmental Science Services Administration (ESSA). Later known as ESSA's Research Laboratories, with the formation of NOAA in 1970 these activities were renamed the Environmental Research Laboratories.

ERL, through its several laboratories, is a principal research and development arm of NOAA. It is responsible for performing fundamental scientific investigations designed to improve the understanding of the environment. It coordinates NOAA's activities in a program called Rational Use of the Sea Floor (RUSEF), in the Spilled Oil Research Team (SOR) and the Spilled Oil Response Team (SORT). The latter, which includes members from several other NOAA components and from other agencies, is called upon to investigate environmental conditions when oil is spilled in the sea.

ERL is responsible for the Marine Ecosystems Analysis (MESA) program created in 1973 to perform physical, geological, chemical, and biological research to assess the human impact on specific marine environments and to develop the capability to predict environmental consequences of proposed changes. The MESA program is currently being conducted in two areas: the New York Bight (NYB) and Puget Sound. Expanded Water Column Characterization (XWCC) cruises are being made in the NYB.

In 1970 ERL inherited the Marine Minerals Technology Center (MMTC) from the Department of the Interior. MMTC was abolished, but before it ceased to exist it participated in the 1973 New England Offshore Mining Environmental Study (NOMES), a cooperative program with other

components of NOAA and the State of Massachusetts. Currently the MESA Program is managing the Deep Ocean Mining Environmental Study (DOMES). Deep Ocean Mining Operations (DOMO), the first operational test of DOMES, gathering manganese nodules from the sea floor of the Central Pacific, began in 1977.

ERL coordinates the Alaska Outer Continental Shelf Environmental Assessment Program (OCSEAP) which is funded by Department of Interior's Bureau of Land Management (BLM). Terms associated with the Program are the Bering Sea Mammal Experiment (BESMEX) and the Northeast Gulf of Alaska (NEGOA).

Several of ERL's laboratories are involved in marine research. The two major ones are the Atlantic Oceanographic and Meteorological Laboratory (AOML) and the Pacific Marine Environmental Laboratory (PMEL). Antecedents of both go back to the Institutes for Oceanography (IOC) in ESSA's Institute for Environmental Research. IOC was subsequently reorganized into two separate laboratories, the Atlantic Oceanographic Laboratory (AOL) and the Pacific Oceanographic Laboratory (POL), which were in turn renamed.

AOML's mission is to contribute to the basic understanding of the characteristics and processes of the waters of the ocean, the sea floor, and the atmosphere. It operates four laboratories--Physical Oceanography, Ocean Chemistry, Marine Geology and Geophysics, and Sea Air Interaction (SAIL). In 1977 it cooperated with the Rosenstiel School of Marine and Atmospheric Science of the University of Miami (RSMAS) in joint establishment of a Cooperative Institute for Marine and Atmospheric Studies (CIMAS), a focal point for concentrated research on specific problems of oceans and atmosphere by specialists from the parent organizations. It was also the lead U.S. agency in the recently completed international CICAR--Cooperative Investigations of the Caribbean and Adjacent Regions--program, and is the lead U.S. agency in IOCARIBE. It was responsible for STAX, the Sludge Tracking Acoustical Experiment in the New York Bight. Together with PMEL it is involved with NOAA's Equatorial Pacific Ocean Climate Studies (EPOCS), a plan to investigate oceanographic and climatic variability in the Eastern Pacific.

PMEL sponsors interdisciplinary research and surveys in oceanography, marine meteorology, and marine ecosystems. Its programs include OARS--Ocean Atmosphere Response Studies, SCENE--Studies of Coastal and Estuarine Environments, conducted in Alaska waters in 1976; TRANSPAC-MAG, a 1971 study of magnetic anomalies in the Western Pacific; MSS--Modeling and Simulation Studies; MARLAGS--Marine Life and Geochemical Studies, PMEL's major biological and oceanographic focus, conducted primarily for OCSEAP and DOMES; and SOUL--Studies of Ocean Upper Layers, a cooperative program with the Office of Naval Research (ONR) to study mixing processes in the upper layer of the ocean in response to oceanic storms.

It is responsible for NOAA's participation in the Joint Tsunami Research Effort (JTRE), a cooperative program with the University of Hawaii. In 1977 it collaborated with the University of Washington in the establishment of a Joint Institute for the Study of the Atmosphere and the Ocean (JISAO). Mechanisms of climate change and estuarine research are the first areas of research for JISAO. In 1977, together with the University of Hawaii, it established a Joint Institute for Marine and Atmospheric Research (JIMAR) to be a focus for cooperative research in oceanography, geophysics, and atmospheric sciences. Other ERL laboratories and offices of interest to marine researchers include the Great Lakes Environmental Research Laboratory (GLERL) formed in 1974 by combining the staff of the International Field Year for the Great Lakes (IFYGL) Project Office with that of the Limnology and

Computer Divisions of the Lake Survey Center (LSC); the Geophysical Fluid Dynamics Laboratory (GFDL), which supports basic research into the dynamics of geophysical fluids in the atmosphere, hydrosphere, and cryosphere and whose research efforts are facilitated by the Geophysical Fluid Dynamics Program (GFDP), a joint NOAA/Princeton University Research Center (PURE) effort; the National Hurricane and Experimental Meteorology Laboratory (NHEML), which became a full-fledged research affiliate within ERL in 1978 to perform basic research on hurricanes and cumulus connection and the atmospheric environments in which they occur and interact and whose projects includes Stormfury, a program to study the possibilities of modifying hurricanes; the National Severe Storms Laboratory (NSSL) which concentrates on improving the understanding of severe storms; the Wave Propagation Laboratory (WPL) established as a focal point for development and application of new methods for remote sensing of the geophysical environment and which includes a seastate group concerned with the remote measurement of ocean waves and surface currents; and the Weather Modification Office (WMPO), responsible for evaluating social, legal, and economic consequences of Federal weather modification projects, and for overseeing a comprehensive program of basic research on hurricanes, connective clouds, and severe storms.

372. OFFICE OF OCEAN ENGINEERING: OOE

Established in NOAA in 1977 upon recommendations of NACOA, OOE is the overall coordinator of all Federal civilian ocean engineering programs and is responsible for research to develop services related to ocean engineering and undersea operations and to serve as a national focal point for knowledge related to civil ocean engineering. It includes three major activities: the Manned Undersea Science and Technology Office (MUS&T), the NOAA Data Buoy Office (NDBO), and the Ocean Instrumentation Engineering Office (OIEO).

MUS&T was established in NOAA in 1971 to review the U.S. manned undersea activities (MUA) that meet the needs of NOAA. It participates in many projects including FLARE--the Florida Aquanaut Research Expedition in which a small transportable habitat called EDALHAB was deployed for use of divers conducting experiments to support the concept that living coral reef communities can be used as experimental habitats; and SCORE--the Scientific Cooperative Research Expedition in the Bahama Banks in 1975 where saturation diving, deep air excursions, and submersible lockout techniques were used in deep reef studies.

Together with NOAA's Office of Sea Grant, the Department of the Navy, and the State University System of Florida's Institute of Oceanography, MUS&T developed a scuba curriculum called SITS--Scientists in the Sea. It was also responsible for initiating Project DUMAND--Deep Underwater Muon and Neutrino Detection--now a multiagency project. It maintains the National Underwater Laboratory System (NULS) and operates NOAA's manned underwater station (MUS) or manned underwater laboratories (MUL).

NDBO had its antecedents in the National Data Buoy Development Project (NDBDP) established in the U.S. Coast Guard in 1967 following recommendations from various advisory committees dating back to 1959. In 1970 NDBDP was transferred to the newly created NOAA where it was renamed the NOAA Data Buoy Office (NDBO). Originally placed in NOAA's National Oceanic Survey it was transferred to the Office of Ocean Engineering when that Office was established.

NDBO is responsible for the National Data Buoy Program (NDBP) which includes the development and management of data buoys in support of scientific research and of monitoring, forecast, and warning services.

It is located at the Mississippi Test Facility (MTF) in Bay St. Louis, Miss.

In 1967 together with the Office of Naval Research, NDBO sponsored a Mooring Dynamics Experiment (MDE) conducted by the Charles Stark Draper Laboratory at the Navy's Pacific Missile Range Facility (PMRF). It is participating in the development of meteorological drifting buoys to be used in the First Garp Global Experiment (FGGE) in 1979. It was recently selected to investigate heat exchanger fouling aspects of the Ocean Thermal Energy Conversion (OTEC) project in the northern Gulf of Mexico and is developing a buoy, known as OTEC-2, to be deployed at the site. It operates a very large buoy as an Ocean Test Platform (OTP) in the Gulf of Mexico where buoy subsystems and other ocean engineering equipment are evaluated.

It operates an extensive system of moored Environmental Buoys (EB) in the U.S. offshore waters. Among the EB's are EEP's--Engineering Experimental Phases--an early developmental buoy; XERB--an Experimental Environmental Research Buoy; PEB--a Prototype Environmental Buoy; DOMB--a Deep Ocean Moored Buoy; and CSD--a Continental Shelf Discus buoy. Other buoy systems developed by NDBO include ADRAMS Air Droppable Measurement System designed to allow remote tracking of the nearshore ice pack in the Arctic; EGP--Experimental GOES Platform developed to help evaluate the capabilities of ocean platforms to communicate environmental data via the Geostationary Operational Environmental Satellite (GOES); an AEB--Arctic Environmental Buoy, a remote unattended system for data acquisition and telemetry designed especially for harsh surface temperature extremes and installed in support of the Arctic Ice Dynamics Experiment (AIDJEX) conducted by the University of Washington.

The larger environmental buoys are equipped with a Wave Data Analyzer (WDA). Another system mounted on EB's is the Water Quality Indicator System (WQIS) designed to measure water quality at dumpsites.

The Ocean Instrumentation Engineering Office (OIEO) has its antecedents in the National Oceanographic Instrumentation Center (NOIC), a semiautonomous office transferred to NOAA's National Ocean Survey (NOS) in 1970 where it was abolished as a national center. OIEO and several NOS branches assumed its functions. OIEO's responsibilities include developing and implementing advanced programs in standards, calibration, and testing, and it operates an instrumentation information center.

NOIC was instrumental in establishing the Northwest Regional Calibration Center (NRCC), which is operated by the Oceanographic Institute of Washington (State).

373. OFFICE OF SEA GRANT: OSG

Public Law 89-688, approved in 1966, created the Sea Grant (SG) Program whose purpose is "to increase the understanding, assessment, development, utilization, and conservation of the Nation's ocean and coastal resources by providing assistance to promote a strong educational base, responsive research and training activities, and broad dissemination of knowledge and techniques." Sea Grant was originally administered by the National Science Foundation before its transfer to NOAA. Sea Grant makes grants to institutions engaged in comprehensive marine research and education, to advisory service projects, and to individual researchers.

NOAA's National Marine Advisory Service (NMAS), also referred to as MAS, was formed under the leadership of OSG, though it is responsible to all of NOAA. Its fundamental concept is the local Marine Advisory Program (MAP) conceived under OSG to bring information on

marine resources and NOAA's products and services to the attention of those who use the sea, either for commercial or recreational purposes.

An integral part of the NMAS program is the Regional Coastal Information Center (RCIC), a network of up to nine interlocking centers being developed as a cooperative effort by NOAA's Environmental Data and Information Service (EDIS), its Office of Coastal Zone Management (OCZM), and OSG. RCIC's will provide information services to coastal zone management programs, Sea Grant programs, local offices, and individual researchers. The RCIC at the University of Rhode Island, the first established, is called the Northeast Regional Coastal Information Center (NERCIC). Others established to date are the Northwest Coastal Information Center (NCIC) and the Great Lakes Regional Information and Referral Center (GLIRIC).

OSG recently instituted an International Cooperative Assistance Program (ICAP) for marine science training and information exchange with other nations. Individual Sea Grant Universities or colleges may receive funding under the program to develop cooperative programs with the developing nations.

374. OFFICE OF OCEANIC AND ATMOSPHERIC SERVICES: OAS

Components of OAS are the Environmental Data and Information Service (EDIS), the National Environmental Satellite Service (NESS), the National Ocean Survey (NOS), and the National Weather Service (NWS). Descriptions of these service components are covered in entries 375 through 378.

375. ENVIRONMENTAL DATA AND INFORMATION SERVICE: EDIS

The Environmental Data Service (EDS) was created in the former Environmental Science Services Administration (ESSA) in 1965. It was transferred to the newly created NOAA in 1970. Proposals were made to change its name to National Environmental Data and Information Service (NEDIS) to reflect its role in information as well as data services; however, in 1978 its name was changed but the "National" was eliminated.

Through its national network of specialized environmental service centers, EDIS acquires, processes, and disseminates global environmental data and information, provides professional data management support to large-scale data gathering programs, and assesses the probable effects of environmental fluctuations on world food supplies and national energy programs. It makes its products available to users in Government and the private sector.

Its Center for Environmental Assessment Service (CEAS) was established in 1978 by merger of the Center for Experiment Design and Data Analysis (CEDDA) and the Center for Climatic and Environmental Analysis (CCEA). Its functions include providing data management, interpretation, and analysis to meet national needs for atmospheric, climatic, and marine environmental assessment. It is and has been involved in data management for major research programs such as BOMEX--the Barbados Oceanographic and Meteorological Experiment and GATE--the Global Atmospheric Research Program's Atlantic Tropical Experiment. It manages SADEMS--the Salt Dome Experimental Monitoring System, a part of the Brine Disposal Program (BDP) in the Gulf of Mexico where brine disposal is necessitated by mining of salt domes for oil storage facilities. SADEMS, a system installed on an oil platform, reports wind data hourly to a GOES satellite. A Deep-water Ports Project Office (DPPO), once in CEDDA, has now been abolished. Personnel are also members of the Spilled Oil Response Team

(SORT). It is also responsible for the development of a global climate monitoring system, for research on the environmental impact on crops and fish, for establishing a climate warning system, and for serving as a focal point for climatic impact information.

Its Environmental Science and Information Center (ESIC) serves as NOAA's scientific and technical publisher, information banker, and librarian. It developed and operates the computerized Oceanic and Atmospheric Scientific Information System (OASIS), which provides rapid access to a large number of bibliographic data bases dealing with atmospheric, oceanic, and Earth sciences and marine resources.

Its National Climatic Center (NCC), originally established in the Weather Bureau (WB) as the National Weather Records Center (NWRC), archives all weather data from U.S. agencies, including NOAA's National Weather Service (NWS) and its predecessor, the Weather Bureau, the U.S. Air Force and Navy weather services, the Federal Aviation Administration, the U.S. Coast Guard, and many cooperative observers. The NCC data base includes observations on marine weather and surface conditions reported by cooperating ships, U.S. and foreign. It is also responsible for the Satellite Data Services Division, which operates the environmental satellite data base comprising data imagery and related data from NOAA's Earth-orbiting satellites and imagery from NASA's experimental and operational spacecraft and satellites. NCC produces many publications, among them the series of Summary of Synoptic Meteorological Observations (SSMO) covering the coasts of the United States and its territories. It is also responsible for the WMO-sponsored Marine Climatological Summaries for the eastern Pacific and western North Atlantic.

Its National Geophysical and Solar-Terrestrial Data Center (NGSDC), formed by a merger of the Aeronomy and Space Data Center (ASDC) with the National Geophysical Data Center (NGDC), acquires, processes, archives, evaluates, and disseminates solid Earth and marine geophysical data and ionospheric, solar, and other space environmental data. It is responsible for the World Data Center-A for Solid Earth Geophysics and for Solar-Terrestrial Physics. It operates the Earthquake Data File (EDF).

Its National Oceanographic Data Center (NODC), established in 1961 as an interagency facility administered by the U.S. Naval Oceanographic Office and advised, until its absorption by NOAA in 1971, by a board composed of members from Government agencies involved in marine research activities, acquires, processes, archives, and disseminates oceanographic data, except for marine geological and geophysical data.

NODC developed the National Data Inventory (NAMDI) to identify data taken by U.S. oceanographers. NAMDI was superseded by the international reporting form ROSCOP, and the NODC maintains a file of ROSCOP's submitted by oceanographers worldwide. NODC operates EDIS's Environmental Data Index (ENDEX), a computerized data base whose objective is to provide users with rapid references to available data files in environmental sciences, including marine and coastal resources. ENDEX includes the Environmental Data Base Directory (EDBD), an inventory of environmental data bases located at Federal, State and local agencies, educational and research institutions, and private organizations in Canada and the United States. ENDEX also includes the NODC Index for Instrument Measured Subsurface Current Observations (NIMSCO) and the Bottom Photograph Camera Station File (PHOTO) with indexes to 7,700 camera stations throughout the world's oceans represented by one or more bottom photographs available from an agency in the United States.

NODC was also responsible for the Biology Information Retrieval System (BIRS), a part of NOAA's Oceanic and Atmospheric Scientific Information System (OASIS). BIRS, which includes over 30,000 articles on marine biology indexed in depth, was discontinued with the adoption of the Aquatic Sciences and Fisheries Information System (ASFIS) sponsored by the United Nations.

376. NATIONAL ENVIRONMENTAL SATELLITE SERVICE: NESS

Established in the Environmental Science Services Administration as the National Environmental Satellite Center (NESC), it was renamed in 1970. It operates the Nation's environmental satellite system and ensures that the masses of data acquired are disseminated to those who need it. It is responsible for developing new techniques for acquiring environmental satellite data and applying these data to improved programs of environmental monitoring, prediction, and warning, and for the Spacecraft Oceanography Project (SPOC) originally the responsibility of the U.S. Navy until its transfer to NESS in 1972. Among the systems operated by NESS is the series of Geostationary Operational Environmental Satellites (GOES) that are in Earth-synchronous orbit. NESS developed and is responsible for the operation of SEASAT, a satellite designed to measure oceanic phenomena. Launched in 1978, SEASAT developed problems, and communications with it failed shortly after it was in orbit. SEASAT-A Scatterometer System (SASS), an active microwave instrument that illuminates the sea surface to provide estimates of surface wind magnitude and direction, was developed. A project to consider possible application of SEASAT data to the administration of the 200 mile fishery zone, the work of the International Ice Patrol, studies of fish production in the coastal zone, etc., was conducted by Econ, Inc. for NESS is known as Economic Verification Experiments (EVE). NESS cooperates closely with the National Aeronautics and Space Administration, and together they sponsored the Coastal Zone Color Scanner Study (CZCS) held in 1977-78 using data taken by ships and satellites to relate color of seawater to both physical and biological properties. NESS also developed the Global Ocean Sea-Surface Temperature Computation Program (GOSSTCOMP).

377. NATIONAL OCEAN SURVEY: NOS

Antecedents of NOS date back to 1807 when a survey of the coast was authorized by Congress and officially established as an agency in 1816. In 1878 it was renamed the Coast and Geodetic Survey (C&GS or USC&GS), a title that was changed to National Ocean Survey in 1970 when the C&GS, a part of ESSA, was absorbed by the newly created NOAA. Its prime mission is the compilation and provision of charts for mariners and navigators. It conducts surveys and performs investigations and analyses to accomplish this mission. Most of its work is in the U.S. coastal regions, territories and land possessions, and the Great Lakes. It also publishes the Coast and Great Lakes Pilot series, tidal current charts, and tide and tidal current predictions.

The National Geodetic Survey (NGS), responsible for establishing and maintaining national geodetic networks, the precise positional reference for all local, regional, and national surveys and maps, is a part of NOS. It maintains a National Geodetic Information Center (NGIC) and a Geodetic Research and Development Laboratory (GRDL).

NOS field operations are conducted through two centers, the Atlantic Marine Center (AMC) and the Pacific Marine Center (PMC).

NOS conducts many services and projects. Among these are two to which acronyms have been applied: SCOPE--the Southern Coastal Plains

Expedition, an environmental survey in 1972-74 off the southeastern coast from Cape Hatteras to Cape Kennedy, and SEAMAP--Systematic Exploration and Mapping Program, conducted in the Pacific to determine and describe physical properties related to the crust, mantle, and core of the Earth, with particular emphasis on the deep ocean basins. Two systems developed for or by NOS are known by acronyms: SWORD--Shallow Water Oceanographic Research Data, a system for continuous recording of temperature, salinity, and currents designed for use on lightships; and TICUS--Tidal Current Survey System, a telemetering data gathering system.

The U.S. Lake Survey (USLS) of the Corps of Engineers was transferred to the newly created NOAA in 1970 where it was placed in the National Ocean Survey and renamed the Lake Survey Center (LSC). Subsequently, many of the research activities of LSC were transferred to other components, principally the Great Lakes Environmental Research Laboratory (GLERL), leaving the LSC primarily responsible for surveying and charting the Lakes.

NOS operates a Current Meter Data Base (CMD), an information gathering mechanism for preparing and updating the annual publications, Tidal Current Charts and Tidal Current Tables, which also document estuarial circulation so that the data are available in the event of environmental emergencies such as oil spills; a tide data base (TIDES) containing reports of hourly tide heights from a national network of about 130 tide stations and other stations included as a part of the Marine Boundary Surveys and used in the publication Tide Tables; and a Tidal Constants (TC) data base, which, using CDM and TIDES, predicts harmonic constants of tides and currents for use in the preparation of the annual publications Tide tables and Tidal Current Tables.

Other acronyms associated with NOS are BSSS--Bathymetric Swath Survey System; CDMS--Current/Depth Measurement Subsystem; CMICE--Current Meter Intercomparison Experiment; and NOSTS--National Ocean Survey Tide Station; ODESSA--Oceanographic Data for the Environmental Science Services Administration, a telemetering data gathering and processing system developed by the USC&GS in the 1960's and COSMOS--Coast Survey Marine Observation System--a large stable platform buoy developed in 1968.

378. NATIONAL WEATHER SERVICE: NWS

Originally established in the Signal Corps of the U.S. Army in 1871 as the Weather Bureau (WB) and later assigned variously to the Departments of Agriculture or Commerce until its transfer to the Environmental Science Services Administration in 1965, it was renamed the National Weather Service (NWS) in 1970 when ESSA was absorbed by the newly created NOAA. NWS provides comprehensive weather forecasting, issues warnings of impending severe events, and provides special services to weather-sensitive activities. It operates Weather Service Forecast Offices (WSFO's) in each of the 50 States to provide forecasts for coastal waters as well as Land areas; a network of Port Meteorological Officers (PMO) to provide meteorological information to navigators; and National Hurricane (NHC) and National Severe Storm Forecast Centers (NSSFC).

Its WSFO in Seattle, Wash. has developed a prototype marine service unit called the Seattle Ocean Services Unit (SOSU), which is developing products for use of marine navigators. One of its experimental products is a series of Ocean Thermal Boundary Analysis (OTBA) charts for the north west coast from southern Oregon to Vancouver Island and extending about 400 miles seaward. It developed State Emergency Communications Committees (SECC) and the Emergency Hurricane Information Center (EHIC). The Seismic Sea Wave Warning System (SSWWS), formerly

the responsibility of the Coast and Geodetic Survey, was first transferred to NOAA's Environmental Research Laboratories in 1971 and then to NWS in 1973. In conjunction with the system, NWS operates the Pacific Tsunami Warning Center (PTWC) and the Alaska Tsunami Warning System (ATWS) and Center (ATWC).

Its programs include the Shipboard Environmental Data Acquisition System (SEAS), an automated meteorological/oceanographic observation system whereby data observations taken by oil tankers, merchant ships, offshore supply vessels, and some naval vessels are transmitted via the GOES to NWS where they are correlated with other environmental data for improved forecasts and warning services; Severe Environmental Storms and Mesoscale Project (SESAME); Atmospheric Forces for the Mid-Atlantic Bight (AFMAB), a program to develop a data base system to test oceanic models for the Mid-Atlantic Bight; and the Automation of Field Operations and Services (AFOS), a program to use modern devices such as on-site computers and display devices to provide maximum assistance to forecasters, hydrologists, weather-service specialists, and observers.

It operates the National Meteorological Center (NMC) which collects, processes, and distributes worldwide weather data on a continuous time schedule describing the current and predicted state of the atmosphere from the surface to about 100,000 feet and conducts research with emphasis on numerical weather prediction. NMC is a part of the World Weather Program of the World Meteorological Organization and is the Specialized Oceanographic Center (SOC) to provide services to users of IGOSS/POLYMODE data.

379. NATIONAL TECHNICAL INFORMATION SERVICE: NTIS

NTIS is the central source for the public sale of Government-sponsored research, development, and engineering reports and other analyses prepared by Federal agencies and their contractors or grantees. Services of NTIS are varied and include retrospective searches of its computerized bibliographic data bases, current-awareness announcements, standing orders for microfiche services, software and data files on magnetic tape, special bibliographies, and many others. In addition to processing reports from civilian agencies of the Government, NTIS receives nonclassified reports and related bibliographic data from the Defense Documentation Center (DDC), which are then made known and available to the public.

380. DEPARTMENT OF DEFENSE: DOD

Established in 1949, DOD includes the Departments of the Army and Navy, both of which are involved in marine science activities. DOD also has other activities of interest. Among these is the Defense Advance Research Projects Agency (DARPA) established in 1958 as the Advance Research Projects Agency (ARPA) under the Director of Defense Research and Engineering and redesignated a separate agency in 1972. DARPA initiates, sponsors, and funds research and development (R&D) programs with military potential until the feasibility of concepts is demonstrated, at which time it transfers responsibility to one of the military services. Ocean-related research projects initiated by DARPA include the design of stable floating platforms, surface effect vessels, undersea power systems, underwater acoustics, and others.

The Defense Documentation Center (DDC) is the military counterpart of NTIS. DDC receives all documents produced by Defense agencies or by contractors receiving defense funding. Its system of storage and retrieval is compatible with NTIS, and all unclassified holdings are made available to the public through NTIS.

The Defense Mapping Agency (DMA) was organized in 1972 when the several mapping activities in DOD were consolidated into one office. Its Hydrographic Center (DMA/HC) is responsible for the preparation and dissemination of nautical charts and related publications, including Pilot Charts and Notices to Mariners, for areas outside territorial waters, formerly the responsibility of the Naval Oceanographic Office. Its Topographic Center (DMA/TC) assumed the responsibilities for mapping formerly assigned to the Army Map Service (AMS), and the Aerospace Center (DMA/AC) assumed the responsibilities of the former Aeronautical Chart and Information Center (ACIC) of the Department of the Air Force. DMA also includes the DOD Bathymetry Library.

381. DEPARTMENT OF THE ARMY: DOA

Most of the marine-related activities of DOA are handled by the Corps of Engineers (COE), sometimes referred to as the Army Corps of Engineers (ACE). Responsibilities of COE include environmental research and development programs in support of its military and civil works programs. Specific activities include river and harbor improvement, coastal engineering, and hydraulics.

It is responsible for the Inner Continental Shelf Sediments and Structure Program (ICONS), a continuing program covering U.S. coastal areas including the Great Lakes. It maintains the Selected Legally Protected Animals (SLPA) file, a central repository of information on the legal status of endangered wildlife species as identified by Federal and State legislation and the Sensitive Wildlife Information System (SWIS) containing species information on endangered wildlife.

Currently COE is responsible for the National Waterways Study (NWS) authorized by the Water Resources Development Act of 1976. Coastal and other navigable waters are being described and assessed, and recommendations regarding their use and maintenance will be made at the end of the study in 1980. Most of these studies and programs are conducted in the Corp's district offices. Its Wilmington District devised the Coastal Research Amphibious Buggy (CRAB), a mechanical surveying vehicle for taking measurements in the surf zone.

Separate administrative organizations in the Corps are the Army Engineers Waterways Experiment Station (AEWES or WES), the Coastal Engineering Research Center (CERC), the Cold Regions Research and Engineering Laboratory (CRREL), and the institute for Water Resources (IWR).

AEWES supports research for the development of harbors, evaluation of tidal hydraulics, and study of estuarine pollution. It manages the Aquatic Plant Control Research Program (APCRP) to rid navigable waterways of certain aquatic plants; the Dredged Material Research Program (DMRP), which was completed in March 1978 and superseded by the Dredging Operations Technical Support (DOTS); the Hydraulic Engineering Information Analysis Center (HEIAC), which includes data on coastal and estuarine waters; and a Hydraulic Engineering Center (HEC), which is responsible for gathering and evaluating data necessary for developing water programs and projects.

CERC was originally established in the Corps of Engineers in 1930 as the Beach Erosion Board (BEB). BEB was primarily an advisory board on coastal erosion, and in 1936 it was abolished and its functions were transferred to the newly created Coastal Engineering Research Center whose mission was expanded to emphasize research on coastal engineering. CERC's chief responsibilities include studies of shore processes and the environmental impact of coastal development. It operated the Coastal Engineering Information Analysis Center (CEIAC) responsible for collecting, analyzing, and disseminating information on coastal engineering and technology. It developed the

Towed Oceanographic Data Acquisition System (TODAS) to collect wave and current data in the nearshore area.

CRREL performs some marine research, especially in relation to sea ice and engineering activities in the polar regions. It operates the Cold Regions Science and Technology Information Center (CRSTIAC), which collects, evaluates, and disseminates technical information and data on science and technology in the polar regions.

IWR sponsors research relevant to comprehensive planning and compiles assessments of impacts of water projects. It is involved in evaluating the impact of deepwater ports (DWP).

382. DEPARTMENT OF THE NAVY: DON

The Department, whose secretary is referred to as SECNAV, includes many units, offices, or commands involved in marine science activities. While its functions are primarily for defense purposes, results of its unclassified research are available to the civilian community and it has been a leader in oceanographic research. In the 1950's it prepared a study of oceanographic research activities and potential aspects of such research that was identified as Ten Years of Oceanography, 1960-70 (TENOC).

It operates the Navy Automated Research and Development Information System (NARDIS) and maintains three focal points for making its information available to the public. Known as Naval Research and Development Information Centers, they are referred to as NARDIC/HQRS, NARDIC/EAST, and NARDIC/WEST. It also sponsors the Navy Industry Cooperative Research and Development Program (NICRAD).

The Navy sponsors the Atlantic Test and Evaluation Center (AUTEC) established in the Tongue of the Ocean (TOTO) where continuous research is conducted by various naval components in physical oceanography, underwater acoustic measurements, testing of equipment, etc. It also sponsors the Santa Cruz Acoustic Range Facility (SCARF), the Inner-Seamont Acoustic Range (ISAR), the Pacific Missile Test Center (PMTC or PMC).

Descriptions of those naval commands most involved in marine research activities follow in entries 383 through 398.

383. CIVIL ENGINEERING LABORATORY: CEL

Established in 1948 as the Naval Civil Engineering Laboratory (NCEL) and recently renamed the Civil Engineering Laboratory, it is a detachment of the Naval Construction Battalion Center and is responsible for naval construction at advanced bases, shore stations, and in amphibious and underwater operations. It is concerned with data regarding marine environment in these areas. It developed the Naval Experimental Manned Observatory (NEMO), a two-man capsule capable of descending to a depth of 600 feet.

384. ENVIRONMENTAL PREDICTION RESEARCH FACILITY: EPRF

EPRF, also called ENVPREDRSCHFAC, a part of the Naval Air Systems Command, performs research on local and regional environmental analysis and prediction techniques and planning, modeling, and evaluation services. It is especially concerned with meteorological phenomena, marine meteorology, storms, hurricanes, typhoons, and cyclones.

385. MILITARY SEALIFT COMMAND: MSC

Formerly the Military Sea Transportation Service (MSTS), MSC supports the Navy by providing transportation services in direct support of fleet units and in support of the Navy's ocean research program.

386. NAVAL AIR DEVELOPMENT CENTER: NADC

NADC is the Navy's principal activity for research, development, test, and evaluation of naval aircraft systems. Ocean surveillance is an important function of the Center. Its efforts concentrate on measurements of ambient noise intensity, directionality, and propagation loss under variable environments.

387. NAVAL COASTAL SYSTEMS LABORATORY: NCSL

Formerly the Navy Mine Defense Laboratory (NMDL), NCSL specializes in shallow-water oceanography, waves, and estuaries, and their protection.

388. NAVAL ELECTRONIC SYSTEMS COMMAND: NESC

NESC maintains an acoustic data file and a file of marine environmental data.

389. NAVAL ENVIRONMENTAL SUPPORT OFFICE: NESO

NESO is the overall program coordinator for the Naval Environmental Protection Support Service (NEPSS), the central environmental information center for the Department. NEPSS maintains the Navy Environmental Protection Data Base (NEPDB), established in 1973 to support all levels of Navy commands with environmental quality information. A newsletter Clean Slate provides up-to-date information about the Program.

390. NAVAL OCEAN SYSTEMS CENTER: NOSC

NOSC is the principal research, development, technology, and engineering center in the Department of the Navy for undersea surveillance, ocean technology, and advanced undersea weapons system. It was formed in 1977 by a merger of the Naval Undersea Center (NUC) and the Naval Electronics Laboratory Center (NEL or NELC). NUC was established as a major command in 1967 and succeeded to the functions of the former Naval Undersea Warfare Center (NUWC). NUWC had been formed earlier in the 1960's by a merger of the Naval Undersea Research and Development Center (NURDC) with that part of the Naval Ordnance Test Station (NOTS) at Pasadena, Calif. NUC was responsible for the development of the Remote Unmanned Work System (RUWS), an underwater vehicle for use in deep waters.

NEL or NELC was formerly known as the Naval Command Control and Communications Laboratory until its name was shortened to the Naval Electronics Laboratory Center.

NOSC's Arctic Submarine Laboratory (ASL) was responsible for the Marginal Sea Ice Zone Pacific (MIZPAC) program of studies of acoustic and related oceanographic peculiarities of the marginal sea ice zone in the Pacific Arctic. The Applied Physics Laboratory of the University of Washington (UW/APL) carried out the program in 1971-74. NOSC sponsors a Marine Environmental Management Office (MEMO) that makes biological surveys in important Navy harbors, particularly those in the Northeast Pacific area. It is responsible for Mobile Sonar Technology (MOST) and sponsors a MOST Technical Document Information System (MOST/TDIS). It also is responsible for the Navy Ocean Experimental Acoustic Data Bank (NAVDAB).

391. NAVAL OCEANOGRAPHY COMMAND: OCEANAV

Established in 1978 with the disestablishment of the Office of the Oceanographer of the Navy, also referred to as OCEANAV, the newly established command is responsible for oceanographic and meteorological activities of the Department of the Navy and includes the Naval Oceanographic Office (NAVOCEANO); the Fleet Numerical Oceanographic

Center (FNOC) at Monterey, Calif., formerly called the Fleet Numerical Weather Central (FNWC or NFNWC) and before that the Fleet Numerical Weather Facility (FNWF), the several fleet weather centrals (FWC), and the Fleet Weather Facility (FWF) at Suitland, Md.; the Naval Weather Service Command (NWSOC) and the Naval Weather Research Facility (WEARESFC). The Fleet Numerical Weather Central provides full service, worldwide, real-time data pertaining to weather and related conditions for the use of the fleet. It has assembled a wide variety of ocean data including marine weather observations, bathythermograph data, oceanographic station data, and satellite-derived data sets all of which it uses in its forecast analyses.

One of its programs to acquire data is the Cooperative Observation Program (COOP) whereby ships of other organizations are provided Expendable Bathythermograph (XBT) probes and related equipment for using the probes and communicating the data free of charge. The Naval Weather Service Command is responsible for the compilation of the series of Marine Climatic Atlases of the World covering each of the oceans.

392. NAVAL OCEANOGRAPHIC OFFICE: NAVOCEANO

Antecedents of NAVOCEANO, also referred to as NOO or USNOO, date back to the 1830's with the establishment of the Depot of Charts and Instruments whose functions were assumed by the Hydrographic Office (HO) or (HYDRO) upon its establishment in 1866. While primarily responsible for providing navigational aids to naval vessels and aircraft, HO, during and after World War II, became increasingly involved in oceanographic sciences and was redesignated the Naval Oceanographic Office in 1962. In 1972, in order to streamline mapping activities in the Department of Defense, responsibilities for preparation of maps, charts, and other publications relating to navigation were removed from NAVOCEANO and placed in the newly created Defense Mapping Agency, leaving marine research the sole responsibility of NAVOCEANO.

NAVOCEANO's oceanographic activities are carried on primarily as required by the U.S. Navy, and many are related to the Anti-Submarine Warfare Program System (ASWEPS) of data collection, processing, and analyses. NAVOCEANO supports the Integrated Carrier ASW Prediction System (ICAPS) data files. Other programs include the Global Geological and Geophysical Ocean Floor Analysis and Research (GOFAR), conducted in 1958; the Harbor Survey Assistance Program (HARSAP) to help Latin American countries develop their capabilities for surveying and publishing port, harbor, and coastal charts; Ocean Acre Project (OCAC), a cooperative program undertaken with the Naval Underwater Systems Center, (NUSC), the Smithsonian Institution (SI), and the University of Rhode Island (URI), to make detailed acoustic, biological, and ecological studies of a 60-mile-square area near Bermuda; Fleet Observations of Oceanographic Data (FLOOD); Airborne Remote Sensing Oceanographic Project (ARSOP); Deep Freeze, a program of research in the Antarctic begun in 1956 and supported by the National Science Foundation (NSF); and Pacific Acoustic Research Kaneohe-Alaska (PARKA) conducted in 1968-69.

Vessels operated by NAVOCEANO include Auxiliary General Oceanographic Research (AGOR), Auxiliary Survey Vessels (ASV), and Auxiliary General Survey (AGS). It also developed the Shipboard Oceanographic Survey System (SOSS) and, together with the Fleet Numerical Weather Center, the Synoptic Oceanographic Data Acquisition System (SODAS) also referred to as ASODAS with the 'A' referring to Augmented.

393. NAVAL ORDNANCE LABORATORY: NOL

NOL is responsible for research, design, development, testing, and technical evaluation of complete ordnance systems, assemblies,

components, and material pertaining to existing and proposed weapons, principally missiles and underwater ordnance. It investigates bottom-water pressure fluctuations in minable waters, optical properties of the ocean, shallow-water sound propagation, acoustic output of explosive charges, and acoustic area techniques. In 1968-72 it conducted a Deep Ocean Optical Measurement (DOOM) project in the North Atlantic, Caribbean, and Mediterranean.

394. NAVAL POSTGRADUATE SCHOOL: NPS

NPS or NPGS is at Monterey, Calif. and specializes in education pertaining to needs of the Department of the Navy, especially in oceanography.

395. NAVAL SEA SYSTEMS COMMAND: NSSC

NSSC is responsible for much of the deep ocean research and engineering studies made by the Navy. Its projects include Deep Submergence Systems Project (DSSP) and Acoustic Performance Prediction (APP). It includes an Environmental Diving Unit (EDU) and sponsors the Diving Information Center (DIC).

396. NAVAL SHIP RESEARCH AND DEVELOPMENT CENTER: NSRDC

Also known as the David W. Taylor Naval Research and Development Center, NSRDC is concerned with the development of naval ship and aviation systems. It gathers data on environmental conditions that affect ship construction and is concerned with pollution abatement aboard ships. It is responsible for the David Taylor Model Basin (DTMB).

397. NAVAL UNDERWATER SYSTEMS CENTER: NUSC

NUSC is the principal center in the Navy for research in underwater weapons and undersea warfare. It was formed in 1970 by a merger of the Naval Underwater Sound Laboratory (NUSL or USNUSL) and the Navy Underwater Weapons Research and Engineering Station (NUWRES). Its studies include physical, biological, and geological oceanography, internal waves as they relate to acoustic system design, air-sea interface, ocean turbulence, variability of shallow water as a weapons environment, ambient noise in the Arctic, and oceanography of underwater test ranges. In 1970 it initiated a Moored Acoustic Buoy System (MABS), a remote subsurface moored self-recording data acquisition system. It supports the Sonar In-Situ Mode Assessment System (SIMAS). In cooperation with the Lamont Doherty Geological Observatory (LDGO), it sponsored the Major Investigation for Low-Frequency Ocean Bottom Loss Experiments (MAINLOBE). It is responsible for the Block Island-Fisher Island Range (BIFI) and makes oceanographic surveys of the area.

398. OFFICE OF NAVAL RESEARCH: ONR

ONR Plans and coordinates research programs of naval relevance throughout the Department of the Navy and executes contracts for doing research at educational and other nonprofit institutions. Its field activities include the Naval Research Laboratory (NRL); Naval Biosciences Laboratory (NBL); Naval Arctic Research Laboratory (NARL); and Naval Ocean Research and Development Activity (NORDA).

NRL was responsible for the Light Behind the Camera (LIBEC) system, which permits photographs of the deep bottom to be taken at greater ranges than before; LIBEC was used during Project FAMOUS to photograph the Mid-Atlantic Ridge. It developed the Over-The-Horizon (OTH) radar for remote observations of sea state at long range and the Synthetic Aperture Radar (SAR) used to detect and map ocean current boundaries. In cooperation with NOAA and the Institute for Telecommunications

Service (ITS), it is sponsoring the program SEA ECHO to monitor distant sea conditions in the North Pacific using OTH; the Gulf of Alaska is the first SEA ECHO study area.

NARL, sometimes called ARL, is owned by ONR and managed by the University of Alaska (UAL). Its projects include the Arctic Research in Environmental Acoustics (AREA) program. It is responsible for the Arctic Research Laboratory Ice Station (ARLIS), an ice island used as a drifting platform to study ice drift and deformation processes.

NORDA's programs include the Synthetic Bathymetric Profiling System (SYNBAPS) and the Long Range Acoustic Propagation Project (LRAPP).

399. DEPARTMENT OF ENERGY: DOE

Established in 1977, DOE succeeded to the activities of the former Federal Energy Administration (FEA), the Federal Power Commission (FPC), and the Energy Research and Development Administration (ERDA). ERDA, created in 1975 when the Atomic Energy Commission (AEC) was disbanded, succeeded to AEC's research and development activities.

Its responsibilities include the development of alternate energy sources such as Ocean Thermal Energy Conversion (OTEC) and Wind Energy Conversion System (WECS).

It is concerned with environmental safety of energy-producing facilities in the coastal zone and offshore sites and reviews Environmental Impact Statements (EIS) relating to the proposed sites. It supports research and development activities on energy-related pollutants, and its predecessor, the AEC, designed the Deep Water Isotopic Current Analyzer (DWICA) to use radioactivity to analyze currents.

DOE sponsors the National Energy Information Center (NEIC), the National Environmental Research Parks (NERP) (the Savannah River NERP assesses environmental impacts of nuclear fuel processing at DOE installations); the National Biomonitoring Inventory Program (NBIP), a collection of data files containing biological monitoring information; the Energy Research and Development Inventory (ERDI), a data base with descriptions of current energy research and development programs; and the Mid-Pacific Marine Laboratory (MPML), formerly the Eniwetok Marine Biological Laboratory (EMBL) established by AEC in 1954.

400. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE: HEW

Two of the agencies in HEW have some interests for the marine scientist; one is the Food and Drug Administration (FDA), which administers the National Shellfish Sanitation Program (NSSP) established in 1925 as a voluntary cooperative program of Federal, State, and industry representatives whose purpose is the prevention of disease from eating unsafe shellfish. The Public Health Service (PHS) is concerned with the overall health aspects of river, estuarine, and coastal projects, sanitation in recreation areas, such as beaches, and in shellfish-growing areas.

401. DEPARTMENT OF THE INTERIOR: DOI

The Nation's principal conservation agency, DOI is responsible for most of its nationally owned public lands and its natural resources. This includes fostering the wisest use of land and water resources, protecting fish and wildlife, preserving environmental and cultural values of public lands, and providing for outdoor recreation. It also assesses energy and mineral resources to assure that their development is in the best interest of all people.

Included among the departmental offices is an Ocean Mining Administration, established in 1975 to be responsible for developing policy concerning the promotion and continuation of domestic ocean-

mining capabilities in deep seabed areas. In addition, it is responsible for jurisdictional issues in international negotiations relating to the resources of the continental shelf (CONSHELF); implementation of a domestic ocean mining program; supervision of assessments of the economics, technology, and resources of ocean minerals; supervision of environmental studies on ocean mineral resources; and liaison with other Federal agencies concerned with ocean mineral resources development and regulatory aspects of ocean mining.

The Secretary has appointed several advisory boards of interest including the National Petroleum Council (NPC) with oil industry representatives who advise on all matters pertaining to oil and gas and who are especially concerned with resources on the continental shelves; and the Outer Continental Shelf Environmental Studies Advisory Commission (OCSEAC).

Agencies in the Department having interests in the marine environment are described in entries 402 through 409.

402. BUREAU OF LAND MANAGEMENT: BLM

Established in 1946 by the consolidation of the General Land Office and the Grazing Service, BLM is responsible for the total management of public lands. In recent years it has supported extensive research on the social, economic, and environmental aspects of outer continental shelf development in areas off the Atlantic Coast, in the Gulf of Mexico, the coast of southern California, and more particularly the coasts of Alaska where it is funding the Outer Continental Shelf Environmental Assessment Program (OCSEAP).

403. BUREAU OF MINES: BOM

Established in 1910, BOM is primarily a research and fact-finding agency and the lead Federal agency in the area of mineral exploration, extraction, processing, utilization, and recycling. It is involved in mining in the marine environment.

404. BUREAU OF RECLAMATION: BOR

Established in 1902, BOR is responsible for the development of water and related land resources in the 17 western States. Most of its activities are nonmarine; however, it sponsored a study of the feasibility of the California Undersea Aqueduct (CUA) to supply water to Southern California. The U.S. Naval Undersea Center participated in the study, known as the California Undersea Aqueduct Reconnaissance--Oceanography (CUARO).

405. HERITAGE CONSERVATION AND RECREATION SERVICE: HCRC

Established in 1963 as the Bureau of Outdoor Recreation (BOR), its name was changed in 1978 to the present title. Its responsibilities include the development of a nationwide outdoor recreation plan, and it provides technical assistance to the States and initiates research. In recent years it has become increasingly aware of the coastal zone as a recreational area.

406. NATIONAL PARK SERVICE: NPS

Established in 1916, NPS conducts and supports marine-related social science research that can be applied to management of the National Park system and to the identification and preservation of the Nation's archeological and historical heritage. It is responsible for the several areas identified as national seashores and is concerned with the effect of development on the outer continental shelf. To this end, it has developed a program entitled Cultural Resources Protection on the Outer Continental Shelf (CRPOCS).

407. OFFICE OF WATER RESEARCH AND TECHNOLOGY: OWRT

OWRT was established in 1974 by a merger of the former office of Saline Water (OSW) and the Office of Water Resources Research (OWRR). It performs water resources research and development activities; administers the university Water Resources Research Institutes (WRRI); and operates the Wrightsville Beach Test Facility (WBTF), a world center of research on saline water conversion and engineering.

408. UNITED STATES FISH AND WILDLIFE SERVICE: USF&WS

Antecedents of USF&WS date back to the establishment of a Fish Commission in 1871. First established as an independent agency, it was later transferred to the Department of Commerce. A second predecessor agency, the Bureau of Biological Survey, had been established in the Department of Agriculture. In 1939 the two bureaus were placed in the Department of Interior, where they merged into one agency renamed the Fish and Wildlife Service (F&WS); in 1956 it was renamed the Fish and Wildlife Service, and two Bureaus, the Bureau of Commercial Fisheries (BCF) and Sport Fisheries and Wildlife (BSFW) were established within the Service. In 1970, BCF was transferred to the newly created NOAA in 1974, BSFW was renamed the Fish and Wildlife Service.

It is responsible for wild birds, mammals (except certain commercially important mammals), inland sport fisheries, and selected fishery research activities. It sponsors the Fish and Wildlife Reference Service (FWRS), a bibliographic data base that provides support to programs concerned with fish and wildlife conservation and restoration. Its Office of Biological Services (OBS) is responsible for the National Coastal Ecosystems Team (NCET).

409. UNITED STATES GEOLOGICAL SURVEY: USGS

Established in 1879, USGS is responsible for collecting, analyzing, and publishing detailed information about the Nation's mineral, land, and water resources. It is one of the Government's foremost mapping agencies, responsible for detailed topographic mapping and for maintaining the National Cartographic Information Center (NCIC).

It provides hydrologic information and understanding needed for the optimum use and management of the Nation's water resources. The Office of Water Data Coordination (OWDC) in USGS maintains the National Water Data Exchange (NAWDEx), a computerized data system that identifies sources of water data; the Master Water Data Index (MWDI), which identifies sites for which water data are available and the types of water data at each site; the Water Data Sources Directory (WDSI), which identifies agencies or organizations having water data; and the National Water Data Storage and Retrieval System (WATSTORE), which provides access to all types of water data.

USGS enforces Department of the Interior regulations on leasing of Federal oil, gas, geothermal, and mineral resources including those on the Continental Shelf. It classifies these areas by their value for leasable minerals and evaluates them for tract selection or reserve inventory purposes. It supervises the operations of private industry on leases in public domains. It sponsored Continental Offshore Stratigraphic Tests (COST) in selected offshore sites. It maintains an Outer Continental Shelf Events File (OCSEF) to collect and organize oil spill and accident data.

USGS has the responsibility for EROS--the Earth Resources Observation System, a program to develop techniques to obtain and analyze remotely-sensed satellite data and data from aircraft imagery for

use in environmental management purposes. It operates the EROS Data Center (EDC), which provides access to the imagery.

It also maintains the National Earthquake Information Service (NEIS), which provides information on location, magnitude, and intensity of recent earthquakes.

410. DEPARTMENT OF STATE: DOS

The primary function of DOS is to provide the President with advice in the formulation and execution of foreign policy, including matters relating to ocean policy. The United States has a special representative at the Law of the Sea Conference (UNCLOS), and there is an Assistant Legal Adviser for Ocean, Environment, and Scientific Affairs.

A Bureau of Oceans and International Environmental and Scientific Affairs (OES), organized in 1973, formulates and implements policies and proposals for the scientific and technical aspects of marine science activities as they relate to other countries and international governmental organizations; represents DOS in international negotiations in its areas of responsibility; and provides guidance to the U.S. scientific community on activities and programs affecting foreign policy issues. Subunits of the Bureau are the Scientific and Technical Affairs (OES/SCI), Environmental and Population Affairs (OES/ENP), and Ocean and Fishery Affairs (OES/OFA). An Ocean Affairs Advisory Committee (OAAC) provides advice to the Secretary of State and to OES on matters relating to international cooperation.

The Department's Agency for International Development (AID) helps developing countries use their resources and assists in programs to train marine technicians in the developing countries.

DOS was closely involved in the negotiations establishing the 200-mile Exclusive Economic Zone (EEZ) and is responsible for negotiating Governing International Fisheries Agreements (GIFA) making surplus catches of fishes in the EEZ available to foreign governments.

411. DEPARTMENT OF TRANSPORTATION: DOT

DOT, established in 1966, is responsible for coordinating the Nation's transportation systems and for developing national programs and policies to promote transportation.

Its concerns with marine science activities are limited to the Office of Pipeline Safety (OPS) under the Assistant Secretary for Environment, Safety, and Consumer Affairs and to the U.S. Coast Guard. OPS is concerned with offshore drilling for gas and oil and the establishment of deepwater ports (DWPS). The U.S. Coast Guard is described in the following entry.

412. UNITED STATES COAST GUARD: USCG

USCG was formally established in 1915, though its antecedents date back to 1790 when it was the Revenue Cutter Service, a law enforcement agency. Over the years its functions and activities have broadened from that solely responsible for maritime law enforcement. Today it routinely collects oceanographic and meteorological observations on regular patrols and on International Ice Patrols (IIP), for which it is responsible under international agreements. The Coast Guard Oceanographic Unit (CGOU) provides scientific support to these activities, many of which are carried out in its Search and Rescue (SAR) program which involves efforts to obtain pertinent oceanographic data to develop a steady state model of seas for search and rescue operations. Most of its oceanographic projects are routine; however one was identified by an acronym, WEBSEC, for Western Beaufort Sea Ecological System. It has Airborne Radiation Thermometer

(ART) program flights off the U.S. coasts, which, in addition to providing sea-surface temperature data, also provide data about marine life, thermal pollution, and foreign fishing activities. The ART program off the Pacific Coast will terminate in 1979. It is, in cooperation with the National Marine Fisheries Service, (NMFS) responsible for enforcing the 200-mile extended jurisdiction established by the Fisheries Conservation and Management Act of 1976 (FEMA). The clean-up of hazardous substances, including oil, polluting U.S. navigable waters is another major responsibility. It developed a Pollution Incident Reporting System (PIRS), maintains a National Response Center (NRC) to receive reports of discharges and coordinate Federal response activities as they are needed, and maintains a National Strike Force (NSF) to be called to scenes of disaster to provide expertise and emergency equipment. It developed an Air-Borne Oil Surveillance System (AOSS) being installed on medium-range search aircraft to provide all-weather day and night detection of oil spills and an Air-Delivered Anti-Pollution Transfer System (ADAPTS) to recover oil spills. It also monitors ocean dumping and recently developed an Ocean Dumping Surveillance System (ODSS).

USCG operated the Ice Navigation Center (INC) and a Central Oil Identification Laboratory (COIL). COIL was developed in 1978 to serve as the lead group within a national network of Field Oil Identification Laboratories (FOIL) to be located throughout the United States to identify spills by a chemical analysis of spill samples and to recommend appropriate cleanup measures.

The Deepwater Ports Act (DWPA) of 1974 gave DOT responsibility for all deepwater ports (DWP) that may be licensed, constructed, and operated on the high seas to transfer oil from tankers to shore sites. DOT in turn delegated to USCG most of the responsibilities for DWPs.

USCG operates a Marine Reporting Station Program (MARS) consisting of a network of about 200 coastal and offshore manned stations, most of which are operated by volunteers who make observations of weather, visibility, and wind and sea conditions. The data are forwarded to the National Weather Service (NWS). USCG is also responsible for the establishment and maintenance of aids-to-navigation in U.S. waters. Recently it developed a marine Safety Information System (MSIS), which, with the help of Lloyds of London, includes data on over 60,000 merchant ships as well as other analytical and statistical information. Its Auxiliary (USCGAUX), a volunteer organization of private boaters assists the National Ocean Survey (NOS) by providing information for updating its nautical charts.

Independent Agencies

413. ENVIRONMENTAL PROTECTION AGENCY: EPA

Established in 1970, EPA protects and improves our environment today and for future generations. Its mission is to control and abate pollution in the areas of air, water, solid waste, pesticides, noise, and radiation. Upon its establishment, it succeeded to the functions of the Federal Water Quality Administration (FWQA) in the Department of the Interior, which in turn had succeeded to the functions of the Federal Water Pollution Control Administration (FWPCA) established in the Department of Health, Education, and Welfare in 1965.

Major responsibilities for protection of water quality rests with EPA whose laboratories collect data from marine waters to establish a data base for water quality criteria. EPA reviews other ongoing monitoring programs for its National Water Quality Surveillance System (NWQSS).

EPA laboratories primarily concerned with the marine environment are the Corvallis (Oreg.) Environmental Research Laboratory (CERL), the National Marine Water Quality Laboratory (NMWQL) at Narragansett, R.I.; the Gulf Breeze Environmental Research Laboratory (GBERL) at Gulf Breeze, Fla.; and the Health Effects Research Laboratory (HERL) at Cincinnati, Ohio. CERL, organized in 1975, replaced the former National Environmental Research Center (NERC). Included under CERL are the Pacific Northwest Environmental Research Laboratory (PNERL), the National Ecological Research Laboratory (NERL), the Western Fish Toxicology Station (WFTS), and the Arctic Environmental Field Station (AEFS), formerly the Arctic Environmental Research Laboratory (AERL).

NMWGL is primarily responsible for developing standards of water quality for saltwaters and estuaries. HERL is concerned with the health effects related to shellfish growing. GBERL has a residual pesticide monitoring program to assess long-term toxic effects of pesticides on marine organisms.

Some of the marine-related programs undertaken by EPA and its predecessors include the National Estuarine Pollution Study (NEPS) by FWQA in 1969; the Biological and Climatic Effects Research (BACER) program, an interagency cooperative program for which EPA is the lead agency; the National Coastal Pollution Research Program (NCPRP), which became effective in 1973; and the National Pollution Discharge Elimination System (NPDES), required by the Federal Water Pollution Control Act (FWPCA).

EPA manages the Storage and Retrieval for Water Quality Data (STORET) system, a computerized data base of water quality data with information on water quality and water quality standards, point sources of pollution, pollution-caused fish-kills, and many other related items; and the Solid Waste Information Retrieval System (SWIRS).

414. FEDERAL MARITIME COMMISSION: FMC

Established in 1961, FMC inherited the regulatory functions of the Federal Maritime Board, which had in turn inherited them from the former U.S. Maritime Commission. It regulates U.S. waterborne domestic and foreign offshore commerce. Among its responsibilities is that of ensuring that there is evidence of adequate financial responsibility by owners and operators of vessels that may be liable for the cost of removing hazardous substances from U.S. navigable waters, shorelines, or waters of the contiguous zone.

415. NATIONAL AERONAUTICS AND SPACE ADMINISTRATION: NASA

Established in 1958 and principally responsible for guiding the Nation's manned space and extraterrestrial flight program, NASA has in recent years become increasingly concerned with Earth-oriented environmental and related research and development programs. Its satellites observe and measure various weather and oceanic conditions, such as ocean wave spectra, sea state, wave heights, and oceanic pollution. It cooperates with the National Environmental Satellite Service (NESS) in the development of satellites and data products for environmental monitoring. It sponsors an Earth and Ocean Physics Application Program (EOPAP) and an Earth Resources Aircraft Program (ERAP). Recently it developed an Ocean Dynamics Information System (ODIS) that provides near-real time data on sea state, wind speed, Gulf Stream velocity, and position data from the GOES-3 satellite. Its Earth Resources Technology Satellite (ERTS) program was superseded by the LANDSAT program in NASA and the SEASAT program in NOAA's National Environmental Satellite Service.

Components of NASA involved in remote sensing activities include the Earth Resources Research Data Facility (ERRDF), the Goddard Space Flight Center (GSFC), the Lyndon B. Johnson Space Center (LBJSC), and the Wallops Flight Center (WFC). An Ocean Dynamics Advisory Subcommittee (ODAS) provides advice on the applications of satellite technology to ocean research. In 1976 it launched a Laser Geodynamics Satellite (LAGEOS) to obtain maximum geocentric coordinates of points on the Earth's surface in order to determine global plate tectonic motions, polar motions, and other phenomena of importance to geodynamics.

416. NATIONAL SCIENCE FOUNDATION: NSF

Established in 1950, NSF promotes the progress of science through the support of research and education. Its major emphasis is on basic research for the improved understanding of the fundamental laws of nature, and it supports these activities through grants, contracts, and other awards to universities and other research organizations.

The Assistant Director for Astronomical, Atmospheric, Earth, and Ocean Sciences (AAEO) is responsible for the overview of these programs and receives support and advice from the Advisory Panel for Oceanography (APO) and the Advisory Committee on Polar Programs (ACPP). Programs relating to environmental systems and resources, social systems and human resources, advanced technology applications, and exploratory research and problem assessment come under a collective program titled Research Applied to National Needs (RANN).

NSF supports the Arctic Offshore Program (AOP), the U.S. Antarctic Research Program (USARP), the International Decade of Ocean Exploration (IDOE), and the Ocean Sediment Coring Program (OSCP), which includes the Deep Sea Drilling Project (DSDP). It also supports the U.S. contributions to Global Atmospheric Research Program (GARP) and supported the U.S. contributions to the discontinued International Biological Program (IBP). It lends financial support to the University National Oceanographic Laboratory System (UNOLS); the National Center for Atmospheric Research (NCAR) operated by the University Corporation for Atmospheric Research (UCAR); and the Polar Ice Core Office (PICO) at the University of Nebraska which is responsible for planning and coordinating ice-core drilling programs.

417. NUCLEAR REGULATORY COMMISSION: NRC or NUREG

An independent regulatory agency, NRC was established in 1975 succeeding to the licensing and related regulatory functions assigned to the former Atomic Energy Commission (AEC).

Among NRC's responsibilities is the regulation of proposed and existing nuclear plants located in the coastal zone or in offshore waters. It requires in-depth environmental reports for the pre- and post-operational phases of these sites and prepares draft environmental impact statements (DEIS) based on the information submitted. These reports contain a wealth of environmental data regarding the marine environment in the vicinity of the sites.

A computerized information system, Information on Nuclear Site Data System (INSITE), was developed by the Argonne Laboratory to support NRC's efforts to develop guidelines for site evaluation.

418. SMITHSONIAN INSTITUTION: SI

Created in 1846, the Smithsonian, an independent trust establishment, performs research and publishes the results; preserves for study, reference, and exhibition millions of items of historical, social, or scientific interest; conducts educational programs; and

performs many more services in accordance with its mandate to increase and diffuse knowledge.

Its National Museum of Natural History (NMNH) administers the Smithsonian Oceanographic Sorting Center (SOSC) established in 1963 as a national facility for the acquisition and use of marine biological collections. It also sponsored the Pacific Ocean Biological Survey Program (POBSP) conducted in 1963, and the Investigations of Marine Shallow-Water Ecosystems Program (IMSWEP), a physical/chemical/biological study of a coral reef adjacent to Belize, Central America, in 1971. IMSWEP was partially coordinated with the program called Cooperative Investigations of Tropical Reef Ecosystems (CITRE) proposed by SI to be incorporated into the International Decade of Ocean Exploration (IDOE). While CITRE was not accepted for inclusion in IDOE, SI did some work on site selections and held related workshops.

SI's Chesapeake Bay Center for Environmental Studies (CBCES) makes studies of estuarine processes and promotes educational programs. The Smithsonian Tropical Research Institute (STRI), in the Republic of Panama, is devoted to the study of tropical biology, conservation, and education and operates two marine biology laboratories, one on the Atlantic side and the other on the Pacific side of the Isthmus.

The Smithsonian Science Information Exchange (SSIE), a nonprofit District of Columbia Corporation, collects, indexes, stores, and retrieves information on Government and nongovernment research projects and provides a number of services to help researchers keep informed about current efforts in their fields of interest. Late in 1978 an agreement was made to transfer SSIE to the Department of Commerce, where it will become part of the National Technical Information Service (NTIS).

SI operates the Scientific Event Alert Network (SEAN), formerly the Center for Short-Lived Phenomena (CSLP) and maintains a file of events, many of which occur in the marine environment. SI cooperates with the U.N. Environment Program's (UNEP) Informational Retrieval System (IRS), recently redesignated INFOTERRA. A new commission established in 1978, the U.S. Commission of Maritime History (USCMH), was placed under the direction of SI.

Quasi-official Agencies

419. NATIONAL ACADEMY OF SCIENCE-NATIONAL ACADEMY OF ENGINEERING-NATIONAL RESEARCH COUNCIL: NAS-NAE-NRC

A National Academy of Sciences (NAS) was established as a quasi-official agency in 1863 to further science and its use for the general welfare. The National Academy of Engineering (NAE) was established by the Council of NAS in 1970 to further engineering research in support of national needs. Both are honorary bodies, but can, by terms of the charter, be called upon to act as official advisers to the Federal Government in matters coming under their purview.

The National Research Council (NRC) was organized by NAS in 1916 and serves as the principal operating agency of NAS and NAE. It comprises a number of boards and committees. Those associated with NAS include the Ocean Sciences Board (NAS/OSB); the Transportation Research Board (NAS/TRB); the Environmental Studies Board (NAS/ESB); and the Geophysical Research Board (NAS/GRB).

The Ocean Sciences Board (NAS/OSB) was created in 1976 through a reorganization of the former Ocean Affairs Board (NAS/OAB), which had included an Ocean Science Committee (OSC), successor to the National Scientific Committee on Oceanography (NASCO), successor in turn to the NAS Committee on Oceanography (NAS/CO). NAS/OSB includes an Ocean

Policy Committee (OPC), formerly known as the International Marine Science Affairs Policy Committee (IMSAP), which serves as an adviser to Federal agencies on marine affairs aspects of pertinent national and international matters. During the Third Law of the Sea Conference, it has been supporting a Freedom for Ocean Sciences Task Group (FOSTG) to review its concerns that the new conventions drafted would increase the difficulties of performing oceanic research.

The Environmental Studies Board includes an International Environmental Programs Committee (IEPC), which provides interdisciplinary advice on international environmental problems and on U.S. initiatives presented at international conferences. It is also responsible for planning for the U.S. participation in the Global Environmental Monitoring System (GEMS).

The Geophysical Research Board includes a Committee on Data Interchange and Data Centers (CDIDC) which advises the U.S. participants in World Data Centers.

The Transportation Research Board's program includes the dissemination of information about research in many fields of transportation. It operates the Maritime Research Information Service (MRIS), a system for the acquisition, selection, storage, retrieval, and dissemination of references to projects, technical reports, and journal articles in the maritime field.

The NRC's Ship Research Committee (SRC) provides services in connection with the research program of the Ship Structure Committee (SSC) established in 1946 to research ship structures and their equipment. NRC also includes coordinating committee on Scientific and Technical Assessment of Environmental Pollutants (STAEP).

Other boards and committees include the Committee of Ecological Research for the Interoceanic Canal (CERIC), organized in 1969 to review and make recommendations regarding the accomplishments of the Atlantic-Pacific Interoceanic Canal Study Commission. CERIC's report was completed in 1970. The Committee on Nuclear and Alternative Energy Sources (CONAES) has concerned itself with the establishment of nuclear energy plants offshore or on the coasts and with developing other energy sources in the ocean; a Committee on Water (COW); and the Board on Ocean Science Affairs (BOSA), a temporary title.

Associated with the National Academy of Engineering is a Marine Board (NAE/MB), formerly the Committee on Ocean Engineering (NAE/COE).

B. STATE AGENCIES AND ORGANIZATIONS

420. ALABAMA

Alabama's Departments of Public Health (DPH) and Conservation and Natural Resources (DCNR) are concerned with the marine environment. The latter includes a Division of Fish and Game and a Marine Resources Division, which operates the Alabama Marine Resources Laboratory (AMRL) on Dauphin Island.

In 1971 the State legislature chartered the Marine Environmental Science Consortium (MESC), a public nonprofit corporation that supports the 18-member universities and colleges in Alabama with necessary marine related course offerings to satisfy their degree programs. MESC is at the Dauphin Island Sea Laboratory (DISL).

421. ALASKA

The State's marine science activities are concentrated largely in the Departments of Environmental Conservation (ADEC) and Fish and Game (ADF&G). The State also supports the Alaska Eskimo Whaling Commission (AEWC).

The marine science activities at the University of Alaska (UAL) are included in the Institute of Marine Science (IMS), the Geophysical Institute, the Institute of Water Resources (IWR), and the Institute of Arctic Biology (IAB). The University is responsible for the Alaska Sea Grant Program (ASGP). It operates the Arctic Environment Information and Data Center (AEIDC), established by the Alaska Legislature in 1972. Under contract to the Office of Naval Research, it operates the Naval Arctic Research Laboratory (NARL or ARL).

The University is deeply involved with the Outer Continental Shelf Environmental Assessment Program (OCSEAP) and in addition is responsible for the program called Processes and Resources of the Bering Sea Shelf (PROBES).

The Alaska Fisheries Development Corporation (AFDC) is a nonprofit organization established in 1978 to promote Alaska's fishing industry through research and education.

422. CALIFORNIA, State Agencies

Marine science and research activities at the State level are handled by California Resources Agency, which includes its Department of Fish and Game (CDFG), the Department of Navigation and Ocean Development (CDNOD), and the Department of Water Resources (CDWR).

The Department of Fish and Game is responsible for major investigative activities in biological sciences and is one of the cooperating agencies on the Marine Research Committee (MRC), which is responsible for the California Cooperative Oceanic Fisheries Investigations (CCOFI) or CalCOFI, an extensive data-collecting program that began in the 1950's and is still continuing. Other participants on the Council are the California Academy of Sciences (CAS), Hopkins Marine Station (HMS) of Stanford University, Scripps Institute of Oceanography (SIO), and the Southwest Fisheries Center (SWFC) of the National Marine Fisheries Service. CDFG is cooperating with SWFC in the development of the Pacific Area Cooperative Enforcement System (PACES), which was implemented in October 1978. The California Marine Fisheries Council (CMFC) provides advice to CDFG.

The Department of Navigation and Ocean Development (CDNOD) is concerned with California's navigable rivers, harbors, and coastal waters. In cooperation with the U.S. Army Corps of Engineers, it is developing the California Coastal Engineering Data Network (CCEDN), a wave and climatic data-gathering program for the California coast that was initiated in 1976.

The State Water Resources Control Board (CSWRCB), formerly the State Water Quality Control Board (CSWQCB), comprising a number of regional boards, is responsible for protecting and improving the State's total water environment.

The Department of Water Resources (CDWR) is responsible for major investigative functions pertaining to hydrology, physical and chemical conditions, and engineering considerations in the marine area.

The Resources Agency includes a Sea Grant Advisory Panel (RASGAP) created in 1973 to administer funds appropriated by the State legislature for distribution as local matching funds for projects under the National Sea Grant College and Program Act of 1966. Members of RASGAP include representatives from State agencies, concerned industries, and academic organizations.

Other departments or agencies of interest are the Bureau of Sanitary Engineering within the Department of Public Health and the Department of Parks and Recreation, both of which are concerned with guarding public rights in their spheres of interest.

In 1967 the California Advisory Commission on Marine and Coastal Resources (CACMCR or CMC) was created to recommend a structure to

implement requirements for Statewide coastal planning. It developed a Comprehensive Ocean Area Plan (COAP), also referred to as the California Ocean Area Plan. Upon completion of its mission in 1973, it was disbanded.

The California Coastal Zone Management and Conservation Commission (CCZMCC) was established in 1972 to continue the California coastal zone management Program.

423. CALIFORNIA, Local Organizations

Among the local organizations involved in marine affairs is the Southern California Coastal Water Research Project (SCCWRP) founded in 1969 by five local government agencies, the cities of Los Angeles and San Diego, and the county sanitation districts of Los Angeles, Orange, and Ventura Counties. The objective of the project was to develop regional scientific information on the coastal waters from Point Conception to the Mexican border.

The San Francisco Bay Conservation and Development Commission (SFBCDC or BCDC) was established in 1965 and is responsible for regional planning in the bay area.

In the Santa Barbara area a citizens group called GOO (Get the Oil Out), organized in 1969, is working for limited development of oil resources in the Santa Barbara channel until technology advances to the point that the odds against disasters will be increased greatly. The Santa Barbara Mariculture Foundation (SBMF), a volunteer group, is working to restore aquatic life, particularly the abalone.

424. CALIFORNIA, State Universities and Colleges

The University of California (UC) includes the Institute of Marine Resources (IMR), located at San Diego, but serving the entire university system. IMR supports research in the sea, administers the University's Sea Grant Program, and supports the Food Chain Research Group (FCRG). The latter was organized in 1963 to study the marine food web, and, in 1974, it instituted the Southern California Bight Studies (SCBS).

Scripps Institution of Oceanography (SIO) has been affiliated with UC since its establishment in 1912 and is now a part of the University's San Diego (UCSD) campus. SIO includes the Advanced Ocean Engineering Laboratory (AOEL) and the Marine Physical Laboratory (MPL). It operates two research platforms: Floating Instrument Platform (FLIP) and the Oceanographic Research Buoy (ORB). ORB serves as a surface launch for research equipment and as a work area.

SIO supported the Scripps Tuna Oceanography Research program (STOR) from 1957 to 1973 when the program was cancelled. It is project manager for the Deep Sea Drilling Project (DSDP) carried on by a consortium of five oceanographic institutions known as the Joint Oceanographic Institutions for Deep Earth Sampling (JOIDES). It is making a Nearshore Sediment Transport Study (NSTS) as a part of its Sea Grant program.

The University of California was designated a Sea Grant College in 1973, and its program incorporates or consolidate all Sea Grant activities in the University of California and California State University. The California Marine Advisory Program (CMAP) was established to coordinate marine-related activities at the several universities and colleges and to provide citizen access to expertise at all institutions.

UC includes the Bodega Marine Laboratory (BML), a support facility for several campuses. Its Lawrence Livermore Laboratory (LLL) is concerned with nuclear radiation, including that in the marine environment, and its Lawrence Berkeley Laboratories (LBL) is concerned

with the development of energy sources, including those in the marine environment.

Its Santa Barbara (UCSB) campus supports a Marine Science Institute (MSI), and its Department of Geology is active in one marine environment. Its Davis campus (UCD) Departments of Zoology and Biological Sciences are active in marine research. Its Santa Cruz (UCSC) campus supports a Coastal Marine Laboratory (CML).

Humboldt State University (HSU) has long been active in marine sciences. It has a Sea Grant Program (HSUSG) and operates a marine laboratory at Trinidad Head.

The Southern California Ocean Studies Consortium (SCOSC), a consortium of five State universities and one State college, was formed to provide an educational and research outlet for their marine programs. Members are the California State University at Fullerton (CSUF), at Long Beach (CSULB), at Los Angeles (CSULA), at Northridge (CSUN), and at Pomona (CSUP), and the California State College at Dominguez Hills (CSCDH)).

The Moss Landing Marine Laboratories (MLML) is jointly owned by a consortium of five State universities at Fresno (CSUF), Hayward (CSUH), Sacramento (CSUS), San Francisco (CSUSF), and San Jose (CSUSJ), and a State college at Stanislaus (CSCS).

425. CALIFORNIA, Private Universities

Private universities include Stanford University (SU), the University of the Pacific (UP), and the University of Southern California (USC).

SU's Department of Biological Sciences operates the Hopkins Marine Station (HMS), which specializes in marine biological training and research. UP operates the Pacific Marine Station (PMS), a year-around research center that emphasizes marine ecology and systematics.

USC has long been active in marine research and education. Its Institute for Marine and Coastal Studies (IMCS) is a Sea Grant participant, and it operates the Catalina Marine Sciences Center (CMSC). USC's Allan Hancock Foundation (AHF) is entirely devoted to marine research. USC and Los Angeles County cooperate in operating a medical center that performs research on venomous marine fishes.

426. CONNECTICUT

Marine research at the State level is largely the responsibility of the Department of Environmental Protection (DEP), which is concerned with fish wildlife, and water resources. Connecticut is also involved in a coastal zone management program and in 1975 established a State/Federal committee called the Coastal Area Management (CAM) to develop the state's plan.

The University of Connecticut (UCT) includes a Marine Science Institute (MSI) that is especially concerned with identifying industrial pollution in Connecticut's marine environment.

Yale University (YU), a private institution, supports some marine research activities, principally in marine biology. It includes the Bingham Oceanographic Laboratory (BOL) and sponsors a joint research program with Woods Hole Oceanographic Institution (WHOI).

427. DELAWARE

Delaware's Department of Natural Resources and Environmental Control (DNREC) includes divisions of Environmental Control and Fish and Wildlife, both of which are concerned with research in the marine environment. Coastal zone management is the responsibility of its Office of Management, Budget, and Planning (OMBP).

Marine science activities at the University of Delaware (UDE) are centered at the College of Marine Science (CMS), which is also responsible for Delaware's Sea Grant (DESG). One of DESG's activities is Project COAST (Coastal and Oceanic Awareness Studies), which has made marine education its goal. It has developed marine curricula and lists of resources for marine educators at all levels.

In 1977 DESG was instrumental in developing the Comprehensive Atlantic Offshore Oceanographic Plan (CAOOP) a plan in which other east coast Sea Grant institutions, Federal agencies, and marine-oriented industries are invited to participate.

428. FLORIDA

Florida's Department of Natural Resources (DNR) is concerned with the State's marine resources and includes a Division of Marine Resources responsible for the Marine Research Laboratory (MRL) and other activities such as beach erosion control and coastal research. DNR's Division of Environmental Research is responsible for the Coastal Coordinating Council (CCC) and Florida's coastal zone management plan. The Division developed an inventory of the natural resources of Florida known as the Florida Resources Information System (FLORIS). DNR's Division of Interior Resources manages Florida's waterways including the Intracoastal Waterway (ICWW) and is responsible for geological surveys and explorations for offshore resources.

The State University System of Florida (SUSF) organized the State University System Institute of Oceanography (SUSIO), which coordinated the marine science activities of member universities: Florida A&M University (FAMU), Florida Atlantic University (FAU), Florida International University (FIU), Florida Technological University (FTU), Florida State University (FSU), the University of Florida (UF), and the Universities of North Florida (UNF), South Florida (USF), and West Florida (UWF). SUSIO coordinated the exhaustive study of the Eastern Gulf of Mexico (EGMEX) and the study of the outer shelf area of Mississippi-Alabama-Florida (MAFLA). In 1978 SUSIO was replaced by the Florida Institute of Oceanography (FIO), a larger institution.

The University of Florida's Department of Biological Sciences operates two marine laboratories, one on the east coast and one on the west coast. Its Communication Sciences Laboratory specializes in underwater speech communications. It also includes a Coastal Engineering Laboratory.

The other members of SUSF have marine science programs. FSU includes a Department of Oceanography, a Geophysical Fluid Dynamics Institute (GFDI), the Edward Ball Marine Laboratory (EBML), and the Antarctic Marine Geology Research Facility (AMGRF). The latter is the national repository for the storage of and the laboratory for the analysis of cores collected during the U.S. Antarctic Research Program (USARP) sponsored by the National Science Foundation.

The University of Miami (UM), a private institution, has an extensive program in marine research, conducted largely by the Rosenstiel School of Marine and Atmospheric Science (RSMAS), established originally as the Institute of Marine Science (IMS). RSMAS conducted a program of Synoptic Observations of Profiles in the Straits of Florida (SYNOPS) in 1971. In 1970 it began the North Atlantic Gyre Studies (NAGR). It developed the Radar Sea State Analyzer (RASSAN). The Gulf and Caribbean Fisheries Institute (GCFI) is at RSMAS. UM's School of Engineering and Environmental Design (SEED) is responsible for ocean engineering courses.

429. GEORGIA

The Divisions of Environmental Protection, Game and Fish, and Coastal Resources within the Department of Natural Resources (DNR) are concerned with Georgia's marine environment. The Coastal Planning and Development Commission (CPDC) is responsible for coastal planning.

In 1967 the Georgia legislature created the Ocean Science Center of the Atlantic Commission (OSCA), which in turn established the Skidaway Institute of Oceanography (SIO or SKIO) within the university system to serve as a marine research facility for the 31 colleges and universities within the State. In 1972 OSCA was abolished. SKIO is responsible for the management of Georgia's Sea Grant Program. The University of Georgia (UGA) has several departments with concerns in the marine environment and sponsors a Marine Institute on Sapelo Island.

430. HAWAII

The State includes a Department of Lands and Natural Resources (DLNR), a Department of Planning and Economic Development (DPED), and an Office of Engineering Quality Control (OEQC), all of which have interests in the marine environment. In 1972-73 DPED, in cooperation with the National Science Foundation, held an Environmental Conference on the Public Understanding of Science in Hawaii (ECOPUSH), which included many programs on marine research and aquaculture.

Marine science activities are widespread throughout the University of Hawaii (UNHI) and especially in the Departments of Oceanography and Ocean Engineering. Affiliated with UNHI are the Hawaii Institute of Geophysics (HIG), Hawaii Institute of Marine Biology (HIMB), J.K.K. Look Laboratory of Oceanographic Engineering (LLOE), Pacific Biomedical Research Center (PBRC), Water Resources Research Center (WRRC), Hawaii Environmental Simulation Laboratory (HESL), and the East-West Center Food Institute (EWCFI), all of which are active in marine-oriented research. HIG was involved in the Pacific Acoustic Research Kaneohe-Alaska (PARKA) project in 1969.

UNHI is responsible for the Law of the Sea Institute (LOSI), formerly at University of Rhode Island's Graduate School of Oceanography. UNHI is a participant in the Sea Grant Program (UNHISG) and under the sponsorship of the program, developed an Ocean Science Information Center (OSIC) and the Marine Option Program (MOP). The latter allows all students, regardless of their major field, to participate in marine educational programs. UNHI developed a crew-carrying ocean-going spar buoy known as the Manned Open Sea Experimentation Station (MOSES).

431. ILLINOIS

The State's Environmental Protection Agency (EPA) and its Department of Conservation (DOC), which includes a Division of Fisheries, are involved with the coastal regions of Lake Michigan.

432. INDIANA

Its Environmental Conservation Commission (ECC), and the Division of Fisheries and Wildlife within the Department of Natural Resources (DNR) are responsible for its coastal activities.

433. LOUISIANA

Louisiana's Wildlife and Fisheries Commission (LWFC) and the Departments of Conservation (DOC) and Transportation and Development (DOTD) are active in marine projects. An advisory Commission on Coastal and Marine Resources (ACCMR) participates in decisions

regarding the coastal areas. The State established Louisiana Offshore Terminal Authority (LOTA) to monitor activities of the Louisiana Offshore Oil Port Corp. (LOOP) being developed by a consortium of oil and pipeline companies.

The Louisiana State University (LSU) includes a Center for Wetland Studies (CWS) formed in 1970 to bring together three marine-oriented groups--the Coastal Studies Institute (CSI), the Department of Marine Science (DMS), and the Office of Sea Grant Development (OSGD). CSI, which has been in existence for a number of years, has a worldwide reputation and performs research in coastal areas throughout the world.

434. MAINE

The State government includes a Natural Resources Council (NRC) responsible for coastal zone activities; and Departments of Environmental Protection (DEP), Sea and Shore Fisheries (DSSF), and Marine Resources (DMR), all of which are involved in the marine environment. An Interim Marine Affairs Council (IMAC) was appointed to serve as an advisory board to determine the means by which a permanent council should be established and to develop goals. An Atlantic Sea Run Salmon Commission (ASRSC) was established in 1947 to protect and improve the dwindling salmon population.

In 1968 a consortium of institutions of higher education organized The Research Institute of the Gulf of Maine (TRIGOM) to promote marine and coastal research. The University of Maine (UM) is a participant in TRIGOM and in the Sea Grant Program. The Southern Maine Marine Vocational Training Institute (SMMVTI) specializes in the training of oceanographic technicians. The Bigelow Laboratory for Ocean Sciences (BLOS), a division of the Northeastern Research Foundation, is at West Boothbay Harbor.

435. MARYLAND

Maryland's Department of Natural Resources (DNR) is responsible for the Maryland Environmental Services (MES) and the Fish and Wildlife Administration (F&WA), both of which are concerned with the marine environment. A Coastal Resources Advisory Commission (CRAC) was appointed to help develop the coastal zone plan.

The University of Maryland (UMD) includes a Center for Environmental and Estuarine Studies (CEES) and a Natural Resources Institute (NRI) which specializes in the Chesapeake Region. The University also manages the Chesapeake Biological Laboratory (CBL).

The Johns Hopkins University (JHU) supports the Chesapeake Bay Institute (CBI) formed in 1948 to provide laboratory and field support for marine science activities. JHU's Applied Physics Laboratory (APL) also does research in marine sciences.

436. MASSACHUSETTS

The State government includes an Executive Office of Environmental Affairs (EOEA) and a Department of Fisheries and Wildlife (DFWRV), both of which have interests in the marine environment.

The publicly funded University of Massachusetts (UMA) supports a marine science program and includes a Coastal Research Center (CRC), formerly the Coastal Research Group (CRG).

Independent universities of interest are Boston University whose marine program is referred to as BUMP, and the Massachusetts Institute of Technology (MIT). The latter is heavily involved in marine research and is a Sea Grant Institution (MITSG), which is responsible for the Marine Industry Advisory Services Program (MIDAS). MIT established a Marine Resources Information Center (MARIC), has courses

in Planning for Offshore Ports (POP), conducted the New England Coastal Area Planning Program (NECAP) in 1970, and sponsored a Study of Critical Environmental Problems (SCEP) in 1970, which identified marine pollution as one of the critical problems. It cooperates with Woods Hole Oceanographic Institution in joint MIT/WHOI programs in oceanography and ocean engineering. Its Ralph M. Parsons Laboratory for Water Resources and Hydrodynamics (RMPLWRH) is devoted to teaching and research, especially in engineering.

The Woods Hole Oceanographic Institution (WHOI), founded in 1930, has worldwide recognition. It participates in many programs and is currently housing the POLYMODE Office and the University National Oceanographic Laboratory System (UNOLS). UNOLS, established in 1972, superseded the Council of Oceanographic Laboratories Directors (COLD). The concept of UNOLS was developed by the Stratton Commission, which urged that university and other research laboratories coordinate their research efforts and access to ships, submersibles, and other research facilities. The New England Cooperative Coastal Research Facility (NECCRF) is located with UNOLS.

WHOI performed the Internal Wave Experiment (IWEX) off Bermuda in 1973 and supports the Acoustic Model Evaluation Committee (AMEC).

437. MICHIGAN

Michigan's Department of Natural Resources (DNR) includes the coastal areas of Michigan in its concerns. The University of Michigan (MICHU) includes a Department of Atmospheric and Oceanic Science and a Great Lakes Research Division (GLRD). It operates the Great Lakes and Marine Waters Center (GLMWC) and is a Sea Grant Institution (MICHUSG).

The Environmental Research Institute of Michigan (ERIM) was established in 1973 by special act of the Michigan legislature as a non-profit research corporation, succeeding to the activities of the former Willow Run Laboratories of the University of Michigan. Much of ERIM's activities are centered around remote sensing of the environment. It has a Center for Remote Sensing Information and Analysis (CRISIA), which performs research in environmental monitoring and Earth resources surveys and sponsors the International Symposiums on Remote Sensing of the Environment.

Its Infrared Information Analysis Center (IRIA) is concerned with the identification and surveillance of pollutants. IRIA sponsors the National Infrared Information Symposiums (IRIS). Recently ERIM acquired the personnel and faculties of the Earth Resources Data Center (ERDC) formerly a part of the Bendix Corporation.

438. MINNESOTA

The State's Pollution Control Agency (PCA) and its Department of Natural Resources (DNR) are concerned with research and conservation of the State's coastal area.

The University of Minnesota (UMN) is a Sea Grant Program participant and instituted the Minnesota Marine Advisory Service (MMAS) in 1975. The University also supports the Lake Superior Basin Studies Center (LSBSC) established in 1973.

439. MISSISSIPPI

State agencies concerned with marine research include the Mississippi Air and Water Pollution Control Commission (MAWPCC), the Mississippi Game and Fish Commission (MGFC), and the Mississippi Marine Conservation Commission (MMCC).

In 1947 the State established the Gulf Coast Research Laboratory (GCRL), which is affiliated with a number of universities and colleges

in Mississippi and other States concerned with research in the Gulf of Mexico. The University of Mississippi (UM) is affiliated with GCRL, is a member of the Mississippi-Alabama Sea Grant Consortium (MASGP), and a member of the Gulf Universities Research Consortium (GURC). Mississippi State University (MSU) is also affiliated with GCRL.

440. NEW HAMPSHIRE

The State's Department of Fish and Game (DFG) is responsible for much of the State's program in marine research.

The University of New Hampshire (UNH) is a Sea Grant Program participant. It operates the Jackson Estuarine Laboratory (JEL) and the Engineering Design and Analysis Laboratory (EDAL). EDAL designed an underwater habitat known as EDALHAB.

441. NEW JERSEY

New Jersey's Department of Environmental Protection (NJDEP) and its Division of Fish, Game, and Shellfisheries are concerned with the State's marine programs.

Twenty-two of the universities and colleges of New Jersey form the Marine Sciences Consortium (MSC), which sponsors the Sandy Hook Marine Laboratory (SSML). Rutgers, the State University of New Jersey, has a Marine Sciences Center (MSC) that interacts with many of the departments in the university system.

442. NEW YORK

New York's Department of Environmental Conservation (DEC) includes a Division of Fisheries and Wildlife concerned with New York's shorelines along the Atlantic and along the Great Lakes.

The New York Ocean Science Laboratory (NYOSL), a center for programs in marine sciences, particularly the development of tidal and coastal waters for aquaculture, is supported by a consortium of eight universities and colleges including New York University (NYU) and the State University of New York (SUNY). SUNY includes a number of campuses with marine science activities served by the Marine Sciences Research Center (MSRC) at the Stony Brook campus. SUNY and Cornell University compose a consortium responsible for the New York Sea Grant Institute (NYSGI). The City University of New York (CUNY) also supports marine-related research.

A number of advisory committees and commissions have interests in marine activities and include the Commercial Fisheries Advisory Committee (CFAC), the Marine Youth Education Advisory Committee (MYEAC), the Lake Erie Advisory Commission (LEAC), the Coastal Water Resources Advisory Committee (CWRAC), and the Coastal Recreation Advisory Committee (CRAC).

Local regional planning boards of interest are the Erie-Niagara Counties Regional Planning Board (ENCRPB) and Nassau-Suffolk Regional Planning Board (NSRPB). A volunteer, nonprofit organization called the Marine Environmental Council of Long Island (MECLI) is concerned with protection of the Island's marine environment.

Independent universities of interest are Columbia and Cornell. Columbia's Lamont-Doherty Geological Observatory (LDGO), formerly the Lamont Geological Observatory (LGO), has varied interests in marine biology, geology, and physical/chemical oceanography. It is especially involved in the U.S. Antarctic Research Program (USARP) and in several of the programs of the International Decade of Ocean Exploration (IDOE). Its prime concerns are in marine geology, and it maintains an extensive collection of ocean bottom photographs and deep sea cores.

Cornell cooperates with the State University System in the Sea Grant Program and operates the Shoals Marine Laboratory (SML) in cooperation with SUNY, and the Sea Education Association (SEA) in cooperation with the University of New Hampshire and SUNY.

443. NORTH CAROLINA

The Department of Natural Resources and Community Development (DNCRD) and its Office of Fish and Wildlife are concerned with the State's marine areas. The North Carolina Office of Coastal Management (NCOCM) is responsible for developing and managing the coastal zone in accordance with the 1972 Federal act and the North Carolina Coastal Area Management Act of 1974 (CAMA). A Coastal Resources Commission (CRC) provides advisory services.

The University of North Carolina (UNC) and the North Carolina State University (NCSU) cooperate in marine science programs including the Sea Grant Program. They support a Marine Research Center (MRC) at three sites along North Carolina's coast. NCSU includes a Center for Marine and Coastal Studies (CMCS). East Carolina University (ECU), also State supported, sponsors the Institute for Coastal and Marine Resources (ICMR). Duke University, a private institution, includes the Duke University Marine Laboratory (DURL). In 1972 North Carolinians organized the Sound and Sea Fisherman's Association (SSFA) to restore commercial fishing.

444. OHIO

Ohio's Department of Natural Resources (DNR) and its Division of Fisheries and Wildlife are concerned with coastal areas. The State University (OSU) has a Center for Lake Erie Area Research (CLEAR).

445. OREGON

The Department of Environmental Quality (DEQ) and the Oregon Fish Commission (OFC) are State agencies involved in marine activities. Advisory groups include the Oregon Estuarine Research Council (OERC) and the Oregon Coastal Conservation and Development Commission (ORCDC).

The Oregon State University (ORESU) has an active marine research program largely vested in the School of Oceanography. It is also a participant in the Sea Grant Program (ORESG). ORESU participates in the Coastal Upwelling Ecosystem Analysis project (CUEA) of the International Decade of Ocean Exploration (IDOE); sponsors its own Upwelling Project (UP) of continuing studies of upwelling along the Oregon coast; made a winter-spring (WISP) study of the transition of oceanographic conditions from winter to spring off the Oregon coast in 1975; and in cooperation with Canadian organizations performed a Mixed Layer Experiment (MILE) that measured the temperature microstructure in the North Pacific at Ocean Station 'P' in 1977.

446. PENNSYLVANIA

The department of Environmental Research (DER) and the Pennsylvania Fish Commission (PFC) are concerned with marine science research and protection of Pennsylvania's marine environment. The Delaware Valley Regional Planning Commission (DVRPC) was created to advise on the development of the State's coastal zone along the Delaware River.

In 1968, Lehigh University (LU), an independent institution, established a Center for Marine and Environmental Studies (CMES) to serve as an interdepartmental research organization to promote research in marine science, ocean engineering, and environmental

research. LU operated the Wetlands Institute (WI), a separate non-profit organization funded in part by the World Wildlife Fund (WWF), which promotes research and public education. The Institute for Development of Riverine and Estuarine Systems (IDRES), a consortium of institutions in Pennsylvania and Delaware, is affiliated with LU.

447. PUERTO RICO

The Puerto Rico Water Resources Authority (PRWRA) is concerned with the use and conservation of Puerto Rico's marine environment. The Commonwealth also supports the Puerto Rico International Undersea Laboratory (PRINUL) and the Puerto Rico Undersea R&D Corp. (PRURDCO).

The University of Puerto Rico (UPR) includes a Department of Marine Sciences (DMS), formerly the Institute of Marine Biology (IMB). It sponsors the Institute of Caribbean Science (ICS); the Center for Energy and Environment Research (CEER), which is involved in researching an Ocean Thermal Energy Conversion (OTEC) site off Puerto Rico's coast; and the Puerto Rico Nuclear Center (PNRC), which is involved in environmental studies for a potential coastal nuclear generating plant.

448. RHODE ISLAND

Rhode Island's Department of Natural Resources (DNR) and the Fish and Wildlife Division of DNR perform research in the marine environment at the State level. Its Council of Environmental Quality (CEQ) works to conserve and improve the marine environment, and its Coastal Resources Management Council (RICRMC), established in 1971, maintains and regulates its coastal resources.

The University of Rhode Island (URI) includes a Graduate School of Oceanography (GSO) at the Narragansett Marine Laboratory (NML). URI is a Sea Grant Institute and is responsible for the National Sea Grant Depository (NSGD) at URI's Pell Marine Science Library (PMSL). The New England Marine Advisory Service (NEMRIP), an association of marine advisory, extension, and educational programs supported by the Sea Grant Program Office of NOAA, is at URI.

URI also supports a Center for Ocean Management Studies (COMS). For many years it was responsible for the Law of the Sea Institute (LOSI), now at the University of Hawaii. It is currently involved in the Cetacean and Turtle Assessment Program (CETAP) funded by the Bureau of Land Management (BLM).

449. SOUTH CAROLINA

South Carolina's Wildlife and Marine Resources Department (WMRD) and its Marine Resources Research Institute (MRRI) have active research programs in the State's marine environments. Its Department of Health and Environmental Control (DHEC) is also concerned. In 1977 the State established the South Carolina Coastal Council (SCCC) to plan its coastal zone management program.

The University of South Carolina (USC) operates the Belle W. Baruch Institute for Marine Biology and Coastal Research (BIMBCR or BWBIMBCR), which studies coastal water estuaries and wetlands including pollution of and analyses of undisturbed marsh-estuarine ecosystems. In 1975 USC established an Oil-Spill Assessment Team (OSAT) to study spills and to develop a system to classify shoreline types as to their vulnerability to spills.

450. TEXAS

Included among the State agencies with interests in the marine environment are the General Land Office (GLO), responsible for development of the coastal zone; the Parks and Wildlife Department (PWD) and

its divisions of Fish and Wildlife and Environment; the Texas Water Quality Board (TWQB); and the Texas Deepwater Ports Authority (TDPA), established by the State in 1978 to assume the activities of SEADOCK. SEADOCK, a consortium of oil companies developing a deepwater port off the Texas coast, no longer exists. The Texas Coastal and Marine Council (TCMC) advises on the coastal zone management plan.

State-supported institutions with marine science-related activities include the University of Texas (UT) and Texas A&M University (TAMU). The University of Texas includes a Marine Science Institute (MSI) and a Medical Branch (UTMB) which, together with other institutions in Texas, support the Marine Biomedical Institute (MBI). MBI promotes research in and supports the Flower Garden Ocean Research Center (FGORC). UT also supports a Center for Research in Water Resources (CRWR).

TAMU supports a Center for Marine Resources (CMR), which coordinates marine research activities at TAMU, most of which are conducted by the Departments of Oceanography and Meteorology. TAMU supports the Center for Dredging Studies (CDS). It includes departments of marine sciences, marine engineering, marine transportation and nautical science, and ocean engineering and is a Sea Grant Institute.

451. VIRGINIA

A Council on Environmental Quality (CEQ) in the Governor's Office includes the conservation and protection of the marine environment among its concerns. The Commission of Game and Inland Fisheries (CGIF) also sponsors marine-related research. Virginia's Office of Secretary of Commerce and Resources (OSCR) is responsible for Virginia's Coastal Resources Management Study (CRMS). The Virginia Marine Resources Management Advisory Committee (CRMAC) provides advice to the newly created Coastal Study Commission (CSC) charged with developing CRMS.

VIMS, the Virginia Institute of Marine Science, an independent State agency formerly titled the Virginia Fisheries Laboratory (VFL), is affiliated with the University of Virginia (UVA) and the College of William and Mary. VIMS developed the Marine Environmental and Resources Research Management System (MERRMS), which includes an inventory of the State's wetlands, shallows, and shorelines; a bibliography on Chesapeake Bay; and other data banks and resources to answer research needs. It also developed the National Aquaculture Information System (NAIS), which is included in NOAA's Oceanic and Atmospheric Sciences Information System (OASIS). It is the lead member of the Marine Educational Materials System (MEMS) in which nine other institutions participate to provide sources of information to educators and students involved in marine studies. Its projects include the development of the Virginia Sea Wave Climate Model (VSWCM) for the Mid-Atlantic Bight and the Chesapeake Bay Wave Climate Model (CBWCM).

UVA's main thrust in marine affairs is in ocean law, and in 1976 it established a Center for Ocean Law and Policy (COLP). The Virginia Polytechnic Institute and State University (VPISU) is a Sea Grant participant specializing in seafood research. Old Dominion University (ODU), a private institution, sponsors an Institute of Oceanography.

Another acronym associated with Virginia is TARAV--Tidewater Artificial Reef Association of Virginia.

452. WASHINGTON

Washington's Departments of Ecology (DOE) and of Fisheries (DOF) carry on research in the marine environment at the State level. The State also funds the Oceanographic Commission of Washington (OCW), a

policy-oriented commission supported in research and other action items by the Oceanographic Institute of Washington (OIW), a nonprofit research and education corporation. OIW operates the Northwest Regional Calibration Center (NRCC) and has studies and programs in marine resource use, environmental protection, marine education, fishing, vessel safety, and aquaculture.

The University of Washington (UW) has an active marine research as it relates to atmospheric research, particularly in the Arctic. The College of Fisheries has been involved in research in fishery problems in the Pacific Northwest since 1919. The Division of Marine Resources is responsible for Washington's Sea Grant Program (WSG), and an Institute for Marine Studies (IMS) fosters innovative interdisciplinary courses of study and new approaches to marine policy research. It is also one of the major participants in the Rivera Ocean Seismic Experiment (ROSE), a program being conducted in the eastern Pacific to understand how new material placed at an accreting plate boundary evolves into the "typical" structure postulated for the outer 100 km of the Earth's surface.

Among the university projects was SEA USE, a 1968 project to place a habitat on the Cobb Seamount and the North Pacific Fisheries Project (NORFISH), an ongoing project of the Sea Grant program begun in 1971. NORFISH is developing a total systems analysis of the North Pacific fisheries in cooperation with the fishing industry, Federal and State agencies, and universities; the objective is to conserve fishery resources.

Gray's Harbor College (GHC) participates in the Washington Sea Grant Program and provides vocational training in fish and game management and mariculture. It is responsible for the Ocean Shores Marine Information Center (OSMIC), a Sea Grant-sponsored project to provide marine information to the public.

453. WISCONSIN

The Department of Natural Resources (DNR) is responsible for State marine research activities and includes an Environmental Protection Division and a Fish Management Section.

The University of Wisconsin (UWIS) is a Sea Grant Program participant (WISSG). It is responsible for the Center for Great Lakes Studies (CGLS) and the Geophysical and Polar Research Center (GPRC).

C. REGIONAL ORGANIZATIONS

454. ATLANTIC STATES MARINE FISHERIES COMMISSION: ASMFC

Established in 1942 by the Atlantic States Marine Fisheries Compact, (ASMFC) promotes the better use of fisheries of the 15 Atlantic seaboard States through the development of a joint program for promotion and protection of fisheries and the prevention of physical waste of fisheries from any cause.

455. CHESAPEAKE RESEARCH CONSORTIUM: CRC

Chartered in 1972 by the State of Maryland, the Consortium includes the Smithsonian Institution's Chesapeake Bay Center for Environmental Studies, the University of Maryland, the Johns Hopkins University's Chesapeake Bay Institute, and the Virginia Institute of Marine Sciences.

456. COASTAL STATES ORGANIZATION: CSO

Established in 1970, CSO gathers, and disseminates information on marine affairs of interest to the 32 States bordering the oceans

or the Great Lakes; develops cooperative programs; and develops means whereby the States may be adequately represented in the formulation of plans at the Federal level.

457. COASTAL PLAINS REGIONAL COMMISSION: CPRC

Established in 1965 by Georgia, North Carolina, and South Carolina, CPRC was expanded in 1975 to include Florida and Virginia. It includes an Environmental Affairs Advisory Committee to advise on programs. In 1968 it established the Coastal Plains Center for Marine Development Services (CPCMDS).

458. COLUMBIA RIVER ESTUARY STUDY TASK FORCE: CREST

Established in 1975 and comprising representatives from city and county governments in Oregon and Washington, CREST has as its mission the preparation of a coordinated, comprehensive plan for the management of the estuary.

459. CONNECTICUT RIVER SALMON ASSOCIATION: CRSA

CRSA was incorporated in 1974 as an organization to manage salmon in the Connecticut River. It was instrumental in development of legislation to establish a Connecticut River Atlantic Salmon Commission. This legislation, first introduced in New Hampshire in 1977, has been passed by New Hampshire, Connecticut, and Vermont, but is still pending in Massachusetts.

460. GREAT LAKES COMMISSION: GLC

Established in 1955 by Great Lakes States' legislatures, GLC is a recommendatory and advisory agency for the eight Great Lakes States in regional water resources matters.

461. GULF STATES MARINE FISHERIES COMMISSION: GSMFC

A Federal-State commission established in 1949, GSMFC promotes a proper use of the fisheries common to the five Gulf coast States, all of whom are members of the Commission. In 1966, in cooperation with the Bureau of Commercial Fisheries, it began the cooperative Gulf of Mexico Estuarine Inventory (GMEI).

462. GULF UNIVERSITIES RESEARCH CORPORATION: GURC

A nonprofit research organization, GURC was founded in 1965 and comprises universities and research organizations from Florida to Texas. It is devoted to the development of the Gulf of Mexico as an important natural resource. Its major effort has been the Gulf Environmental Measurements Program (GEMP), a 10 year program. It also sponsored the Offshore Ecology Investigation (OEI) to satisfy the need of its offshore industry affiliates for data to determine if their explorations and activities adversely affect the environment.

463. MARINE SCIENCE CONSORTIUM: MSC

Located in Pennsylvania with members in Delaware, the District of Columbia, Maryland, and Virginia, MSC specializes in the ecology of Chesapeake and Chincoteague Bays. In 1973, it made a Sludge Acid Monitoring Survey (SAMS) of three waste disposal sites in the Atlantic Ocean.

464. MISSISSIPPI-ALABAMA SEA GRANT PROGRAM: MASGP

Nine institutions in Mississippi and Alabama compose the consortium, formerly called the University Marine Center (UMC), which promotes research, education, and advisory services.

465. NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION: NEIWPPC

Established in 1947, NEIWPPC is concerned with all bodies of water contiguous to or flowing through two or more New England States (all of which are members), including tidal waters that ebb and flow past State boundaries. Its functions include the consideration of interstate pollution control efforts, education and training, and public information.

466. NEW ENGLAND ESTUARINE RESEARCH SOCIETY: NEERS

467. NEW ENGLAND FISHERIES DEVELOPMENT PROGRAM: NEFDP

Sponsored by the New England Regional Commission (NERCOM), NEFDP includes the New England Fisheries Steering Committee (NEFSC), which serves as an ombudsman for the fishing industry.

468. PACIFIC MARINE FISHERIES COMMISSION: PMFC

Established in 1947, PMFC promotes the better use of fisheries of mutual concern to the Pacific coast States including Alaska.

469. SEA USE COUNCIL: SUC

A regional forum of United States and Canadian Federal, State, and Provincial agencies bordering the Northeast Pacific area, SUC's objective is to encourage the scientific and economic development of marine resources in the region. It includes a Marine Services Development Group that works closely with the National Weather Service's Seattle office in providing marine services such as sea ice briefings to navigators.

D. PRIVATE ORGANIZATIONS

470. AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS: AAPG

Founded in 1917, AAPG is concerned with the advancement of the science of geology as it relates to petroleum and natural gas. It promotes exploration for petroleum and natural gas, including exploration in the continental and outer continental shelf.

471. AMERICAN ASSOCIATION OF PORT AUTHORITIES: AAPA

Founded in 1912 to develop and encourage water-based transportation, AAPA is currently involved with the establishment of deep-water ports (DWP's).

472. AMERICAN ASSOCIATION OF ZOOLOGICAL PARKS AND AQUARIUMS: AAZPA

Organized in 1924 to promote the welfare of zoological parks and aquariums, AAZPA is also involved in the conservation of wildlife and preservation of endangered species, including those in the marine environment.

473. AMERICAN BUREAU OF SHIPPING: ABS

Founded in 1862, ABS is a nonprofit self-regulatory organization for maritime interests. It is concerned with standards for design and construction, and the periodic survey of ships and other structures to ensure their fitness. It maintains the American Bureau of Shipping Information Retrieval System (ABSIRS), which contains pertinent facts and characteristics about merchant vessels. In a recent reorganization, ABS established an Ocean Engineering Division to work with the development of offshore platforms and powerplants, and underwater vehicles and habitats.

474. AMERICAN CETACEAN SOCIETY: ACS
Founded in 1967 to protect marine mammals, especially whales, ACS is also concerned with the protection of all marine life.
475. AMERICAN CONGRESS ON SURVEYING AND MAPPING: ACSM
Founded in 1941 to promote the science of surveying and mapping, ACSM has added sections on marine surveying and mapping in recent years.
476. AMERICAN FISHERIES SOCIETY: AFS
A professional society organized in 1870 to promote the conservation, development, and wise use of commercial and recreational species, AFS includes a Committee on Marine and Estuarine Resources.
477. AMERICAN FISHERMAN'S RESEARCH FOUNDATION: AFRF
478. AMERICAN FISHERMAN'S SAFETY INCENTIVE PROGRAM: AFSIP
An outgrowth of the Alaska Sea Grant Program, AFSIP is an attempt by fishermen to develop their own safety standards.
479. AMERICAN GAS ASSOCIATION: AGA
Founded in 1919, AGA is concerned with all aspects of gas production and promotes research for exploration for gas resources, including those in the continental and outer continental shelves.
480. AMERICAN GEOLOGICAL INSTITUTE: AGI
Founded in 1948, AGI is a nonprofit federation of professional societies in geology and geophysics. It promotes training; publishes dictionaries, glossaries, a newsletter, and English translations of foreign literature; and coordinates activities of its member societies. It sponsors a Geological Reference File (GEOREF), a computer-readable data base of geoscience information.
481. AMERICAN GEOGRAPHIC SOCIETY: AGS
An independent, nonprofit research organization founded in 1852, AGS has fields of research that include oceanography. It publishes the "Serial Atlas of the Marine Environment" folios and the "Antarctic Map Folio."
482. AMERICAN GEOPHYSICAL UNION: AGU
Founded in 1919, AGU promotes the study of geophysics and assists in coordinating geophysical research. Of interest to marine scientists are its sections on hydrology, meteorology, oceanography, seismology, and volcanology. It represents the United States at the International Union of Geology and Geophysics (IUGG).
483. AMERICAN INSTITUTE OF BIOLOGICAL SCIENCES: AIBS
Organized in 1947, AIBS is a national organization for biology and biologists and includes sections on marine biology.
484. AMERICAN INSTITUTE OF FISHERY RESEARCH BIOLOGISTS: AIFRB
Founded in 1956.
485. AMERICAN INSTITUTE OF MERCHANT SHIPPING: AIMS
AIMS was founded in 1969.
486. AMERICAN INSTITUTE OF MINING, METALLURGICAL AND PETROLEUM ENGINEERS: AIME
AIME is a professional society established in 1905 as the American Institute of Mining Engineers. Its acronym has remained the

same though its name was changed to meet its expanding role. In recent years it has become increasingly involved in offshore mining, exploration, and technology.

487. AMERICAN INSTITUTE OF NAUTICAL ARCHEOLOGY: AINA

488. AMERICAN LITTORAL SOCIETY: ALS

Organized in 1961, ALS promotes studies of aquatic life by observing marine animals, promotes public awareness of aquatic life, and conserves estuaries.

489. AMERICAN MALACOLOGICAL UNION: AMU

Founded in 1931, AMU is an organization of professional scientists specializing in the study of mollusks and of amateur collectors of shells.

490. AMERICAN MARITIME ASSOCIATION: AMA

AMA was founded in 1961.

491. AMERICAN METEOROLOGICAL SOCIETY: AMS

Founded in 1919, AMS is the leading professional organization for meteorologists in the United States. It is active in marine meteorology and concerned with physical oceanography. Its publication Meteorological and Geostrophysical Abstracts (M&GA) regularly includes a section on physical oceanography. Among its journal publications is the Journal of Physical Oceanography.

492. AMERICAN OCEANIC ORGANIZATION: AOO

Organized in 1968 to "informally stimulate the exchange of information between the U.S. Government and the oceanic community," AOO organized in 1978 the first National Oceans Week, which was recognized by the President and the Congress.

493. AMERICAN PETROLEUM INSTITUTE: API

Founded in 1919 as a trade association, API promotes the interests of the petroleum industries, represents them in contracts with the Government, sponsors research on environmental protection and the prevention and control of oil pollution, and sets standards and performance controls for the industry. It sponsors a computerized Central Abstracting and Indexing Service (CAIS).

494. AMERICAN SHORE AND BEACH PRESERVATION ASSOCIATION: ASBPA

Organized in 1926, ASBPA coordinates special interest groups in the preservation and restoration of beaches and shorefronts.

495. AMERICAN SOCIETY FOR TESTING AND MATERIALS: ASTM

Founded in 1898, ASTM includes among its activities the study of water, water quality, and materials in water. Its subcommittee on Biology Monitoring deals with the development of biological methods for assessment of water and its subcommittee on Saline Water prepares standards for seawater, brackish water, and brines for sampling, analysis, and reporting results of analysis. It recently (1976) formed a new Committee on Spill Control Systems to test and evaluate methods proposed for the control of oil spills and other floating substances.

496. AMERICAN SOCIETY OF BIOLOGICAL CHEMISTS: ASBC

ASBC was founded in 1906.

497. AMERICAN SOCIETY OF CIVIL ENGINEERS: ASCE
Founded in 1852, ASCE includes a Waters, Harbors, and Coastal Engineering Division and a Technical Council on Ocean Engineering which promotes the advancement of deep ocean civil engineering.
498. AMERICAN SOCIETY OF ICHTHYOLOGISTS AND HERPETOLOGISTS: ASIH
Founded in 1913, ASIH is a professional organization for the advancement of the study of fishes, amphibians, and reptiles.
499. AMERICAN SOCIETY OF INTERNATIONAL LAW: ASIL
Organized in 1906 to promote international relations on the basis of law and justice, ASIL is involved in the Law of the Sea Conferences and other aspects of maritime law.
500. AMERICAN SOCIETY OF LIMNOLOGY AND OCEANOGRAPHY: ASLO
Founded in 1936 as the Limnological Society of American, ASLO assumed its present name in 1949. It promotes and publishes research in aquatic sciences through meetings, symposia, and the publication of the journal Limnology and Oceanography.
501. AMERICAN SOCIETY OF MAMMALOGISTS: ASM
Organized in 1919, ASM is concerned with research, education, and conservation of mammals and all phases of mammalogy. It has a Committee on Marine Mammals and is especially concerned with those threatened with extinction.
502. AMERICAN SOCIETY OF MECHANICAL ENGINEERS: ASME
ASME was founded in 1880.
503. AMERICAN SOCIETY FOR MICROBIOLOGY: ASM
Formerly the Society of American Bacteriologists, ASM was established in 1899.
504. AMERICAN SOCIETY OF NAVAL ENGINEERS: ASNE
ASNE was founded in 1888.
505. AMERICAN SOCIETY OF PHOTOGRAMMETRY: ASP
ASP was founded in 1934. One of its objectives is to promote the use of aerial photography and remote sensing for studying the environment.
506. AMERICAN TUNABOAT ASSOCIATION: ATA
ATA was founded in 1923.
507. AMERICAN WATER RESOURCES ASSOCIATION: AWRA
Founded in 1964, AWRA is a nonprofit scientific organization to advance water resources research. It is responsible for the compilation of Water Resources Abstracts.
508. ASSOCIATION OF AMERICAN SHIP OWNERS: AASO
Now inactive.
509. ASSOCIATION OF SEA GRANT PROGRAM INSTITUTES: ASGPI
510. ATLANTIC ESTUARINE RESEARCH SOCIETY: AERS
A nonprofit society formed in 1949 for educational purposes, AERS has the objective of promoting informal discussion and exchange of ideas on estuaries, especially those in the Chesapeake Bay-Carolina area. It is a member of the New England Estuarine Research Society (NEERS).

511. ATLANTIC OFFSHORE FISH AND LOBSTER ASSOCIATION: AOFLA
AOFLA comprises about 60 commercial fishery companies.

512. BALTIMORE MARINE EXCHANGE: BME

513. BATELLE MEMORIAL INSTITUTE: BMI

A research organization, BMI has special interests in the marine environment and supports several marine science laboratories: Florida Marine Research Laboratories, Wm. Clapp Laboratories in Massachusetts, the Pacific Northwest Laboratories (PNWL) in Washington, the Long Beach Ocean-Engineering Facility, California, and laboratories in Ohio. Its Columbus, Ohio, laboratories support several information centers of interest: analytical Methodology Information Center (AMIC) established in 1970 and containing references to methods for identifying pollutants, effects of water pollution, quality control of pollutants, and analyses of water quality; Diver Equipment Information Center (DEIC); Energy Information Center (EIC); and the Environmental Information Analysis Center (EIAC), established in 1966 and concerned with the effects of a sea-level canal at the Isthmus of Panama and with ecology of the Aleutian Islands. Its Pacific Northwest Laboratory supports the Oil and Hazardous Materials Technical Assistance Data System (OHMTADS), which includes information on oil spills and their effects.

514. BERNICE P. BISHOP MUSEUM: BPBM

Located in Hawaii, BPBM takes an active interest in the Pacific area and operates the Pacific Science Information Center (PSIC).

515. BIOLOGICAL SCIENCES INFORMATION SERVICE: BIOSIS

BIOSIS has been publishing Biological Abstracts since 1926. It is a clearinghouse for the entire field of life sciences and is especially concerned with information on environmental pollutants.

516. BROOKHAVEN NATIONAL LABORATORY: BNL

An independent nonprofit research organization, BNL was established in 1947 and is operated by Associated Universities, Inc., a consortium of nine northeastern universities. Its fields of interest are oriented towards nuclear and related sciences. It was responsible for the Coastal Shelf Oceanography Program (CSOP) conducted off New York in the bight area in 1974-75. Included in CSOP were the Coastal Boundary Layer Transect (COBALT), the Shelf Exchange Processes (SEEP), and the Surface Mixed Layer Experiment (SMILE) subprograms.

517. CALIFORNIA ASSOCIATION OF PORT AUTHORITIES: CAPA

518. CHESAPEAKE BAY FOUNDATION: CBF

CBF was organized in 1965 to protect the bay.

519. CHESAPEAKE WATER POLLUTION CONTROL ASSOCIATION: CWPCA

520. CHEVRON OIL FIELD RESEARCH CO.: COFRC

COFRC maintains a Technical Information Center (TIC) which includes information on oceanography and on oil pollution and its prevention in the marine environment. It is also responsible for research on wind, waves, and other phenomena that affect offshore structures.

521. COASTAL ZONE MANAGEMENT INSTITUTION: CZMI

Organized in 1973, CZMI comprises professionals involved with the coastal zone. It acts as a clearinghouse for information and promotes research and education in the field.

522. COMMITTEE ON THE SALMON EMERGENCY: CSE

Formed in 1970, CSE is concerned with protection of salmon on the high seas.

523. COUSTEAU SOCIETY: CS

Organized in 1974 to promote research in the marine area, is especially concerned with combating pollution and with reversing the decline in marine resources.

524. EASTERN PACIFIC OCEANOGRAPHIC CONFERENCE: EPOC

A loosely organized group of oceanographers who have been meeting annually since 1954. While basically interested in the Eastern Pacific, their interests are sometimes worldwide. EPOC has no official status, but many of its recommendations have been adopted and implemented, including its recommendation to establish a national center for oceanographic data in the United States.

525. ECOLOGY COUNCIL OF AMERICA: ECA

526. ECOLOGICAL SOCIETY OF AMERICA: ESA

A professional society organized in 1915, ESA promotes the study of organisms in relation to their environment.

527. ENVIRONMENTAL DEFENSE FUND: EDF

EDF is concerned with protection of porpoises.

528. ESTUARINE AND BRACKISH WATER SCIENCES ASSOCIATION: EBSA

529. ESTUARINE RESEARCH FEDERATION: ERF

ERF was established in 1969.

530. FLORIDA OCEAN SCIENCES INSTITUTE: FOSI

An independent, nonprofit research and educational organization, FOSI is especially concerned with ocean engineering and erosion control.

531. FOUNDATION FOR OCEANIC RESEARCH: FOR

532. GEOLOGICAL SOCIETY OF AMERICA: GSA

Founded in 1888 to promote scientific research in geology.

533. GEOPHYSICAL SCIENCES ASSOCIATION: GSA

534. GLOBAL MARINE INCORPORATED: GMI

535. GULF COAST ASSOCIATION OF GEOLOGICAL SOCIETIES: GCAGS

Founded in 1950 to promote scientific research for the Gulf Coast area, GCAGS is a member of the American Association of Petroleum Geologists and is concerned with offshore explorations for oil and gas.

536. GULF COAST FISHERMAN'S ENVIRONMENTAL DEFENSE FUND: GCFEDF

GCFEDF was established to save Flower Garden Reefs from overuse.

537. GULF ESTUARINE RESEARCH SOCIETY: GERS

Organized in 1973.

538. INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS: IEEE

Organized in 1963 by a merger of the American Institute of Electrical Engineers and the Institute of Radio Engineers, IEEE includes

an Ocean Coordinating Committee (OCC) and for a number of years has been a cosponsor of the Marine Technology Society's annual meeting.

539. INSTITUTE OF ENVIRONMENTAL SCIENCES: IES

A professional society, IES is dedicated to the improvement and protection of the environment. It includes a Committee on Marine Environmental Science.

540. INSTRUMENT SOCIETY OF AMERICA: ISA

Founded in 1945, ISA includes a Marine Science Division (MASID) concerned with the development of instruments for use in the marine environment.

541. INTERNATIONAL NICKEL COMPANY: INCO

INCO operates the Francis L. LaQue Corrosion Laboratory (FLLCL) at Wrightsville, N.C., where studies of marine corrosion are made. Besides studies of marine corrosion, FLLCL studies desalination methods, seawater, and marine materials and engineering principles. INCO holds the yearly Sea Horse Institute at Wrightsville Beach.

542. MARINA ASSOCIATION OF AMERICA: MAA

Founded in 1978, MAA has had organizational help from Sea Grant personnel at Texas A&M University.

543. MARINE BIOLOGICAL LABORATORY: MBL

Located at Woods Hole, Mass., MBL is an independent biological laboratory incorporated in 1888 as a laboratory or station for scientific study and investigation and a school for instruction in biology and natural history. It publishes the bimonthly Biological Bulletin.

544. MARINE INDUSTRIES ASSOCIATION: MIA

545. MARINE PROTEIN INDUSTRIES, INC.: MPI

546. MARINE RESOURCES DEVELOPMENT FOUNDATION: MRDF

547. MARINE TECHNOLOGY SOCIETY: MTS

A nonprofit organization for persons with a professional interest in the marine field, MTS was founded in 1963. In 1971 it absorbed the American Society for Oceanography (ASO), formed in 1965. MTS includes 21 committees, each specializing in a separate field. It comprises many local sections throughout the United States and Canada. The Los Angeles regional section is identified as MTS/LARS, and the Southern New England section as SNETS. The several sections in the Pacific region form the Pacific Rim Alliance (PACRIM).

548. MOTE MARINE LABORATORY: MML

Established originally as the Cape Haze Marine Laboratory, MML specializes in shark research, estuarine ecology, and marine biology.

549. NATIONAL ASSOCIATION OF MARINE SURVEYORS: NAMS

Founded in 1960.

550. NATIONAL ASSOCIATION OF STATE ENVIRONMENTAL PROGRAMS AGENCIES: NASPA

551. NATIONAL ASSOCIATION OF UNDERWATER INSTRUCTORS: NAUI

Founded in 1960, to encourage training and education in safe water activities.

552. NATIONAL CANNERS ASSOCIATION: NCA
Formed in 1907, it has sections on fisheries and promotes conservation and protection of water resources.
553. NATIONAL COALITION FOR MARINE CONSERVATION: NCMC
A nonprofit organization founded in 1973 to protect the marine environment and its resources, especially in relation to game fish.
554. NATIONAL FEDERATION OF FISHERMEN: NFF
Founded in 1969, on the West Coast, NFF became national in 1973. Its prime function is to represent local fishermen in policy and legislative actions.
555. NATIONAL FISH MEAL AND OIL ASSOCIATION: NFMOA
Established in 1959, NFMOA is concerned with the conservation of fishery resources and is a member of the National Ocean Industries Association.
556. NATIONAL FISHERIES INSTITUTE: NFI
A trade association established in 1945, NFI comprises companies that produce, process, and distribute fish and seafood.
557. NATIONAL MARINE EDUCATION ASSOCIATION: NMEA
Organized in 1976, NMEA promotes interaction among members, provides access to and dissemination of educational materials, and provides information and recommendations on marine educational matters.
558. NATIONAL MARITIME UNION: NMU
Established in 1937.
559. NATIONAL OCEAN INDUSTRIES ASSOCIATION: NOIA
A trade association established in 1966 as the National Oceanographic Association (NOA), its name was first changed to National Oceanography Association in 1970 and to its present name in 1972. It serves as a legislative and administrative spokesman for the nation's offshore and ocean-oriented industries. Its annual meetings are known as "OCEANS."
560. NATIONAL OCEANOGRAPHIC FOUNDATION: NOF
561. NATIONAL SECURITY INDUSTRIAL ASSOCIATION: NSIA
Founded in 1944, NSIA has a membership that consists of educational and technical organizations, and industrial representatives who are concerned with developments in the defense industry and who counsel the Department of Defense. Among its specialty committees is an Antisubmarine Warfare Advisory Committee (ASWAC). An Ocean Science Technology Advisory Committee (OSTAC) was dropped in 1976. OSTAC'S Subcommittee on Instrumentation and Technology was transferred to the ASWAC, and its Petroleum Subcommittee was transferred to the Research and Engineering Committee.
562. NATIONAL SHELLFISH ASSOCIATION: NSA
Established in 1909 as the National Association of Shellfish Commissions, NSA was renamed in 1930. It encourages research, gathers data, and promotes conservation.
563. NATIONAL SHIPPING AUTHORITY: NSA
564. NATIONAL WETLAND TECHNICAL COUNCIL: NWTCC
565. NATIONAL WILDLIFE DEFENSE COUNCIL: NWDFF

566. NATIONAL WILDLIFE FEDERATION: NWF

Organized in 1936, NWF is a nonprofit conservation/education organization dedicated to the wise use and management of natural resources. It is especially concerned with ocean dumping practices in the offshore areas.

567. NEW ENGLAND MARINE INDUSTRIES COUNCIL: NEMIC

Established in 1974, NEMIC provides a forum for fishermen and oil company representatives to meet and work out solutions to problems encountered during the development of oil resources on the continental shelf.

568. NEW ENGLAND OIL COALITION: NEOC

569. NORTH AMERICAN SALMON COUNCIL: NASC

570. NORTH AMERICAN SOCIETY FOR OCEANIC HISTORY: NASOH

Established in 1975, NASOH is affiliated with the International Commission on Maritime History (ICMH).

571. NORTHWEST PACIFIC OCEANOGRAPHERS: NWPO

572. OCEAN MINING ASSOCIATES: OMA

OMA is a consortium of industries involved in deep ocean mining.

573. OCEANIC INDUSTRIES ASSOCIATION: OIA

A trade group incorporated in 1966; OIA ceased effective operations about 1972.

574. OCEANIC LIBRARY AND INFORMATION CENTER: OLIC

Established in 1964, OLIC was responsible for the publication of Oceanic Abstracts until 1970 when this responsibility was taken over by Pollution Abstracts, which was later superseded by Data Courier, Inc.

575. OCEANIC SOCIETY: OS

Established in 1969, OS sponsors research, education, and conservation programs, and publishes a popular magazine called Oceans.

576. OFFSHORE ENGINEERING CONFERENCE: OECON

Annual conference has been held by OECON since 1966.

577. OIL SPILL CONTROL ASSOCIATION OF AMERICA: OSCAA

A trade association organized in 1973, OSCAA sets standards, promotes control measure, and serves as a liaison between its members and pertinent Federal agencies.

578. PACIFIC SEABIRD GROUP: PSG

Organized in 1972, PSG has members that take censuses of seabirds, work with preservation of birds in event of oil spills or other disasters, and make pelagic observations.

579. PAN PACIFIC INSTITUTE OF OCEAN SCIENCES: PANPAC

A nonprofit institution, PANPAC was incorporated in Hawaii in 1972.

580. POLAR RESEARCH LABORATORIES: PRL

A research group, PRL has designed data collecting stations for use in polar research. Among these is the Manned-Unmanned Environmental Research Station (MUMMERS) designed for use on Fletchers Ice Island in the Arctic.

581. SEA EDUCATION ASSOCIATION: SEA
SEA offers ocean research opportunities at sea and cooperates with the U.S. Government in its programs to advance marine education.
582. SHELLFISH INSTITUTE OF NORTH AMERICA: SINA
Organized in 1904 and originally called the Oyster Institute of North America, SINA promotes the protection of shellfish areas and sponsors their growth.
583. SHIPBUILDING COUNCIL OF AMERICA: SCA
Formed in 1921, SCA includes among its concerns the control of waste discharge from ships and improvements in the design of ports.
584. SIERRA CLUB AND FRIENDS OF THE EARTH: SC&FE
Founded in 1892 to restore the quality of the natural environment and promote the integrity of ecosystems, SC&FE is a vocal lobbying group.
585. SOCIETY OF ECONOMIC PALEONTOLOGISTS AND MINERALOGISTS: SEPM
Established in 1927 and affiliated with the American Association of Petroleum Geologists, SEPM promotes research in coastal sedimentology, oceanic plankton, and deep marine sediments.
586. SOCIETY OF EXPLORATION GEOPHYSICISTS: SEG
Established in 1930, SEG promotes research and is concerned with seismic explorations of the continental and outer continental shelves.
587. SPORT FISHING INSTITUTE: SFI
Organized in 1949, SFI promotes a program of ecological research, fish conservation education, and aquatic sciences. The Sport Fishing Research Foundation (SFRF), an affiliate of SFI formed in 1967, ceased
588. STANFORD RESEARCH INSTITUTE: SRI
An independent nonprofit research organization established in 1946 and formerly affiliated with Stanford University, SRI performs various research activities under contract to the U.S. Government and in recent years has been participating in the U.S. MODE and POLYMODE efforts.
589. THE COASTAL SOCIETY: TCS
A nonprofit professional society, TCS comprises individuals and organizations concerned with the conservation and proper management of the coastal zone.
590. TUNA RESEARCH FOUNDATION: TRF
Formerly the California Fish Cannery Association, TRF was founded in 1932.
591. UNDER SEAS EQUIPMENT MANUFACTURERS ASSOCIATION: USEMA
A trade group formed in 1966.
592. UNDERSEA MEDICAL SOCIETY: UMS
UMS members are concerned with the health and safety of divers.
593. WATER POLLUTION CONTROL FEDERATION: WPCF
Organized in 1928, WPCF advances knowledge in water pollution control.

IV. FOREIGN ORGANIZATIONS

594. ALGERIA

The Centre de Recherche Oceanographique et des Peches (CROP) is responsible for Algeria's marine science programs, most of which relate to marine biology, fisheries, and protection of its coastal waters.

595. ARGENTINA

The Centro Argentino de Datos Oceanograficos (CEADO), Argentina's national oceanographic data center, is administered by the Consejo Nacional de Investigaciones Cientificas y Tecnicas (CONICET), Argentina's national council for scientific and technical investigations. CEADO receives technical and functional support from the Servicio Hidrografia Naval (SHN), Argentina's hydrographic and naval service. CEADO was organized in 1974, but its antecedents date back to 1965 when the SHN was the designated national agency (DNA) responsible for the exchange of oceanographic data. In 1966 SHN established a Division Central de Datos, which became the Centro Nacional de Datos Oceanograficos (CDNO) until it was superseded by CEADO.

Other agencies involved in marine science include the Servicio Nacional de Pesca (SNP), the Centro de Investigacion de Biologia Marina (CIBIMA), the Instituto Antartico (IAA), the Instituto Argentino de Oceanografia (IADO), the Instituto de Biologia Marina (IBM), and the Museo Argentino de Ciencias Naturales.

596. AUSTRALIA

The Hydrographic Office of the Royal Australian Navy (RAN) is responsible for the Australian Oceanographic Data Center (AODC), which was established in 1964. RAN also makes oceanographic and hydrographic surveys and collects data on tides and currents. It supports the Royal Australian Naval Research Laboratory (RANRL) and the Royal Australian Naval Environmental Laboratory (RANEL).

The Commonwealth Scientific and Industrial Research Organization (CSIRO) includes a Division of Fisheries and Oceanography, which is active in coastal surveys. The Department of Natural Development includes a Bureau of Mineral Resources, Geology and Geophysics (BMRGG), which makes many marine geological and geophysical surveys.

Other acronyms and abbreviations are AIMS--the Australian Institute of Marine Sciences, which specializes in studies of the Great Barrier Reef, the Coral Sea, and the coast of North Queensland; AAMH--the Australian Association of Maritime History, established in 1978; AMSA--the Australian Marine Sciences Association; ANARE--the Australian National Antarctic Research Expedition; ASFB--the Australian Society for Fish Biology; ASL--the Australian Society for Limnology; ANZAAS--the Australian-New Zealand Association for the Advancement of Science, and HLIO--the Horace Lamb Institute of Oceanography.

597. BARBADOS

Its Department of the Environment (DOE), established in 1977, is responsible for handling oceanographic matters.

598. BELGIUM

The Service Hydrographique de la Cote (SHC) is responsible for most of Belgium's oceanographic activities.

599. BRAZIL

The Marinha do Brasil or Brazilian Navy includes the Diretoria de Hidrografia e Navegacao (DHN) and the Instituto de Pesquisas de Marinha (IPQM). DHN acts as the designated national agency for the exchange of oceanographic data.

Other government agencies of interest are the Secretaria Agricul-tura, which includes the Instituto de Pesquisas (IP) and the Depart-mento Nacional de Producao Mineral (DNPM) of the Ministerio de Minas e Energia (MME).

Several universities in Brazil have active programs in marine science and participate in programs of research. Included are the Universidade de Sao Paulo, which has an Instituto Oceanografico (IOUSP); the Universidade Federal Rio Grande do Sul (UFRGS), which includes the Centro de Estudos Costeiras e Oceanicas (CECO); the Universidade Federal do Rio de Janeiro (UFRJ), which includes the Laboratorio de Geologia Marinha (LAGEMAR); the Universidade Federal do Ceara (UFC), which includes the Laboratorio de Ciencias do Mar (LACIMAR); the Universidade Federal de Pernambuco (UFP), which includes the Departamento de Oceanografia; and the Fundacao Universi-dade do Rio Grande (FURG), which includes the Base Oceanografia Atlantica (BOA).

Brazilian scientists are involved in the International Decade of Ocean Exploration's Project REMAC--Reconhecimento da Margem Conti-nental Brasileira. Another cooperative program involving several Brazilian agencies is GEOMAR--Programa Plurianual de Geologia e Geofisica Marinha. Petroleo Brasileiro (PETROBRAS) sponsors research in the coastal areas in search of petroleum resources.

600. BURMA

The Naval Hydrographic Depot (NHD) of the Burmese Navy and the Burma Fisheries Department (BFD) are responsible for marine science activities in Burma.

601. CAMEROON

The Office National des Ports (ONP) includes an office respon-sible for hydrographic and tidal surveys. The Direction de la Mete-orologie Nationale (DMN) has some marine meteorological responsibil-ities.

602. CANADA, Government Agencies

A Canadian Committee on Oceanography (CCO) is responsible for Canada's overall policy regarding marine matters and for coordinating marine activities among the several Government agencies responsible for marine activities.

The Department of the Environment (DOE), also referred to as Envi-ronment Canada, was created in 1971 to amalgamate federal responsi-bilities for the protection, preservation and enhancement of environ-mental quality and related renewable resources. DOE includes two main components: the Fisheries and Marine Service (FMS) and Environ-mental Services (ES). It sponsors two facilities for oceanographic research: the Bedford Institute of Oceanography (BIO) established in 1962 on the coast and which is cosponsored by the Department of Energy, Mines, and Resources (DEMR), and the Institute of Ocean Sciences (IOS) at Patricia Bay, British Columbia.

Most of the activities of FMS are divided into two main units: Fishery Management and Ocean and Aquatic Sciences (OAS). The Fishery

Management program succeeded to the functions of the former Fisheries Research Board (FRB), which originated in the 1880's and was abolished with the creation of FMS.

In 1977 Canada established an Exclusive Economic Zone (EEZ) which is administered by FMS. As a part of the program of administering regulations relating to fishing, FMS developed an automated Foreign Fishing Vessel Licensing and Surveillance Hierarchical Information System (FLASH) to monitor foreign vessels operating in its EEZ. FLASH also keeps track of quotas assigned to each country and the actual catch made by each. A Satellite Surveillance Program (SURSAT) is being developed to monitor the EEZ. SURSAT will also monitor oil and gas activities in the coastal zones and in the Arctic Development Zone. In addition to regulating fishing, Canada's EEZ program calls for the regulation of pollution in accordance with its Arctic Waters Pollution Prevention Act of 1970 (AWPPA), the Canadian Shipping Act (CSA) as amended in 1970 to include prevention of pollution by ships, and its Ocean Dumping Control Act (ODCA) of 1975.

OAS succeeded to the functions of the former Marine Sciences Directorate (MSD). It operates the Atlantic Oceanographic Laboratory (AOL) at the Bedford Institute and conducts programs at the Institute of Ocean Sciences, at the Canada Centre for Inland Waters (CCIW), and at many other laboratories throughout Canada. In addition to sponsoring oceanographic research, OAS is responsible for the operations of the Marine Environmental Data Service (MEDS), which inherited the functions of the former Canadian Oceanographic Data Centre (CODC), the Tides and Water Levels Section of the Canadian Hydrographic Service (CHS), and the Wave Climate Study (WCS). OAS is responsible for the operations of the Canadian Hydrographic Service (CHS).

Environmental Services (ES) includes the Atmospheric Environmental Service (AES) and the Environmental Management Service (EMS). AES is Canada's national weather service and operates the Canadian Meteorological Center (CMC). Its activities include marine meteorology and ice observations, reconnaissance, and forecasting.

Organizations within the Environmental Management Service that have marine interests are the Inland Waterways Directorate (IWD), the Canadian Wildlife Service (CWS), and the Environmental Protection Service (EPS). IWD operates the Canada Centre for Inland Waters (CCIW) and the Water Resources Document Reference Center (WATDOC). CCIW is the national water research and survey institute and performs studies in the Great Lakes and in the Canadian Arctic; makes surveys of shoreline erosion; and is preparing a coastal zone atlas for Canada. WATDOC is responsible for the development and maintenance of a computerized data base about Canada's water resources.

EPS is responsible for dealing with problems of the Canadian environment and its protection, including water pollution control and ecological protection. It maintains a Centre of Spill Technology (COST) for the testing, evaluation, and development of spill countermeasures and cleanup activities. It implements two computerized systems: the National Emergency Equipment Locator System (NEELS) and the National Analysis of Trends in Emergency Systems (NATES).

Other Government agencies with marine science interests include the Geological Survey of Canada (GSC), which is in the Department of Energy, Mines, and Resources (DEMR) and is responsible for the Canadian Centre for Geoscience Data (CCGD); the Department of Indian Affairs and Northern Development (DIAND) handles environmental and ecological activities in the Canadian Arctic; and the Department of National Defense (DND), which includes the Defense Research Board (DRB), the Defense Research Establishment Atlantic (DREA), ...Ottawa

(DREO), ...and Pacific (DREP), and operates the Meteorology and Oceanographic Centres (METOC) at British Columbia and Halifax.

The National Research Council of Canada (NRCC) sponsors marine research and operates the Atlantic Regional Laboratory (ARL).

603. CANADA, Universities

The University of British Columbia includes an Institute of Oceanography (UBCIO); Dalhousie University has an Institute of Ocean Sciences (DIOS); the Memorial University of Newfoundland (MUN) specializes in cold ocean research and sponsors the Centre for Cold Ocean Resources Engineering (C-CORE), a Marine Sciences Research Laboratory (MSRL), and the Canadian Maritime History Group (CMHG); McGill University includes a Marine Research Centre (MRC) and sponsors the Bellairs Research Institute (BRI) in the West Indies, which specializes in tropical marine ecology; and the Université du Québec, which includes a Section d'Océanographie (SOUQAR) at Rimouski. The Huntsman Marine Laboratory (HML) at St. Andrews, New Brunswick, serves a consortium of about 20 eastern universities.

604. CANADA, Other Organizations

The Atlantic Salmon Association (ASA) and the North American Salmon Association (NASA), both formed in 1948, are concerned with the restoration of the Atlantic salmon. The Aquaculture Association of Nova Scotia (AANS) was formed in 1976 to provide a means by which members can exchange information on aquaculture. The Canadian Hydrographers Association (CHA) is an active organization. PACE is the acronym for the Petroleum Association for Conservation of the Environment.

The Newfoundland Oceans Research and Development Co. (NORDCO) was formed in 1975 to cooperate with Canadian and United States Companies working on research projects related to the search for offshore deposits of oil and gas. One such study is the Eastern Arctic Marine Environmental Studies (EAMES).

The Province of Ontario established the Ontario Water Resources Commission (OWRC) to monitor pollution and protect the resources of the Great Lakes.

605. CHILE

The Comité Oceanográfico Nacional (CONA) was created in 1971 and includes Government and nongovernment members who serve to coordinate marine science activities in Chile. Its major program, a continuing oceanographic survey of Chile's coastal waters, is identified as MARCHILE.

The Centro Nacional de Datos Oceanográficos de Chile (CENDOC) is a part of the Instituto Hidrográfico de la Armada (IHA), formerly the Departamento de Navegación e Hidrografía. IHA is also responsible for oceanographic surveys and data relating to tides and currents. Marine meteorology is a responsibility of the Servicio Meteorológico de la Armada (SMA). Oceanographic and related marine biology surveys in connection with fishery investigations are made by the Instituto de Fomento Pesquero (IFOP). Other active agencies are the División de Pesca (DDP) of the Servicio Agrícola y Ganadero and the Instituto Antártico Chileno (IAC).

Several Chilean universities have active marine science programs: the Universidad Católica de Valparaíso includes a Centro de Investigaciones del Mar (CIMAR); the Universidad de Chile has a Departamento de Oceanología; the Universidad de Concepción has a Departamento de Biología Marina; and the Universidad del Norte a Centro de Investigaciones Submarinas and a Departamento de Pesquerías.

606. CHINA, PEOPLE'S REPUBLIC OF

The National Bureau of Oceanography (NBO), which was established in 1964-65 and is responsible for work in all disciplines of oceanography, is the leading marine science organization of the People's Republic of China (PRC). Its programs are carried out by three sub-bureaus, those for the South China, East China, and North China (Yellow) Seas, which operate a network of tide stations and buoys, provide ships and logistical support, and conduct other operational programs; three research institutes, the First Institute in Qingdao (Tsingtao), the Second Institute in Hangchow, and the Third Institute in Ximen (Amoy); an Institute of Marine Scientific and Technological Information; and an Institute for Environmental Protection.

The Bureau of Aquatic Products, the national organization responsible for both marine and freshwater fisheries, collects physical as well as chemical and biological data. Units under its direction include the South China Sea, East China Sea, and Yellow Sea Fisheries Research Institutes and various institutes and laboratories in inland and coastal provinces.

Other government ministries and bureaus involved in marine science are the Ministry of Petroleum, which has a strong marine geology and geophysics component and which operates the Institute for Petroleum Geology and Institutes for Po Hai Bay and the Yellow Sea; the Ministry of Transportation, which includes the Academy of Water Transportation and Development, the Academy of Waterway Engineering, and Nanjing (Nanking) Water Research Academy, and the Institute of Ship Research; the Ministry of Chemistry, which supports marine chemistry research and observational programs; the PRC Navy, which operates an Institute for Ocean Science Research; and the Ministry of Education, which has overall responsibility for the college and university system.

The Academia Sinica, the academy of sciences of the People's Republic of China, operates research institutions in all areas of science. For the marine sciences these include the Institute of Oceanography, Qingdao (Tsingtao) and the South China Sea Institute of Oceanology.

A number of colleges and universities have curricula and research programs in the marine sciences. The principal oceanographic institution is the Shandong University School of Oceanography in Qingdao (Tsingtao). The Estuarine and Coastal Institute of Shanghai Normal University is another typical institution.

Facilities related to marine science are also operated by coastal provinces. An example is the Shanghai Institute of Computer Technology, which has performed oceanographic calculations such as tidal predictions for harbor construction, computation of geostrophic currents, and numerical modeling of estuaries.

607. COLOMBIA

The Comision Colombiana de Oceanografia (COO) coordinates marine research in Colombia, most of which is by the Navy, which includes a Centro de Investigaciones Oceanograficas y Hidrograficas (CIOH) established in 1975. The Navy is also responsible for the Centro Colombiano de Datos Oceanograficos (CECOLD), Colombia's national oceanographic data center.

608. COSTA RICA

Responsibilities for hydrographic and related marine science activities are delegated to the Direccion General de Obras Portuarias (DGOP).

609. CUBA

The Instituto Cubano de Hidrografia (ICH), Instituto Nacional de Pesca (INP), and the Instituto de Oceanologia of the Academia de Ciencias de Cuba are responsible for marine science activities in Cuba.

610. DENMARK

The Danske Meteorologiske Institut (DMI) has been making meteorological and oceanographical observations at Danish lightships and other stations since 1897; observations of sea-surface temperature of the northern Atlantic since 1895; and studies of ice conditions in Greenland waters since 1890. The Farvandsdirektoratet Nautisk Afdeling (FNAF) or Royal Danish Administration of Navigation and Hydrography is responsible for hydrographic surveys. Its Geological Survey and Danish Institute for Fisheries and Marine Research are also involved in marine research activities. Its Universities of Copenhagen, Aarhus, and Odense include programs in marine sciences.

Denmark is the home of the International Council for the Exploration of the Sea (ICES), established in 1902; ICES serves as Denmark's oceanographic data depository.

Marine activities are the responsibility of the Departamento Hidrografico Marina de Guerra (DHMG) and the Servicio Meteorologico Nacional (SMN). The Instituto Cartografico Universitario (ICU) is responsible for tidal studies, and the Universidad Autonoma de Santo Domingo has marine science programs.

612. ECUADOR

The Instituto Oceanografico de la Armada (INOCAR) and the Instituto Nacional de Pesca del Ecuador (INPE) share responsibilities for marine science activities with INOCAR specializing in geophysical research and INPE in physical oceanography and marine biology.

613. EGYPT

Egypt is currently establishing a National oceanographic data center (ENODC). Its hydrographic department or Idarat al Misaha al Baharia is responsible for hydrographic and related physical oceanographic surveys.

614. EL SALVADOR

The Instituto Geografico Nacional (IGN) includes a cartographic office responsible for hydrographic and tidal surveys.

615. FIJI

A hydrographic unit in the Fiji Marine Department (FMD) is responsible for hydrographic and tidal surveys.

616. FINLAND

Finland's Merentulkimislaitos or Institute of Marine Research (IMR) is the primary oceanographic institute sponsored by the Government.

617. FRANCE

The Conseil de la Recherche Oceanologique (CRO) was established in 1976 to coordinate civilian oceanographic programs. The Groupe

Interministeriel de Coordination de l'Action en Mer des Administrations (GICAMA) operates at the top level of the Government to coordinate efforts of the individual agencies.

The principal civilian agency concerned with oceanography is the Centre National pour l'Exploitation des Oceans (CNEXO), established in 1967, which replaced an earlier organization referred to as COMEXO. COMEXO, established in 1961 by the Delegation Generale de la Recherche Scientifique et Technique, was politically oriented whereas CNEXO is functionally oriented.

CNEXO established several centers to perform its mission: the Centre Oceanologique de Bretagne (COB); the Base Oceanologique de Mediterranee (BOM); and the Centre Oceanologique du Pacifique (COP). COB, established in 1968, is responsible for the Bureau National des Donnees Oceaniques (BNDO), the French national oceanographic data center, established in 1972. BNDO is also France's national center for oceanographic documentation and the Oceanographic Sub-Program Data Center (OSDC) for the GARP Atlantic Tropical Experiment (GATE). BNDO sponsors the Signalement et Archivage des Informations Courantométriques (SAIC) program. COB also sponsors the Centre d'Etudes, de Documentation, de Recherches, et d'Experimentation (CEDRE), which is involved in combatting oil pollution.

BOM is responsible for the Service Technique des Equipements Profonds (STEP) and for the Centre National de Tri d'Océanographie Biologique (CENTOB), a cooperative center established in 1974 and co-sponsored by CNEXO and the Museum National d'Histoire Naturelle (MNHM).

COP is developing a program in aquaculture known as AQUACOP.

In 1974 CNEXO sponsored the Societe de Developpement de l'Aquaculture de Bretagne (SODAB), which became an independent society in 1976 upon CNEXO's sponsorship of the Unite Regionale de Developpement de l'Aquaculture (URDA). The group of URDA in northern France is called URDA-NORD; the other, which specializes in aquaculture in the Mediterranean area, is called URDA-SUD. URDA sponsors centers in both the north and south of France called Demonstration, Experimentation, et Valorisation de l'Aquaculture (DEVA).

CNEXO's program includes Etudes des Moyens Spatiaux et Aeriens de l'Océan (ESPADON) and the development of Navires Oceanographiques de Recherches, d'Observation, d'Intervention et de Soutien (NOROIS).

In 1977 CNEXO, in cooperation with the Compagnie Generale Maritime (CGM) and the Compagnie des Moyens de Surface Adaptes a l'Océan (SURF) established the Groupement d'Interet Economique pour la Gestion des Navires Oceanologiques (GENAVIR).

France's navy or Marine Nationale includes a Centre d'Etudes et de Recherches Techniques Sous-Marines (CERTSM), a Groupe d'Etudes et de Recherches Sous-Marine (GERS), and the Groupe d'Intervention sous la Mer (GISMER). It is responsible for the Service Hydrographique et Oceanographique de la Marine (SHOM) whose Etablissement Principal is known as EPSHOM and which includes a Bureau d'Etudes Oceanographiques (BEO).

The Institut Francais du Petrole (IFP), established in the 1950's, is concerned with problems related to offshore exploration for oil and gas. IFP maintains a documentation center. The Réseau National d'Observation de la Qualité du Milieu Marin (RNO) maintains a systematic surveillance of the coastal waters of France. The Centre Nationale de la Recherche Scientifique (CNRS) sponsors a group called MEDIPROD, the Biological Station at Roscoff, and a Centre pour l'Etude Oceanographique et Biologique Marine (CEOBM). The Office de la Recherche Scientifique et Technique d'Outre-Mer (ORSTOM) sponsors centers at Dakar, Senegal; Pointe-Noire, Abidjan, Ivory Coast; Noumea,

New Caledonia and Nosy-Be, Malagasy Republique. The Institut Scientifique et Technique des Peches Maritimes (ISTPM) maintains 10 stations along the French coast. The Bureau de Recherches Geologiques et Minieres (BRGM) is involved in offshore explorations. Other groups with interests in offshore geology are the Universite de Montpellier's Laboratoire de Geophysique Appliquee a l'Oceanographie (LGAO) and the Institut de Geologie du Bassin d'Aquitaine (IGBA).

Terres Australes et Antarctiques Francaises (TAAF) maintains several laboratories that do oceanographic research. The Centre de Recherches et d'Etudes Oceanographiques (CREO) is concerned with the protection of the marine environment. The Meteorologie Nationale (MN) has programs in marine meteorology and operates stationary weather ships. The Centre d'Etudes Marine Avancees (CEMA) researches underwater devices. The Centre National d'Etudes Spatiales (CNES) is concerned with applications of satellites and remote sensing to marine activities.

The Museum National d'Histoire Naturelle (MNHN) sponsors a Laboratoire d'Oceanographie Physique (LOP). The universities of Paris and Rennes and the Institut Oceanographique de Paris (IOP) also include LOP's. The Universite de Nice supports the Centre d'Etudes et des Recherches sur le Droit et l'Environnement Marin (CERDEM).

A number of French agencies are involved in the Plan de la Lutte contre les Pollutions Marines Accidentelles (POLMAR), instituted originally in 1970 and strengthened in 1978 following the Amoco Cadiz catastrophe.

Other acronyms and abbreviations associated with France are AFEE--Association Francaise pour l'Etude des Eaux; ASTEO--Association Scientifique et Technique pour l'Exploitation des Oceans; COMEX--Compagnie Maritime d'Expertises; DORIS--Societe de Developpement Operationnel des Richesses Sous-Marines; SNPA--Societe Nationale des Petroles d'Aquitaine; CEPN--Comite d'Etudes Petrolieres Marines; FFESSM--Federation Francaise d'Etudes et des Sports Sous-Marins; and AFERNOD--Association Francaise pour l'Exploitation et la Recherche des Nodules.

618. GABON

The Service Maritime et Fluvial (SMF) is responsible for hydrographic surveys and related marine science activities.

619. GERMAN DEMOCRATIC REPUBLIC

The Akademie der Wissenschaften des Deutschen Demokratischen Republik (DDR) includes an Institut fuer Meereskunde (IfM), which is responsible for most of the marine research activities in the DDR.

620. GERMANY, FEDERAL REPUBLIC OF

The Deutsches Ozeanographisches Datenzentrum (DOD), or German Oceanographic Data Center, was organized in 1967. It is attached to and administered by the Deutsches Hydrographisches Institut (DHI), which has long been involved in marine surveys. DOD receives advice from an advisory board of representatives from DHI and the Deutsche Forschungsgemeinschaft (DFG) or German Research Association. The Sonderforschungsberichte of the DFG (SFB) conducts marine research. Marine meteorology is handled by the Deutsches Wetterdienst See-wetteramt (DWS).

The Bundesanstalt fuer Unterwasserschall und Geophysik (BUG), also referred to as the Forschungsanstalt der Bundeswehr fuer Wasserschall und Geophysik (FWG), is sponsoring the Baltic Environmental and Acoustic Range (BALEAR). The Bundesforschungsanstalt fuer Fischerei (BUFOFI) includes the Institut fuer Fangtechnik (IfFang), the Institut

fuer Kusten-und Binnenfischerei (IfKuBiFi), and the Institut fuer Seefischerei (IfS). An Institut fuer Meeresforschung (IfMf) is at Bremerhaven. The Universitaet Hamburg and the Universitaet Kiel each have an Institut fuer Meereskunde (IfM) as well as other institutes with marine interests. The Institut fuer Meeresgeologie und Meeresbiologie "Senckenberg" is referred to as SaM. The Biologische Anstalt Helgoland (BAH), the Forschungsstelle fuer Insel- und Kustenschutz (FFIK), the Geologisch-Paleontologisches Institut (GPI) of the Universitaet of Kiel, the Krupp Atlas-Elektronik (KAE), and the Marineamt, Abteilung Geophysik (MarA), are all involved in marine research.

Other acronyms associated with the Federal Republic Of Germany are WIM--the German Marine Technical Trade Association and DKMM--the Committee on Marine Science and Technology, which is composed of members from 17 nongovernmental scientific, technical, and economic societies with interests in marine science and technology.

621. GUATEMALA

The Instituto Geografico Nacional (IGN) includes a Division Hidrografica, which is responsible for marine research and serves as Guatemala's national oceanographic data center. The Observatorio Nacional is responsible for marine meteorology.

622. GUYANA

Its Transport and Harbours Department (THD) is responsible for hydrographic surveying and tidal data.

623. HONDURAS

The Departamento de Geologia e Hidrografia of the Instituto Geografico Nacional (IGN) is responsible for marine research.

624. ICELAND

Marine science activities are the responsibility of the Marine Research Institute (MRI), which also serves as Iceland's designated national agency for oceanographic data. Iceland also includes a Hydrographic Service responsible for hydrographic surveying.

625. INDIA

The National Institute of Oceanography (NIO), established in 1966 in the Council of Scientific and Industrial Research (CSIR), serves as the national oceanographic data center for India and as the focal point for data and information about the Indian Ocean. NIO includes three research centers and operates a research vessel.

Other Indian agencies are the Naval Hydrographic Office (NHO); the Indian Meteorological Department (IMD); the Central Marine Fisheries Research Institute (CEMFRI or CMFRI); the Marine Products Export Development Authority (MPEDA); the Oil and Natural Gas Commission (ONGC), which sponsors off-shore explorations; the Bhabha Atomic Research Centre (BARC), which makes studies of radioactivity in the marine environment; and the Marine Biological Association of India (MBAI).

626. INDONESIA

The Lembaga Oseanologi Nasional (LON) or National Institute of Oceanography, which includes the Lembaga Penjelidikan Laut (LPL) or Institute of Marine Research, is responsible for marine research in Indonesia. Research for military purposes is conducted by the Dinas Hidrografi-Angkatan Laut (DISHIDRAL) or Naval Hydrographic Office. Fisheries research is conducted by the Institute of Marine Fisheries Research of the Department of Agriculture; initials for the Indonesian title are LPFL.

627. IRAN

The Safeman Banader va Keshti Rani (SBKR), or Ports and Shipping Authority, is responsible for hydrographic surveys.

628. IRELAND

The National Science Council (NSC) coordinates marine research in Ireland. The Department of Transport and Power (DTP) makes oceanographic surveys and the Irish Meteorological Service (IMS) is responsible for marine meteorology. The University College, Galway (UCG), the University College, Cork (UCC), and the Trinity College, Dublin (TCD) have active programs in marine science. The Department of fisheries (DOF) and the Salmon Research Trust (SRT) are concerned with research in aquaculture and fisheries.

629. ISRAEL

The Israel Oceanographic and Limnological Research Co. (IOLR), a nonprofit organization established in 1966 to formulate a national policy for marine science in Israel, is the national oceanographic data center and represents Israel in international marine science activities. It operates the Israel Oceanographic and Limnological Institute (IOLI), founded in 1975. In 1971 the Sea Fisheries Research Station (SFRS) of the Ministry of Agriculture was merged with IOLR, though the Ministry of Agriculture retained a part of the SFRS in its Fishery Department as the Fishery Technical Unit (FTU).

Israel's Port Authority includes a Coast Study Division (CSD) responsible for hydrographic surveys, and its Department of Meteorology is responsible for marine meteorology.

630. ITALY

The Consiglio Nazionale delle Ricerche (CNR) includes the Commissione Italiana per la Oceanografia (CIO), which in turn includes the Centro Nazionale Raccolta Dati Oceanografici (CNRDO), formerly the Servizio Nazionale... (SNRDO), Italy's oceanographic data center. Other organizations within CRO involved in marine activities include the Istituto di Biologia del Mare (IBM), formerly the Centro Studi Talassografici (CST), the Istituto di Ricerca sulle Acque (IRA), the Laboratorio per la Geologia Marina (LGM), the Laboratorio per lo Studio della Dinamica delle Grandi Masse (LSDGM), the Laboratorio di Tecnologia della Pesca (LTP), the Officine Allestimento e Riparazioni Navi (OARN), and the Laboratorio di Automazione Navale (LAN). CNR also includes the Centro Nazionale di Fisica dell'Atmosfera e Meteorologia (CENFAM), which includes research in marine meteorology.

The Istituto Idrografico della Marina (IIM) is responsible for hydrographic and physical oceanographic surveys and tide and current data. The Servizio Meteorologico dell'Aeronautica Militare (SMAM) is concerned with marine meteorology. The Osservatorio Geofisico Sperimentale (OGS) at Trieste is involved in geophysical surveys of the Mediterranean and Adriatic Seas. Other institutions of interest are the Istituto di Geologia of the Università di Trieste, the Istituto di Zoology of Parma University, and the Gruppo Oceanologico di Genova. The fish farmers of Italy have organized the Associazione Piscicoltori Italiana (API).

631. IVORY COAST (REPUBLIQUE DE COTE D'IVOIRE)

The Centre de Recherches Oceanographique (CRO) is responsible for most of the oceanographic activities. The Office de la Recherche Scientifique et Technique de la Outre-Mer (ORSTOM), with headquarters in France, supports a center at Abidjan. Hydrographic surveys are the responsibility of the Direction du Port Autonome d'Abidjan.

632. JAPAN

The Ministry of Transport includes the Japan Maritime Safety Agency (JMSA), which in turn includes the Hydrographic Department (HDMSA). HDMSA is responsible for oceanographic as well as hydrographic surveys and for the Japan Oceanographic Data Center (JODC). JODC, which began in 1965, also functions as the Kuroshio Data Center (KDC) sponsored by the Intergovernmental Oceanographic Commission (IOC). Japan's Maritime Self Defense Force (JMSDF) in the Defense Agency is also responsible for oceanographic surveys.

Japan's Meteorological Agency (JMA) includes a Marine Department (MDJMA) concerned with marine meteorology for the whole of the North Pacific. The World Meteorological Organization (WMO) assigned it the responsibility for the publication of the series of Marine Climatological Summaries covering most of the North Pacific Ocean. JMA operates several marine observatories: Hakodate Marine Observatory (HMOJMA), Kobe Marine Observatory (KMOJMA), Maizuru Marine Observatory (MMOJMA), and Nagasaki Marine Observatory (NMOJMA). Japan's Fishery Agency (JFA) operates an extensive system of regional research fishery laboratories at Nansei (NRFRL), Nihonkai (NHRFRL), Hokkaido (HRFRL), Seikai (SRFRL), Tohoku (TRFRL), and Tokai (TRFRL). In addition it operates the Far Seas Fisheries Research Laboratory (FSFRL). The Geological Survey of Japan (GSJ) is making marine geological surveys along Japan's coast and in other areas of the Pacific investigating deep-sea mineral resources. Other acronyms or abbreviations are JWIC--Japanese Whaling Information Center, JAMARC--Japan Marine Fishery Resource Center, JARE--Japanese Antarctic Research Expedition, JAMSTEC--Japan Marine Science and Technology Center, JAERI--Japan Atomic Energy Research Institute, JMS--Japanese Meteorology Society, PIMA--Petroleum Industries Marine Association, and NIPR--National Institute of Polar Research.

There are universities of fisheries at Shimonoseki (SUF) and Tokyo (TUF). Other universities of interest are the University of Tokyo, which supports and Ocean Research Institute (ORITU); Tokai University which has a College of Marine Science and Technology (CMSTTKU), and others which have faculties of fisheries: Hokkaido (HU), Kagoshima (KU), Mie (MU), and Nagasaki (NU).

633. KOREA

The Technical Cooperation Bureau (TCB) of the Ministry of Science and Technology serves as the national oceanographic data center for Korea. Korea's Hydrographic Office (HO) and its Fisheries Research and Development Agency (FRDA) are active in marine research, and its Central Meteorological Office (CMO) is responsible for marine meteorology. Other acronyms and abbreviations are IECOK--International Economic Consultative Organization for Korea and KMIDC--Korea Marine Industry Development Corporation.

634. KUWAIT

The Institute of Coastal Oceanography and Tides (ICOT) is responsible for marine research. Hydrographic surveying is the responsibility of the Customs and Ports Affairs in the Ministry of Finance and Oil, and marine meteorology is handled by the Meteorological Section in the Ministry of Interior.

635. MALAGASY REPUBLIC

The Direction des Affaires Maritimes (DAM) includes an office responsible for hydrographic surveying. Marine research is conducted by the French Office de la Recherche Scientifique et Technique d'Outre-Mer (ORSTOM), which has a center at Nosy-Be.

636. MALAYSIA

Its Hydrographic Department (HD) is responsible for hydrographic and oceanographic surveys.

637. MEXICO

Mexico's national oceanographic data center, the Centro Nacional de Datos Oceanograficos (CENADA) is in the Instituto de Geofisica of the Universidad Nacional Autonoma de Mexico (UNAM).

The Secretaria de Marina includes the Direccion General de Oceanografia y Senalamiento Maritima (DGOSM), the Direccion General de Obras Maritimas (DGOM), the Direccion General de Operacion Portuaria (DGOP), and the Direccion de Educacion Naval (DEN), all of which are involved in marine science affairs. DGOSM was formerly responsible for the Centro de Datos Oceanograficos (CEDO) established in 1973 and transferred to UNAM where it was renamed.

The Secretaria de Industria y Comercio (SIC) is responsible for fishing and related oceanographic research. It includes the Direccion General de Regiones Pesqueras (DGRP), the Direccion General de Planeacion y Promocion Pesqueras (DGPPP), the Direccion General de Tecnologia Pesquera (DGTP), the Direccion General de Capacitacion y Fomento Cooperativo Pesquero (DGCFCP), the Instituto Nacional de Pesca (INP), and the Centro de Informacion de Pesca (CIP). A Comision Nacional Consultiva de Pesca (CNCP), an intersecretarial commission that provides SIC and other secretaries with advice regarding fisheries, is composed of representatives from the Government and from nongovernment organizations involved with fisheries.

Marine meteorology is largely the responsibility of the Servicio de Meteorologia Nacional (SMN) in the Secretaria de Agricultura y Granadera (SAG). The Secretaria de Recursos Hidraulicos (SRH) is concerned with the protection of coastal waters and the optimum use of resources therein.

Several presidential commissions have been established to develop plans for activities in the marine area. One, the Comision de Estudios del Terretorio Nacional (CETENAL), is developing plans for mapping marine areas and establishing a national service for marine cartography. The Comision Federal de Electricidad (CFE) is concerned with the establishment of nuclear generating plants in the marine environment.

The Fideicomiso Unico para el Desarrollo de la Flora y Fauna Acuatica (FUDFYFA) is concerned with the preservation of flora and fauna in the marine environment. The Fideicomiso para el Desarrollo de la Fauna Acuatica (FIDEFA) is concerned with maintaining ecological systems for the cultivation, preservation, protection, and commercialization of marine fauna; and the Fideicomiso para la Educacion Pesquera Integral (FEPI) was created to promote fishery education and training.

Petroleos Mexicanos (PEMEX) and the Instituto Mexicano del Petroleo (IMP) cooperate in scientific explorations for oil in Mexico's coastal zone.

Coordination of Mexico's marine science activities is one of the tasks of the Consejo Nacional de Ciencia y Tecnologia (CONACYT).

Mexico's research and other institutions of higher education involved in marine science activities include the Centro de Investigacion Cientifica y Educacion Superior de Ensenada (CICESE), a collaborative institution formed in 1973 which specializes in physical oceanography; and the Instituto Politecnico Nacional (IPN) that includes the Escuela Nacional de Ciencias Biologicas (ENCB), the Escuela Superior de Ingenieria Mecanica y Electrica (ESIME), the Escuela Superior de Ingenieria y Arquitectura (ESIA), and the Centro

de Investigacion y Estudios Avanzados (CIEA), all of which are involved in various aspects of ocean engineering.

The Instituto Tecnologico y de Estudios Superiores de Monterrey (ITESM) includes the Escuela Superior de Ciencias Maritimas y Tecnologia de Alimentos (ESCMTA). The Universidad Autonoma de Baja California (UABC) includes the Instituto de Investigaciones Oceanologicas (IIO).

The Universidad de Nayarit (UNINAY) has the Escuela Superior de Oceanografia (ESO).

Many departments of the Universidad Nacional Autonoma de Mexico (UNAM) are involved in marine science affairs. In 1973 UNAM created the Centro de Ciencias del Mar y Limnologia (CCML) to coordinate marine science programs. Together with CIEA and ESIME, UNAM established the Servicio Nacional de Instrumentacion Oceanografica (SNIO), which UNAM administers.

638. MOROCCO

The Institute of Marine Fisheries serves as the national oceanographic data center. The Service des Phares et Balises (SPE) is responsible for hydrographic and related oceanographic surveys. An Office National des Peches (ONP) was established in 1969 to develop and modernize Morocco's fisheries.

639. MOZAMBIQUE

The Empresa Nacional de Comercializacao de Produtos Pesqueros (PESCOM) was established in 1977 to market Mozambique's fishery products.

640. NETHERLANDS

The Nederlands Centrum voor Oceanografische Gegevens (NCOG), its national oceanographic data center, is a part of the Nederlands Commissie voor Zee-onderzoek (NCZO) in the Koninklijke Nederlandse Akademie van Wetenschappen (KNAW). NCZO also coordinates marine science activities in the Netherlands and acts as an advisory body to the government.

An Interdepartmental Commission for Oceanography, whose initials are ICVO, establishes policy decisions at the national and international level, and the Netherlands Industrial Council for Oceanology, whose initials are IRO, coordinates governmental and industrial interests.

Government agencies with marine science responsibilities include the Koninklijk Nederlands Meteorologisch Instituut (KNMI) responsible for marine meteorological activities. KNMI's activities are worldwide, but particularly include the coastal area of Netherlands. It operates a warning service to notify the population when storm surges pose a danger. It participates with WMO in its program of marine climatological summaries, and its areas of responsibility are the Mediterranean Sea and the southern Indian Ocean.

Other Government agencies of interest are the Rijks Instituut voor Visserijonderzoek (RIVO), the Rijks Geologische Dienst (RGD), the Dienst Hydrografie der Koninklijke Marine (KMDH) and the Rijkswaterstaat (RW).

The Instituut voor Visserijprodukten (IVP), Nederlands Instituut voor Onderzoek der Zee (NIOZ), and the Vening Meinesz Laboratorium der Rijksuniversiteit Utrecht (VML), are nongovernmental agencies of interest.

641. NEW CALEDONIA

France's Office de la Recherche Scientifique et Technique d'Outre-Mer (ORSTOM) includes a center at Noumea.

642. NEW ZEALAND

The Department of Scientific and Industrial Research (OSIR) includes the New Zealand Oceanographic Institute (NSOI) responsible for most of the civilian oceanographic research. The Defense Scientific Establishment (DSE) is responsible for oceanographic research for the military and the Ministry of Agriculture and Fisheries (MAF) for fishery research.

643. NICARAGUA

The Ministerio de Obras Publicas (MOP) includes a hydrographic section responsible for hydrographic surveying.

644. NIGERIA

The Nigerian Ports Authority (NPA) and the Hydrographic Office of the Nigerian Navy (NNHO) are primarily responsible for physical oceanographic surveys. The Nigerian Institute for Oceanography and Marine Research (NIOMR) specializes in marine biological and fishery research.

645. NORWAY

The Norsk Oseanografisk Datasenter (NOD) is a part of the Fiskeridirektoratet Havforskningsinstitutt (FHI) or Institute of Marine Research. FHI is a major participant in marine research programs in Norway. Others are the Forsvarets Forskningsinstitutt Avdeling for Undervannskrigsforskning (FFIU) or Division of Underwater Warfare of the Norwegian Defense Research Establishment, the Meteorologisk Institutt (MI), and the Norges Sjøkartneik (NS) or Hydrographic Office. Marine research is conducted at the Universitetet i Bergen (UIB), the Universitetet i Oslo (UIO), the Universitetet i Tromsø (UIT), and the Universitetet i Trondheim.

Norway's oceanographic program is given direction by the Norges Almenlenskapseligi Forskningsrad (NAVF), the Norsk Oseanografisk Komite (NOK), and the Norwegian Council of Fisheries whose abbreviation is (NFFR).

646. PAKISTAN

The Hydrographic Department (HD) of the Pakistan Navy serves as the national center for oceanographic data. The Meteorological Department (MD) is concerned with marine meteorology. Fishery research is the concern both of the Department of Fisheries (FD) in the Ministry of Agriculture and Works (MAW) and of the Institute of Marine Biology at Karachi University (KUIMB).

647. PANAMA

The Instituto Geografico Nacional (IGN) is responsible for marine research.

648. PERU

The Oceanographic Department of the Instituto del Mar del Peru (IMARPE) is the designated national agency for oceanographic data. Other agencies involved in marine research are the Direccion de Hidrografia y Navegacion de la Marina (DHN), Direccion de Meteorologia (DM), and Ministerio de Pesqueria (MP). The Universidad Nacional "Federico Villarreal" (UNFV) includes programs in marine sciences.

649. PHILIPPINES

The Philippine Oceanographic Data Center (PODC) is in the Bureau of Coast and Geodetic Survey (BC&GS), which is also responsible for oceanographic and hydrographic surveys. The Bureau of Fisheries and Aquatic Resources (BF&AR) is responsible for marine biology as well as fishery research, the Bureau of Mines (BOM) for marine geological surveys, and the Weather Bureau (WB) for marine meteorology.

650. POLAND

The Oddzial Morski, Instytut Meteorologii i Gospodarki Wodnej (IMGW/OM) (Marine Division of the Institute of Meteorology and Water Economy) is the national oceanographic data center for Poland. Other agencies with marine interests are the Instytut Morski (IM) or Marine Institute, Morski Instytut Rybacki (MIR) or Sea Fisheries Institute, and Zaklad Oceanologii Instytut Geofizy (ZOIG) or Oceanology Section of the Geophysical Institute of the Polska Akademia Nauk (PAN) or Polish Academy of Science.

651. PORTUGAL

Agencies concerned with marine research include the Comissao de Estudo do Aproveitamento do Leito do Mar (CEALM) in the Direccao General dos Servicos de Fomento Maritimo Marinho (DGSFMM), the Instituto Hidrografico (IH) the Instituto de Biologia Maritima (IBM), the Centro de Biologia Aquatica Tropical Ministerio do Ultramar (CBATMU), and the Servicio Meteorologico Nacional (SMN).

652. ROMANIA

The Institutul Romin de Cercetari Marine (IRCM) and the Directoria Hidrografica Maritima (DHM) are responsible for most of Romania's marine research activities. IRCM is Romania's designated national agency for oceanographic data exchange.

653. SENEGAL

Marine research is largely the responsibility of the Centre de Recherches Oceanographiques de Dakar-Thiaroye (CRODT) and the Direction d'Océanographie et des Pêches Maritimes (DOPM). France's Office de la Recherche Scientifique et Technique d'Outre-Mer (ORSTOM) sponsors a center at Dakar.

654. SOUTH AFRICA

The Council for Scientific and Industrial Research (CSIR) includes the National Research Institute for Oceanography (NRIO). It is also responsible for the South African National Commission for Oceanographic Research (SANCOR). Other agencies concerned with marine research are the Hydrographic Office (HO) of the South African Navy, Sea Fisheries Branch (SFB) of the Department of Industries, and Weather Bureau (WB).

The University of Cape Town supports an Institute of Oceanography (UCTIO) active in marine research. Other acronyms associated with South Africa are SAIOR--South African Institute for Oceanographic Research, SASCAR--South African Scientific Committee for Antarctic Research, SOEKOR--Southern Oil Exploration Company, and FISCOR or VISCOR--Fisheries Development Corporation.

655. SPAIN

The Instituto Espanol de Oceanografia (IEO) is responsible for marine research activities and for the Centro Espanol de Datos Oceanograficos (CEDO), Spain's national oceanographic data center. Hydrographic surveying is the responsibility of the Instituto Hidrografico

de la Marina (IHM), fishery and marine biological research are conducted by the Instituto de Investigaciones Pesqueras (IIP), and marine meteorology is the responsibility of the Servicio Meteorológico Nacional (SMN).

656. SRI LANKA (CEYLON)

The Hydrographic Branch of the Royal Ceylon Navy is responsible for hydrographic and other marine surveys.

657. SWEDEN

The Fishery Board of Sweden (FBS) is the designated national agency for oceanographic data exchange and is also responsible for fishery and marine biological research. The Sveriges Meteorologiska och Hydrologiska Institut (SMHI) is responsible for physical oceanographic and hydrographic surveying and marine meteorology. The Swedish Environmental Protection Board (SEPB) is concerned with marine pollution research.

Goteborgs Universitet's (GU) departments of analytical chemistry, marine microbiology, oceanography, zoology, zoophysiology are particularly active in marine research.

658. TAIWAN

The Chinese National Committee for Ocean Resources (CNOR) coordinates marine research in the Taiwan. While the Chinese Naval Hydrographic and Oceanographic Office (CNHOO) and the Chinese Naval Meteorology Center (CNMC) are active in marine research and data gathering activities, most of the marine research appears to be performed by the National Taiwan University's (NTU) institute of Oceanography. The Chinese Petroleum Corporation (CPC) is active in exploration for off-shore deposits of oil and gas.

659. THAILAND

The Thai National Documentation Centre (TNDC) represents Thailand in matters pertaining to international exchange of data and information. The Hydrographic Department of the Royal Thai Navy (RTN/HD) is responsible for physical oceanographic surveys and the Department of Fisheries in the Ministry of Agriculture and Cooperation (MAC/FD) is responsible for fishery and marine biology research.

Chulalongkorn and Kasetsart Universitites support marine research, particularly marine biology.

660. TURKEY

The Seyir Hidrografi ve Osinografi Dairesi Baskanligi (SHODB) or Department of Navigation, Hydrography, and Oceanography, is the designated national agency for oceanographic data exchange and is responsible for marine surveys. The Meteoroloji Genel Mudurlugu (MGM) or Meteorological Department is responsible for marine meteorological activities.

661. UNION OF SOVIET SOCIALIST REPUBLICS (USSR)

Research in oceanography is coordinated by the Oceanographic Committee of the U.S.S.R. and by the Oceanographic Commission of its Akademiya Nauk (ANSSSR). The U.S.S.R. also sponsors an oceanographic data center.

The Akademiya Nauk, or Academy of Sciences, includes an Institut Okeanologiy (IOAN), which sponsors research in the world's oceans and operates several research vessels. The Ukrainskaya Akademiya Nauk (UAN), or Ukrainian Academy of Sciences, includes a Marine Hydrophysical Institute and an Institute for Biology of the Southern Seas.

The State operates the Gosudarstvennyy Okeanograficheskiy Institut (GOIN) or State Oceanographic Institute and Vsesoyuznyy Nauchno-Issledovatel'skiy Institut Morskogo Rybnogo Khozyaystva i Okeanografii (VNIRO) or All-Union Scientific Research Institute of Marine Fisheries and Oceanography.

Other institutions specialize in area studies and include: the Ark-ticheskiy i Antarkticheskiy Nauchno Issledovatel'skiy Institut (AANII) or Arctic and Antarctic Scientific Research Institute; Azovsko-Chernomorskiy Nauchno-Issledovatel'skiy Institut Morskogo Rybnogo Khozyaystva i Okeanografii (AZCHERNIRO) or Azov-Black Sea Scientific Research Institute of Marine Fisheries and Oceanography; Azovskiy Nauchno Issledovatel'skiy Institut Rybnogo Khozyaystva (AZNIIRKH) or Azov Scientific Research Institute of Fisheries; Baltiyskiy Nauchno-Issledovatel'skiy Institut Morskogo Rybnogo Khozyaystva i Okeanografii (BALTIRO) or Baltic Scientific Research Institute of Marine Fisheries and Oceanography; Kaspiyskiy Nauchno-Issledovatel'skiy Institut Rybnogo Khozyaystva (KASPIIRKH) or Caspian Scientific Research Institute of Fisheries; Nauchno-Issledovatel'skiy Institut Rybnogo Khozyaystva (NHRKH) or Scientific Research Institute of Fisheries; Polyarnyy Nauchno-Issledovatel'skiy Institut Morskogo Rybnogo Khozyaystva i Okeanografii (PINRO) or Polar Scientific Research Institute of Sea Fisheries and Oceanography; Tikhookeanskiy Institut Rybnogo Khozyaystva (TIRKH) or Pacific Ocean Fisheries Institute; Tikhookeanskaya Okeanograficheskaya Nauchnaya Stantsiya (TONS) or Pacific Ocean Oceanographic Scientific Station; Severnyy Polyarnyy Nauchno-Issledovatel'skiy Institut Morskogo Rybnogo Khozyaystva i Okeanografii (SEVPINRO) or North Polar Scientific Research Institute of Marine Fisheries and Oceanography; Tsentral'nyy Nauchno-Issledovatel'skiy Institut Informatskiy i Tekhniko Ekonomicheskikh Issledovaniy Rybnogo Khozyaystva (TSNIITEIRKH) or Central Scientific Research Institute of Technical and Economic Investigations of the Fisheries; and Tikhookeanskiy Nauchno-Issledovatel'skiy Institut Rybnogo Khozyaystva i Okeanografii (TINRO) or Pacific Research Institute of Fisheries and Oceanography.

The U.S.S.R. is responsible for the Mirovoy Tsentr Dannyykh VI (MTD-VI), or World Data Center-B for Oceanography (WDC-B). The Moskovskiy Gosudarstvennyy Universitet (MGU) or Moscow State University is involved in programs to educate oceanologists; it also has marine research programs. Some of the programs sponsored by the U.S.S.R. are identified by acronyms only: BIOTALASSA--a study of the oceanological basis for bioproductivity of prospective open-ocean fishing grounds; BIOSHELF--a study of the shelf and continental divide; DINEKT--a study of the dynamics of equatorial currents and structure of water; GEOS--a study of sedimentary layers in the ocean; and VOLNA--a study of surface and internal waves.

662. UNITED KINGDOM: UK

The Natural Environmental Research Council (NERC) established in 1967 to consolidate environmental research activities in the UK includes several institutes and other groups involved in marine research activities: the British Antarctic Survey (BAS), the Institute for Geological Sciences (IGS), the Institute of Marine Biology (IMB), the Institute of Oceanographic Sciences (IOS), and the Institute of Marine Environmental Research (IMER).

IOS, established in 1973, inherited the functions of the National Institute of Oceanography (NIO), the Institute of Coastal Oceanography and Tides (ICOT), and a unit on coastal sedimentology, all of which were abolished with the creation of IOS. In 1977, IOS created within its structure the Marine Information and Advisory Service

(MIAS) to replace the abolished British Oceanographic Data Service (BODS). MIAS is developing an oceanographic data base and recently established a Wave and Current Advisory Service (WACAS).

IOS is responsible for the Marine Scientific Equipment Service (MSES) and the Standard Seawater Service (SSS). The latter, once a responsibility of the International Council for the Exploration of the Sea (ICES), was transferred to IOS in 1976. IOS has three stations identified as IOS-B (at Bideston), IOS-T (at Taunton), and IOS-W (at Wormley).

IMER was established in 1970 and inherited the Scottish Marine Biological Association (SMBA) at Edinburgh and the Seal Research and Fisheries Unit (SRFU) at Lowestoft.

NERC is a participant in several interdepartmental and advisory committees of interest including the Advisory Committee on International Oceanographic Affairs (ACIOA), the Inter-Research Council Committee on Pollution Research (IRCCOPR), and the Study Committee on Ocean Data Stations (SCODS).

The British Ministry of Defense includes the British Admiralty and the British Hydrographic Department (HD). The former includes several units of interest: the Admiralty Marine Engineering Establishment (AMEE), the Admiralty Oil Laboratory (AOL), and the Admiralty Research Laboratory (ARL).

Fishery research is the responsibility of the Ministry of Agriculture, Fisheries, and Food (MAFF). The Department of Energy (DOE) sponsors an Advisory Group on Environmental Data for Offshore Structures (AGEDOS) and the Marine Pollution Management Group (MPMG) that coordinates activities and collects information about marine pollution, and the Offshore Installations Technical Advisory Committee (OFINTAC). The Meteorological Office (METO) is closely involved in marine meteorology.

There are a number of British national committees of interest: the British National Committee on Antarctic Research (BNCAR), on Ocean Engineering (BNCOE), and on Ocean Research (BNCOR). Other groups are the Advisory Committee on Oil Pollution of the Sea (ACOPS); the Offshore Technology Board (OTB) established in 1973; and the Ship and Marine Technology Requirements Board (SMTRB), which was established in 1972 replacing the Committee on Marine Technology (CMT) established in 1968.

Some of the groups sponsored by industry include the North Sea Oceanographic Study Group (NSOSG) formed in 1972 by a consortium of oil companies to provide more reliable information on environmental conditions prevailing in the North Sea: the Construction Industry Research and Information Association (CIRIA) which established an Underwater Engineering Group (UEG) in 1968 to serve as a clearinghouse for information on decompression and other technical matters; the National Maritime Institute (NMI) established in 1976 and concerned with obtaining and providing wave data to the offshore industry; and the United Kingdom Offshore Operators Association (UKOOA) which includes an Oceanographic Committee concerned with data and information on oceanographic conditions affecting offshore operations.

The Marine Biological Association (MBA), an independent organization established in 1884, initiated a Marine Pollution Documentation and Information Center (MARPDIC) in 1970. The Scott Polar Research Institute (SPRI), an independent organization established in 1925, conducts research and promotes education in polar matters, particularly in the Antarctic.

Other British organizations include the British Maritime Law Association (BMLA), the British Ship Research Council (BSRC), the Estuarine and Brackish-water Sciences Association (EBSA), the General

Council of British Shipping (GSBS), and an Institute of Offshore Engineering (IOE) located at Heriot-Watt University whose purpose is to coordinate approaches to offshore engineering problems. A number of organizations promote the protection of seabirds and take strong stands for the environmental protection of coastal waters. They are the British Ornithologists Union (BOU), the British Trust for Ornithologists (BTO), the Royal Society for Protection of Birds (RSPB), the Scottish Ornithologists Club (SOC), and Wildfowl Trust (WFT).

Acronyms associated with marine programs are RANOSP--Radiological North Sea Project; and TWERLE--Tropical Wind Energy Conversions and Reference Level Experiments.

Members of the British Commonwealth having marine interests include the Bermuda Biological Station (BBS) and the Hong Kong Fisheries Research Station (FRS). BBS's programs include the Bermuda Inshore Waters Investigation (BIWI).

663. URUGUAY

Marine research is largely conducted by the Servicio de Oceanografia e Hidrografia (SOH) de la Armada.

664. VENEZUELA

The Direccion de Hidrografia y Navegacion (DHN) is responsible for hydrographic and physical oceanographic surveys, and the Oficina Nacional de Pesca (ONP) conducts fishery and marine biological research.

The Instituto Oceanografico of the Universidad de Oriente (IOUO) and the Estacion de Investigaciones Marinas de Margarita (EIMM) of the Fundacion La Salle de Ciencias Naturales (FLSCN) have extensive oceanographic programs - biological, chemical, geological, meteorological, and physical.

665. YUGOSLAVIA

The Hidrografski Institut Jugoslavenske Ratne Mornarice (IHJRM) or Hydrographic Institute of the Yugoslav Navy is responsible for much of the government's marine science research. Other marine research groups include the Institut za Oceanografiju i Ribarstvo (IOR) or Institute of Oceanography and Fisheries at Split, the Institut za Biologiju Mora i Oceanografiju (IBMO) at Kotor, the Biologiju Institut (BI) at Dubrovnik, the Zavodza Biologiju Mora (ZBM) of the University of Ljubljana, and the "Ruder Boskovic" Institut (RBI) at Rovinj and Zagreb. The Hidrometeorologskog Zavodas (HZ) or Hydrometeorological stations at Ljubljana and Titograd are responsible for marine meteorology.

V. TERMS

666. TERMS ASSOCIATED WITH FISHERY MANAGEMENT

The Fishery Conservation and Management Act of 1976 (FCMA) establishing a 200-mile protective zone for U.S. fisheries resulted in an all-out effort to identify means to control fishing activities. A number of terms were developed, each of which is identified by an acronym or abbreviation. They are: Acceptable Biological Catch (ABC), a seasonably determined catch differing from MSY due to biological fluctuations; Domestic Annual Fishing Capacity (DAC), the total potential capacity of the fleets modified by logistics factors; Expected Domestic Annual Fishing Harvest (DAH), the annual fishing capacity of the fleets, modified by external factors such as price changes, which will determine estimates of what the fleet will harvest, and does not exceed the optimum yield (OY); Equilibrium Yield (EY), the annual or seasonal harvest which maintains the resource at approximately the same level of abundance in succeeding years or seasons and differing from MSY in that the sustained level of abundance does not have to be at the maximum sustained level; Foreign Allowable Catch (FAC), which is determined by deducting the Domestic Annual Expected Harvest from the Optimum Yield (OY-DAH-FAC); Maximum Economic Yield (MEY) occurs when the difference between the value of the catch and the cost of fishing is at a maximum and the profit margin is at its greatest; Maximum Sustainable Yield (MSY), the average over a reasonable length of time of the largest catch which can be taken continuously from a stock under current environmental conditions; Optimum Yield (OY) differs from the Acceptable Biological Catch for purposes of promoting economic, social, or ecological objectives as established by law and public participation processes; Total Allowable Catch (TAC), the limitation established for fisheries.

Other terms are Catch Per Unit Effort (CPUE); Continental Marine Recreational Fishing (MRF); and Governing International Fishing Agreements (GIFA), a term referring to agreements between the U.S. and foreign governments to make surplus catches within the 200-mile area available to foreign fishing vessels.

The Inter-American Tropical Tuna Commission (IATTC) uses several terms in its reports. They are Catch per Standard Day of Fishing (CPSDF), Commission's Regulatory Area (CRA) and Commission's Yellowfin Regulatory Area (CYRA).

667. TERMS ASSOCIATED WITH MARINE MAMMAL PROTECTION (MMP)

At its founding, the International Whaling Commission (IWC) established a ceiling on total catch of whales; known as the Blue Whale Unit (WU), a unit covered several species such as 1 blue whale or 2 fin whales or 2 1/2 humpback, and so forth. In 1972 the BWU limit was replaced by separate catch units.

Optimum Sustainable Population, (OSP) is used to indicate the number of animals needed to result in maximum productivity.

668. TERMS ASSOCIATED WITH MARINE METEOROLOGICAL DATA

The World Meteorological Organization (WMO) uses the term Meteorological Aspects of Ocean Affairs (MAOA) when referring to the interaction between meteorology and oceanography; the term Marine Meteorological Services System (MMSS) when referring to the means by which marine meteorological services are obtained; and the term Meteorological Services to Marine Activities (MSMA) when describing monitoring activities of the atmosphere over oceanic areas to provide forecast and other services in support of marine activities.

Marine meteorological data may be held by Regional Meteorological Centers (RMCs) established to service meteorological data from specialized regions and National Meteorological Centers (NMCs).

WMO's Commission on Marine Meteorology was responsible for the development of the Sea Ice Observation Code (ICEOB) which consists of pictorial descriptions of ice in code form. ICEOB disregards the manner in which the observations are taken--air, ship, or shore. WMO also developed the International Marine Meteorological Punch Card (IMMPC) adopted for use during IGOSS.

669. TERMS ASSOCIATED WITH THE LEGAL ASPECTS OF THE SEABED

With the increasing importance of the resources of the oceans and the international negotiations associated with the use of the seabed, several terms have come into common usage. The Exclusive Economic Zone (EEZ) is usually the 200-mile zone extending outward from the coast line wherein adjacent coastal nations may exercise a high degree of control over the natural and mineral resources. The term Outer Continental Shelf (OCS) is frequently used but loosely defined. Usually it refers to the shelf area that extends outward to the 200-meter isobath. The area beyond the jurisdiction of coastal states is referred to as the International Seabed Area (ISBA).

670. TERMS ASSOCIATED WITH INTERNATIONAL OCEANOGRAPHIC DATA EXCHANGE

Oceanographic programs conducted by member nations of the Intergovernmental Oceanographic Commission (IOC) may be designated by the member nation as Declared National Programs (DNP), in which case the data must then be exchanged internationally through World Data Centers (WDCs) and become a part of the international marine data base of the world, or as National Oceanographic Programs (NOP), in which case submission of data is voluntary. National interests usually provide data to the international community through National Oceanographic Data Centers (NODC) or, in the absence of an official NODC, through a Designated National Agency (DNA).

NODCs are supplemented by Regional Data Centers (RDCs), which serve either as data centers acting for several countries in a region such as the Service Hydrographique of the International Council for the Exploration of the Sea (ICES) or as centers responsible for handling all data collected during a cooperative investigation sponsored by the IOC. Responsible National Oceanographic Data Centers (RNODCs) are part of the world network for data exchange and are supplementary to and supportive of the World Data Centers (WDCs). RNODCs are usually NODCs that have expertise and sophistication in handling data and who voluntarily assume the additional responsibilities for accessioning, processing, and servicing data which, by international agreement, shall be exchanged and which are from nations other than their own. The IOC Working Committee on International Oceanographic Data Exchange (IODE) is responsible for exchange agreements through WDCs, NODCs, and RNODCs.

671. STANDARD FORMATS FOR INVENTORING AND EXCHANGING OCEANOGRAPHIC DATA

In 1971 the Intergovernmental Oceanographic Commission (IOC) adopted an inventory form designed by the two World Data Centers (WDC) for Oceanography for reporting the taking of multidisciplinary data; and information derived from the forms is used for compiling inventories and for referral purposes. The form, called Report of Observations/Samples Collected by Oceanographic Programs (ROSCOP) was revised by IOC in 1974.

Marine geological and geophysical data activities are reported on the International Geological/Geophysical Cruise Inventory (IG/GCI)

form developed jointly by the Commission on Marine Geology (CMG), SCOR, IOC, and WDC-A for Oceanography. Completed forms are sent to WDC-A for storage, cataloging, and plotting, CMG is inventorying data taken before 1970 when IG/GCI was adopted and the ultimate result of the inventory is to be a catalog or ready reference to the geographic coverage of marine geological and geophysical data.

An International Numbering System for Tides (INST) locates tides by quadrants and latitude and longitude.

The IOC developed standard formats for exchanging oceanographic data. IOC General Format No. 3 (GF3) is the most recent version of the general-purpose data exchange format. Two special formats are also used for telecommunicated data. These are called OCEAN SYNDARC BATHY, which is used to transmit messages containing bathythermograph data, and OCEAN SYNDARC TESAC, which is used to transmit temperature, salinity, and current data.

INDEX OF TITLES OF ACRONYMS AND ABBREVIATIONS

This alphabetical listing is keyed to the entry numbers in Parts I through IV. Some entries are unkeyed because there was insufficient time to research them to determine their context.

Acceptable Biological Catch (ABC): 666

Acoustic Data Capsule (ACODAC)

Acoustic Model Evaluation Committee (AMEC): 436

Acoustic Performance Prediction (APP): 395

Ad Hoc Committee to Study the Peaceful Uses of the Seabed and the Ocean Floor Beyond the Limits of National Jurisdiction: 2

Administrative Committee on Coordination (ACC): 4, 8

Admiralty Marine Engineering Establishment (AMEE): 662

Admiralty Oil Laboratory (AOL): 662

Admiralty Research Laboratory (ARL): 662

Adriatic Sea Expanded Regional Oceanological Studies (AS-EROS): 246

Advanced Ocean Engineering Laboratory (AOEL): 424

Advanced Polar Orbiting Satellite (APOS)

Advanced Research Projects Agency (ARPA): 380

Advisory Commission on Coastal and Marine Resources (ACCMR): 433

Advisory Committee for Operational Hydrology (ACOH)

Advisory Committee on Antarctic Names (ACAN)

Advisory Committee on Fishery Management (ACFM): 65

Advisory Committee on International Oceanographic Affairs (ACIOA): 662

Advisory Committee on Marine Resources Research (ACMRR): 17, 18, 122, 225, 227, 229, 256

Advisory Committee on Oceanic Meteorological Research (ACOMR): 28, 225

Advisory Committee on Oil Pollution of the Sea (ACOPS): 662

Advisory Committee on Polar Programs (ACPP): 416

Advisory Committee on the Application of Science and Technology to Development (ACAST): 3, 5

Advisory Committee on the Law of the Sea (ACLOS): 361

Advisory Group for Aerospace Research and Development (AGARD): 81

Advisory Group on Environmental Data for Offshore Structures (AGEDOS)
662

Advisory Panel for Oceanography (APO): 416

Aeronautical Chart and Information Center (ACIC): 380

Aeronomy and Space Data Center (ASDC): 375

Agence Europeenne pour l'Energie Nucleaire: See European Atomic En-
ergy Community

Agence Internationale de l'Energie Atomique (AIEA): See International
Atomic Energy Agency

Agency for International Development (AID): 410

Air Delivered Anti-Pollution Transfer System (ADAPTS): 412

Air Droppable, Expendable Ocean Sensor (ADEOS)

Air Droppable Measurement System (ADRAMS): 372

Air Mass Transformation Experiment (AMTEX): 344

Airborne Oil Surveillance System (AOSS): 412

Airborne Remote Sensing Oceanography Project (ARSOP): 392

Airborne Sea/Swell Recorder (ASSR):

Aircraft Expendable Bathythermograph (AXBT): 315

Aircraft Expendable Bathythermograph Program in the Pacific (AIRPAX):
315

Akademiya Nauk of the USSR (ANSSR): 661

Akademiya Nauk of the Ukraine (UAN): 661

Alabama Marine Resources Laboratory (AMRL): 320

Alaska Department of Environmental Conservation (ADEC): 421

Alaska Department of Fish and Game (ADF&G): 421

Alaska Eskimo Whaling Commission (AEWC): 421

Alaska Fisheries Center (AFC): 369

Alaska Fisheries Development Corporation (AFDC): 421

Alaska Sea Grant Program (ASGP): 421, 478

Alaska Tsunami Warning Center (ATWC): 378

Alaska Tsunami Warning System (ATWS): 378

Albatross Project: 247

Allan Hancock Foundation (AHF): 425

Amazon Expedition (AE): 248

American Association of Petroleum Geologists (AAPG): 470, 535, 585

American Association of Port Authorities (AAPA): 133

American Association of Zoological Parks and Aquariums (AAZPA): 472

American Bureau Of Shipping (ABS): 473

American Bureau of Shipping Information Retrieval System (ABSIRS):
473

American Cetacean Society (ACS): 474

American Congress on Surveying and Mapping (ACSM) 475

American Fisheries Research Foundation (AFRF) 477

American Fisheries Society (AFS): 476

American Fisherman's Safety Incentive Program (AFSIP): 478

American Gas Association (AGA): 479

American Geographical Society (AGS): 481

American Geological Institute (AGI): 480

American Geophysical Union (AGU): 482

American Institute of Biological Sciences (AIBS): 483

American Institute of Fishery Research Biologists (AIFRB): 484

American Institute of Merchant Shipping (AIMS) 485

American Institute of Mining Engineers (AIME) 486

American Institute of Mining, Metallurgical and Petroleum
Engineers (AIME) 486

American Institute of Nautical Archeology (AINA): 487

American Littoral Society (ALS) 488

American Malacological Union (AMU): 489

American Maritime Association (AMA): 490

American Meteorological Society (AMS): 491

American Oceanic Organization (AOO): 492

American Petroleum Institute (API) 493

American Society of International Law (ASIL): 499

American Shore and Beach Preservation Association (ASBPA): 494
 American Society for Microbiology (ASM): 503
 American Society for Testing and Material (ASTM): 495
 American Society of Biological Chemists (ASBC): 496
 American Society of Civil Engineers (ASCE): 497
 American Society of Ichthyologists and Herpetologists (ASIH) 498
 American Society of Limnology and Oceanography (ASLO): 500
 American Society of Mammalogists (ASM): 501
 American Society of Mechanical Engineers (ASME): 502
 American Society of Naval Engineers (ASNE): 504
 American Society of Photogrammetry (ASP): 505
 American Tunaboat Association (ATA): 506
 American Water Resources Association (AWRA): 507
 Analytical Methododology Information Center (AMIC): 513
 Anglo-American Caribbean Commission (See Caribbean Organization)
 Annee Geophysique Internationale (AGE): See International Geophysical Year
 Anomaly Dynamics Study (ADS): 315
 Antarctic Bottom Water (AABW): 296
 Antarctic Circumpolar Current (ACC)
 Antarctic Circumpolar Current System (ACCS)
 Antarctic Intermediate Water (AAIW)
 Antarctic Marine Geology Research Facility (AMGREF): 428
 Antarctic Research Program (DEEP FREEZE): 392
 Antarctic Research Programs (ARP): 121, 249 (See also United States Antarctic Research Program)
 Antarctic Surface Water (AASW)
 Anti-Submarine Warfare (ASW): 382, 392, 561
 Anti-Submarine Warfare Advisory Committee (ASWAC): 561
 Anti-Submarine Warfare Environmental Prediction System (ASWEPS): 392
 Anti-Submarine Warfare Project Office (ASWPO): 382

Anti-Submarine Warfare Research Center (SACLANTCEN): 81

Applied Physics Laboratory, Johns Hopkins University (APL/JHU): 435

Applied Physics Laboratory, University of Washington (APL/UW): 452

Aquaculture Association of Nova Scotia (AANS): 604

Aquaculture Programme du Centre Oceanologique du Pacifique (AQUACOP):
617

Aquaculture Working Group (AWG): 56

Aquatic Plant Control Research Program (APCRP): 381

Aquatic Sciences and Fisheries Abstracts (ASFA): 230

Aquatic Sciences and Fisheries Information System (ASFIS): 1, 16,
22, 35, 230, 339, 375

Arab Educational, Cultural, and Scientific Organization (ALECSO):
78

Arctic Bibliography: 134

Arctic Canadian Continental Shelf Exploration Services Co., Ltd.
(ACCESS)

Arctic Development and the Environment (ADE): 134

Arctic Environmental Buoy (AEB): 372

Arctic Environmental Field Station (AEFS): 413

Arctic Environmental Information and Data Center (AEIDC): 421

Arctic Environmental Research Laboratory (AERL): 413

Arctic Ice Dynamics Joint Experiment (AIDJEX): 111, 250, 372

Arctic Institute of North America (AINA): 134, 250, 253

Arctic Research in Environmental Acoustics (AREA): 398

Arctic Research Laboratory (ARL): 398, 421

Arctic Research Laboratory Ice Station (ARLIS): 398

Arctic Science and Technology Information System (ASTIS) 134

Arctic Submarine Laboratory (ASL): 390

Arctic Water Pollution Prevention Act (AWPPA): 602

Arkticheskii i Antarkticheskii Nauchno Issledovatel'skiy Institut
(AANII): 660

Army Corps of Engineers (ACE): 377, 381, 422

- Army Engineers Waterways Experiment Station (AEWES): 381
- Army Map Service (AMS): 380
- Asian-African Legal Consultative Committee (AALCC): 40
- Asociacion Cartografica Internacional (ACI): See International Cartographic Association (ICA)
- Asociacion Internacional de Hidrologia Cientifica (AIHC): See International Association of Hydrological Sciences
- Asociacion Internacional de Investigaciones Hidraulicas (AIIH): See International Association for Hydraulic Research
- Asociacion Internacional de Limnologia Teorica y Aplicada: (AIL)
See International Association of Theoretical and Applied Limnology
- Asociacion Internacional de Meteorologia y Fisica Atmosferica: See International Association of Meteorology and Atmospheric Physics
- Asociacion Internacional de Oceanografia Biologica (AIOB): See International Association of Biological Oceanography
- Asociacion Internacional de Senalizacion Maritima: (AISM): See International Association of Lighthouse Authorities
- Asociacion Internacional de Sociedades de Microbiologia (AISM):
See International Association of Microbiological Societies
- Asociacion Internacional Permanente de los Congresos de Navegacion (AIPCN): See Permanent International Association of Navigational Congresses
- Asociacion Internacional sobre Investigaciones Relativas a la Contaminacion de las Aguas: (AIICA): See International Association on Water Pollution Research:
- Asociacion Internacional para las Ciencias Fisicas del Oceano (AICFO):
See International Association for the Physical Sciences of the Ocean
- Associazione Piscicoltori Italiana: 630
- Association Cartographique Internationale (ACI): See International Cartographic Association
- Association des Industries du Poisson de la CEE (AIPCEE): 56
- Association Europeenne Oceanique: See European Oceanographic Association
- Association Francaise pour l'Etudes des Eaux: (AFEE): 617
- Association Francaise pour l'Exploitation et la Recherche des Nodules (AFERNOD): 617
- Association Internationale de Geodesie: (AIG): See International Association of Geodesy

Association Internationale de Geomagnetisme et d'Aeronomie (AIGA):
See International Association of Geomagnetism and Aeronomy

Association Internationale d'Hydrologie Scientifique (AIHS): See
International Association of Hydrological Sciences

Association Internationale de Limnologie Theorique et Appliquee
(AIL): See International Association of Theoretical and Applied
Limnology

Association Internationale de Meteorologie et de Physique Atmospheri-
que (AIMPA): See International Association of Meteorology and
Atmospheric Physics

Association Internationale d'Oceanographie Biologique (AIOB): See
International Association of Biological Oceanography

Association Internationale d'Oceanographie Physique (AIOP): See
International Association of Physical Oceanography

Association Internationale de Recherche sur la Pollution de l'Eau:
See International Association on Water Pollution Research

Association Internationale de Seismologie et de Physique de l'Inter-
ieur de la Terre (AISPIIT): See International Association of
Seismology and Physics of the Earth's Interior

Association Internationale de Signalisation Maritime: See Inter-
national Association of Lighthouse Authorities

Association Internationale de Volcanologie et de Chimie de l'Interieur
de la Terre (AIVCIT): See International Association of Volcanology
and Chemistry of the Earth's Interior

Association Internationale des Recherches Hydrauliques (AIRH): See
International Association for Hydraulic Research

Association Internationale des Ressources en Eau: See International
Water Resources Association

Association Internationale des Sciences Hydrologiques (AISH): See
International Association for Hydraulic Research

Association Internationale des Sciences Physiques de l'Ocean (AIPSO):
See International Association of Physical Sciences of the Ocean

Association Internationale des Societes de Microbiologie (AISM): See
International Association of Microbiological Societies

Association Internationale Permanente des Congres de Navigation
(AIPCN): See Permanent International Association of Navigational
Congresses

Association of American Ship Owners (AASO): 508

Association of Fish Industries of the EEC (AIPCEE): 56

Association of Island Marine Laboratories of the Caribbean (AIMLC):
135

Association of National Organizations of Fishing Enterprises of the
EEC (EUROPECHE): 56

Association of Sea Grant Program Institutions (ASGPI): 509

Association of South East Asian Nations (ASEAN): 41

Association Scientifique et Technique pour l'Exploration des Oceans
(ASTEO): 617

Astronomical, Atmospheric, Earth and Ocean Sciences (AAEO): 416

Atlantic Environmental Group (AEG): 369

Atlantic Estuarine Fisheries Center (AEFC): 367

Atlantic Estuarine Research Society (AERS): 510

Atlantic Marine Center (AMC): 377

Atlantic Missile Range (AMR)

Atlantic Oceanographic and Meteorological Laboratory (AOML): 371

Atlantic Oceanographic Laboratory (AOL): 371, 602

Atlantic Offshore Fish and Lobster Association (AOFLA): 511

Atlantic Outer Continental Shelf (AOCS)

Atlantic Regional Laboratory (ARL): 602

Atlantic Salmon Association (ASA): 604

Atlantic Salmon Research Trust (ASRT): 136

Atlantic Sea Run Salmon Commission (ASRSC): 434

Atlantic States Marine Fisheries Commission (ASMFC): 454

Atlantic Tradewind Experiment (ATEX): 251

Atlantic Undersea Test and Evaluation Center (AUTEC): 382

Atlantische Passatwind Experiment (APEX): See Atlantic Tradewind
Experiment

Atmospheric Climate Study (ACS): 315

Atmospheric Environmental Service (AES): 602

Atmospheric Forcings for the Mid Atlantic Bight (AFMAB): 328

Atomic Energy Commission (AEC): 399, 417

Augmented Colombian El Nino Tuna Oceanography (ACENTO): 274

Augmented Synoptic Oceanographic Data Acquisition System (ASODAS):
392

Australian and New Zealand Association for the Advancement of Science (ANZAAS): 596

Australian Association of Maritime History (AAMIT): 596

Australian Institute of Marine Sciences (AIMS): 596

Australian Marine Sciences Association (AMSA): 596

Australian National Antarctic Research Expedition (ANARE): 596

Australian Oceanographic Data Center (AODC): 596

Australian Society for Fish Biology (ASFC): 596

Australian-New Zealand-United States Eddy Project (ANZUS): 252

Automated Hydrologic Observation System (AHOS)

Automated System for the Control of Atmospheric Sampling (ASCAS): 311

Automatic Meteorological Observing System (AMOS)

Automatic Meteorological Oceanographic Buoy (AMOB)

Automatic Oceanographic and Meteorological Observation Buoy (NOMAD)

Automatic Picture Transmission (APT)

Automation of Field Operations and Services (AFOS)

Auxiliary General Oceanographic Research (AGOR): 392

Auxiliary General Survey (AGS): 392

Auxiliary Survey Vessel (ASV): 392

Azores Fixed Acoustic Range (AFAR): 231

Azovskiy Nauchno-Issledovatel'skiy Institut Rybnogo Khozyaystva (AZNIIRKH): 661

Azovsko-Chernomorskiy Nauchno-Issledovatel'skiy Institut Morskogo Rybnogo Khozyaystva i Okeanografii (AZCHERNIRO): 661

Baffin Bay-Northwater Project (BBNWP): 111, 253

Baltic and International Maritime Conference (BIMCO): 138

Baltic and White Sea Conference: See Baltic and International Maritime Conference

Baltic Environmental and Acoustic Range (BALEAR): 620

Baltic Marine Biologists (BMB): 138

Baltic Marine Biology Organization (BMBO): 138

Baltic Open Sea Experiment (BOSEX): 254

Baltic Sea Salmon Standing Committee (BSSSC): 42

Baltiyskiy Nauchno-Issledovatel'skiy Institut Morskogo Rybnogo Khozyaystva i Okeanografii (BALTNIRO): 661

Baltimore Maritime Exchange (BME): 512

Banco Internacional de Reconstruccion y Fomentol (BIRF): See International Bank for Reconstruction and Development (IBRD)

Banque Internationale pour la Reconstruction et le Developpement (BIRD): See International Bank for Reconstruction and Development (IBRD)

Barbados Oceanographic and Meteorological Analysis Project (BOMAP): 345

Barbados Oceanographic and Meteorological Experiment (BOMEX): 345, 375

Base Oceanografica Atlantica (BOA): 599

Base Oceanologique de Mediterranee (BOM): 617

Bathymetric Swath Survey System (BSSS): 377

Battelle Memorial Institute (BMI): 513

Bay Conservation and Development Commission (BCDC): 423

Beach Erosion Board (BEB): 381

Bedford Institute of Oceanography (BIO): 258, 602

Bellairs Research Institute (BRI): 603

Belle W. Baruch Institute for Marine Biology and Coastal Research (BIMBCR or BWBIMBCR): 449

Bering Sea Expedition (BESEX): 255

Bering Sea Marine Mammal Experiment (BESMEX): 371

Bermuda Biological Station (BBS): 662

Bermuda Inshore Waters Investigation (BIWI): 662

Bernice P. Bishop Museum (BPBM): 514

Bhabha Atomic Research Center (BARC): 625

Bibliographie Cartographie Internationale: 101

Bibliographie Geographique Internationale: 101

Bigelow Laboratory for Ocean Sciences (BLOS): 434

Bingham Oceanographic Laboratory (BOL): 426

Biological Oxygen Demand (BOD)

Biological and Climatic Effects Research Program (BACER): 413

Biological Effects Program (BEP): 307

Biological Investigations of the Marine Antarctic System and Stocks (BIOMASS): 121, 122, 256

Biological Sciences Information Service (BIOSIS): 515

Biologiju Institut (BI): 664

Biologische Anstalt Helgoland (BAH): 620

Biology Information Retrieval System (BIRS): 375

Black Sea Expedition (BSE): 257

Block Island - Fisher Island Range (BIFI): 397

Blue Whale Unit (BWU): 667

Board on Geographical Names (BGN): 363

Board on Ocean Science Affairs (BOSA): 419

Bodega Marine Laboratory (BML): 424

Boston University Marine Program (BUMP): 436

Bottom Environmental Sensing System (BESS):

Bottom Ocean Monitor (BOM): 317

Bottom Photograph Camera Station File (PHOTO): 375

Boundary Layer Instrument System (BLIS): 347

Boundary-Layer Subprogramme Data Centre (BSDC): 347

Brine Disposal Program (BDP): 375

British Antarctic Survey (BAS): 662

British Maritime Law Association (BMLA): 662

British National Committee on Antarctic Research (BNCAR): 662

British National Committee on Ocean Engineering (BNCOE): 662

British National Committee on Ocean Research (BNCOR): 662

British National Institute of Oceanography: See National Institute of Oceanography

British Oceanographic Data Service (BODS): 662

British Ornithologists Union (BOU): 662

British Ship Research Council (BSRC): 662
 British Trust for Ornithology (BTO): 662
 Brookhaven National Laboratory (BNL): 516
 Bubble Interfacial Microlayer Sampler (BIM): 311
 Bundesanstalt fuer Unterwasserschall und Geophysik (BUG): 620
 Bundesforschungsanstalt fuer Fischerei (BFA or BUFOFI): 620
 Bureau Central International de Seismologie (BCIS): 129
 Bureau d'Etudes Oceanographiques (BEO): 617
 Bureau de Recherches Geologiques et Minieres (BRGM): 275, 617
 Bureau de Statistiques Baleinieres Internationales (BSBI): See Bureau of International Whaling Statistics
 Bureau Gravimetrique International (BGI): 109, 130
 Bureau Hydrographique International (BHI): See International Hydrographic Bureau
 Bureau National des Donnees Oceaniques (BNDO): 617
 Bureau of Coast and Geodetic Survey (BC&GS): 649
 Bureau of Commercial Fisheries (BCF): 369, 408, 461
 Bureau of Economics Analysis (BEA): 364
 Bureau of Fisheries and Aquatic Resources (BF&AR): 649
 Bureau of International Whaling Statistics (BIWS): 72
 Bureau of Land Management (BLM): 371, 402, 448
 Bureau of Marine Resources, Geology and Geophysics (BMRGG): 596
 Bureau of Mines (BOM): 403, 649
 Bureau of Oceans and International Environmental and Scientific Affairs (OES): 410
 Bureau of Outdoor Recreation (BOR): 405
 Bureau of Reclamation (BOR): 404
 Bureau of Sport Fisheries and Wildlife (BSFW): 408
 Bureau of the Census (BC): 364
 Burma Fisheries Department (BFD): 600
 Cable Controlled Underwater Recovery Vehicle (CURV)

Cable Damage Committee: See International Cable Protection Committee

California Academy of Sciences (CAS): 422

California Advisory Commission on Marine and Coastal Resources:
(CACMCR): 422

California Advisory Commission on Marine and Coastal Resources (CMC):
422

California Association of Port Authorities (CAPA): 517

California Coastal Engineerine Data Network (CCEDN): 422

California Coastal Zone Management and Conservation Commission
(CCZMC): 422

California Cooperative Oceanic Fisheries Investigations (CALCOFI):
422

California Department of Fish and Game (CDFG): 369, 422

California Department of Navigation and Ocean Development (CDNOD):
422

California Department of Water Resources (CDWR): 422

California Marine Advisory Program (CMAP): 424

California Marine Fisheries Council (CMFC): 422

California Ocean Area Plan (COAP): 422

California State College at Dominguez Hills (CSCDH): 424

California State College at Stanislaus (CSCS): 424

California State University at Fresno (CSUF): 424

California State University at Fullerton (CSUF): 424

California State University at Hayward (CSUH): 424

California State University at Long Beach (CSULB): 424

California State University at Los Angeles (CSULA): 424

California State University at Northridge (CSUN): 424

California State University at Pomona (CSUP): 424

California State University at Sacramento (CSUS): 424

California State University at San Jose (CSUSJ): 424

California State Water Quality Control Board (CSWGB): 422

California State Water Resources Control Board (CSWRCB): 422

California Undersea Aquaduct (CUA): 404

California Undersea Aquaduct Reconnaissance Oceanography (CUARO):
404

Canada Centre for Inland Waters (CCIW): 602

Canada-U.S. Cooperative Survey of the Gulf Stream (CANUS): 258

Canadian Centre for Geoscience Data (CCGD): 602

Canadian Committee on Oceanography (CCO): 602

Canadian Hydrographers Association (CHA): 604

Canadian Hydrographic Service (CHS): 602

Canadian Maritime History Group (CMHG): 603

Canadian Meteorological Centre (CMC): 602

Canadian Oceanographic Data Center (CODC): 602

Canadian Shipping Act (CSA): 602

Canadian Wildlife Service (CWS): 602

Cape Haze Marine Laboratory: 548

Caribbean Atlantic Geotraverse (CAG): 320

Caribbean Commission: See Caribbean Organization

Caribbean Community (CARICOM): 43

Caribbean Development and Co-operation Committee (CDCC): 12

Caribbean Fishery Management Council (CFMC): 369

Caribbean Marine Biological Institute (CARMABI): 139, 261

Catalina Marine Sciences Center (CMSC): 425

Caribbean Organization: 44

Catch Per Standard Day of Fishing (CPSDF): 666

Catch Per Unit Effort (CPUE): 666

CCOP/IOC Joint Working Group on IDOE Studies in East Asia Tectonics
and Resources (SEATAR): 22, 37

CCOP/IOC Joint Working Group on East Asia Transects: 37

Cenozoic Paleo-Oceanography (CENOP)

Center for Climatic and Environmental Assessment (CCEA): 375

Center for Dredging Studies (CDS): 450

Center for Energy and Environmental Research (CEER): 447

Center for Environment and Estuarine Studies (CEES): 435

Center for Environmental Assessment Service (CEAS): 375

Center for Experiment Design and Data Analysis (CEDDA): 375

Center for Great Lakes Studies (CGLS): 453

Center for Lake Erie Area Research (CLEAR): 444

Center for Marine and Coastal Studies (CMCS): 443

Center for Marine and Environmental Studies (CMES): 446

Center for Marine Resources (CMR): 450

Center for Ocean Law and Policy (COLP): 451

Center for Ocean Management Studies (COMS): 448

Center for Remote Sensing Information and Analysis (CRISIA): 437

Center for Research in Water Resources (CRWR): 450

Center for Short-Lived Phenomena (CSLP): 418

Center for Wetland Studies (CWS): 433

Central Abstracting and Indexing Service (CAIS): 493

Central Marine Fisheries Research Institute (CEMFRI): 625

Central Meteorological Office (CMD): 633

Central Oil Identification Laboratory (COIL): 412

Central Seismological Bureau (BCIS): 129

Central Treaty Organizations (CENTO): 45

Centre d'Etudes Europeennes pour les Problemes de l'Environnement Marin
(CEPEM): 147

Centre d'Etudes et de Recherches Techniques Sous-Marines
(CERTSM): 617

Centre d'Etudes Marines Avancees (CEMA): 617

Centre d'Etudes de Documentation, et d'Experimentation
(CEDRE): 617

Centre d'Etudes et de Recherches sur le Droit et l'Environnement Marin
(CERDEM): 617

Centre de Recherches Oceanographiques (CRO): 630

Centre de Recherches Oceanographiques de Dakar-Thiaroye (CRODT): 653

Centre de Recherches Oceanographiques et des Peches (CROP): 594

Centre de Recherches et d'Etudes Oceanographiques (CREO): 617

Centre for Cold Ocean Resources Engineering (C-CORE): 603

Centre Meteorologique Regional (CMR): See Regional Meteorological Centre

Centre Mondial de Donnees (CMD): See World Data Center

Centre National d'Etudes Spatiales (CNES): 617

Centre National de la Recherche Scientifique (CNRS): 617

Centre National de Tri d'Océanographie Biologique (CENTOB): 617

Centre National pour l'Exploitation des Océans (CNEXO): 275, 316, 617

Centre Oceanologique de Bretagne (COB): 617

Centre Oceanologique du Pacific (COP): 617

Centre of Oil Spill Technology (COST): 602

Centre pour l'Etude Oceanographique et Biologique Marine (CEOBM): 617

Centre Regional de Biologie Marine: See Regional Marine Biological Centre

Centro Argentino de Datos Oceanograficos (CEADO): 595

Centro Colombiano de Datos Oceanograficos (CECOLDO): 607

Centro de Biologia Aquatica Tropical Ministerio do Ultramar (CBATMU): 651

Centro de Cooperacion Cientifica de Asia Sudoriental (CCCAS): See South East Asia Science Cooperation Office

Centro de Datos Oceanograficos (CEDO): 637

Centro de Estudios Costeiras e Oceanicas (CECO): 599

Centro de Informacion de Pesca (CIP): 637

Centro de Investigacion Cientifica y Educacion Superior de Ensenada (CICESE): 637

Centro de Investigacion de Biologia Marina (CIBIMA): 595

Centro de Investigacion y Estudios Avanzados (CIEA): 637

Centro de Investigaciones del Mar (CIMAR): 605

Centro de Investigaciones Oceanograficas y Hidrograficas (CIOH): 607

Centro de Preclasificacion Oceanica de Mexico (CPOM): 21, 232, 261

Centro Espanol de Datos Oceanograficos (CEDO): 655
 Centro Meteorologico Regional (CMR): See Regional Meteorological Centre
 Centro Nacional de Datos Oceanograficos (CENADA): 637
 Centro Nacional de Datos Oceanograficos (CENDOC): 605
 Centro Nacional de Datos Oceanograficos (CNDO): 595
 Centro Nazionale di Fisica dell'Atmosfera e Meteorologia (CENFAM): 630
 Centro Nazionale Raccolta Dati Oceanografici (CNRDO): 630
 Centro Regional de Biologia Marina (CRBM): See Regional Marine Biological Centre
 Centro Studi Talassografici (CST): 630
 Cetacean and Turtle Assessment Program (CETAP): 448
 Charles Darwin Foundation for the Galapagos Isles: 140
 Chemical Oxygen Demand (COD)
 Chesapeake Bay Center for Environmental Studies (CBCES): 418, 455
 Chesapeake Bay Foundation (CBF): 518
 Chesapeake Bay Institute (CBI): 435, 455
 Chesapeake Bay Wave Climate Model (CBWCM): 451
 Chesapeake Biological Laboratory (CBL): 435
 Chesapeake Research Consortium (CRC): 455
 Chesapeake Water Pollution Control Association (CWPCA): 519
 Chevron Oil Field Research Company (COFRC): 520
 Chief of Naval Operations (CNO): 382
 Chile-Ecuador-Peru Block Nations (CEP): 89
 Chilean Oceanographic Expedition (MARCHILE): 605
 Chinese National Committee for Ocean Resources (CNCOR): 658
 Chinese Naval Hydrographic and Oceanographic Office (CNHOO): 658
 Chinese Naval Meteorology Center (CNMC): 658
 Chinese Petroleum Corporation (CPC): 658
 CICAR Data Inventory Form (CICARDI): 261

CICAR Intercalibration Experiment (CINTEX): 261
 Circulation et Production a l'Equateur Atlantique (CIPREA): 259
 City University of New York (CUNY): 442
 Civil Engineering Laboratory (CEL): 383
 Clean World International (CWI): 141
 Climate: Long-range Investigation, Mapping, and Prediction
 Project (CLIMAP): 312
 Climatic-Dynamics Sub-Programme: 352
 CNRS Group (MEDIPROD): 617
 Coast and Geodetic Survey (C&GS): 377, 378
 Coast Guard (CG): See United States Coast Guard
 Coast Guard Oceanographic Unit (CGOU): 412
 Coast Study Division (CSD): 629
 Coast Survey Marine Observation System (COSMOS): 377
 Coastal and Estuarine Regimes (CER): 122
 Coastal Area Management (CAM): 426
 Coastal Area Management Act (CAMA): 443
 Coastal Boundary Layer Transect (COBOLT): 516
 Coastal Coordinating Council (CCC): 428
 Coastal Energy Impact Program (CEIP): 368
 Coastal Engineering Advisory Committee (CEAC): 443
 Coastal Engineering Information and Analysis Center (CEIAC): 381
 Coastal Engineering Research Center (CERC): 381
 Coastal Marine Laboratory (CML): 424
 Coastal Oceanic Awareness Studies (COAST): 427
 Coastal Plains Center for Marine Development Services (CPCMDS):
 457
 Coastal Plains Regional Commission (CPRC): 457
 Coastal Planning and Development Commission (CPDC): 429
 Coastal Processes Advisory Committee (CPAC): 442
 Coastal Recreation Advisory Committee (CRAC): 442

Coastal Research Amphibious Buggy (CRAB): 381

Coastal Research Center (CRC): 436

Coastal Research Group (CRG): 436

Coastal Resources Advisory Commission (CRAC): 435

Coastal Resources Management Advisory Committee (CRMAC): 451

Coastal Resources Management Study (CRMS): 451

Coastal Shelf Oceanography Program (CSOP)

Coastal States Organization (CSO): 456

Coastal Studies Institute (CSI): 433

Coastal Study Commission (CSC): 451

Coastal Survey Ship (CSS)

Coastal Upwelling Ecosystems Analysis (CUEA): 60, 286, 322, 445

Coastal Upwelling Experiment (CUE): 322

Coastal Water Resources Advisory Committee (CWRAC): 442

Coastal Zone Color Scanner Study (CZCS): 376

Coastal Zone Management (CZM): 368

Coastal Zone Management Act (CZMA): 368

Coastal Zone Management Advisory Committee (CZMAC): 364

Coastal Zone Management Institute (CZMI): 521

Cobb Seamount Habitat Study (SEA USE): 452

Cold Regions Research and Engineering Laboratory (CRREL): 381

Cold Regions Science and Technology Information Analysis Center (CRSTIAC): 381

College of Marine Science And Technology Tokai University (CMTTKU): 632

College of Marine Studies (CMS): 427

Colombo Plan Council for Technical Cooperation in South and South-east Asia: 46

Columbia River Estuary Study Task Force (CREST): 458

Comision Asesora Regional de Pesca para el Atlantico Sud-Occidental (CARPAS): 20

Comision Ballenera Internacional (CBI): See International Whaling Commission

Comision Colombiana de Oceanografia (CCO): 606

Comision Coordinadora de las Investigaciones Cientificas (COCIC): 89

Comision de Estudios del Territorio Nacional (CETENAL): 637

Comision de Pesca para el Oceano Indico (CPOI): See Indian Ocean Fishery Commission

Comision de Pesqueras del Atlantico Nordeste: See Northeast Atlantic Fisheries Commission

Comision del Pacifico Sur (CPS): See South Pacific Commission

Comision Economica para Africa (CEPA): See Economic Commission for Africa

Comision Economica para America Latina (CEPAL): See Economic Commission for Latin America

Comision Economica para Europa (CEPE): See Economic Commission for Europe

Comision Federal de Electricidad (CFE): 637

Comision Internacional de Pesqueras del Atlantico Nordeste (CIPAN): See International Commission for the Northwest Atlantic Fisheries

Comision Internacional de Pesqueras del Atlantico Sudoriental (CIPASO): See International Commission for the Southeast Atlantic Fisheries

Comision Internacional de Proteccion contra las Radiaciones (CIPR): See International Commission on Radiological Protection

Comision Interamericana del Atun Tropical (CIAT): See Inter-American Tropical Tuna Commission

Comision Internacional para la Conservacion del Atun del Atlantico (CICAA): See International Commission for the Conservation of Atlantic Tunas

Comision Nacional Consultiva de Pesca (CNCP): 637

Comision Oceanografica Intergubernamental (COL): See Intergovernmental Oceanographic Commission

Comision Permanente de Pacifico Sur (CPPS): See Permanent Commission for the South Pacific

Comision Permanente para la Conservacion y Explotacion de los Recursos Maritimos de Pacifico Sur: See Permanent Commission of The South Pacific

Comissao de Estudo do Aproveitamento do Leito do Mar (CEALM): 651

Commission du Pacifique Sud (CPS): See South Pacific Commission

Comite Administratif de Coordination (CAC): See Administrative Committee on Coordination

Comite Administrativo de Coordinacion (CAC): See Administrative Committee on Coordination

Comite Asesor de Investigaciones Meteorologicas Oceanicas (CAIMO): See Advisory Committee on Oceanic Meteorological Research

Comite Asesor de la FAO sobre Investigaciones de Recursos Marinos (CAIRM): See Advisory Committee on Marine Resources Research

Comite Asesor sobre la Aplicacion de la Ciencia y la Tecnologia al Desarrollo (CAACTD): See Advisory Committee on the Application of Science and Technology to Development

Comite Cientifico de Investigaciones Antarticas (CCIA): See Scientific Committee on Antarctic Research

Comite Cientifico de Investigaciones Oceanicas (CCIO): See Scientific Committee on Oceanic Research

Comite Consultatif d'Hydrologie Operationelle (CCHO): See Advisory Committee for Operational Hydrology

Comite Consultatif de la Recherche sur les Ressources de la Mer (CCRRM): See Advisory Committee on Marine Resources Research

Comite Consultatif sur l'Application de la Science et de la Technique au Developpement (CCASTD): See Advisory Committee on the Application of Science and Technology to Development

Comite Consultatif sur les Recherches Meteorologiques Oceaniques (CCRMO): See Advisory Committee on Oceanic Meteorological Research

Comite d'Etudes Petrolieres Marine (CEPM): 617

Comite De Pesca Continental para Africa (CPCA): See Committee for Inland Fisheries of Africa

Comite de Pesca para el Atlantico Centro-Oriental (CPACO): See Committee for the Eastern Central Atlantic Fisheries:

Comite des Peches Continentales pour l'Afrique (CPCA): See Committee For Inland Fisheries of Africa

Comite des Peches pour l'Atlantique Centre-Est (COPACE or CPACE): See Committee for the Eastern Central Atlantic Fisheries

Comite Internationale de Geophysique (CIG): 127, 245

Comite Internationale Radio-Maritime (CIRM): 186

Comite Intersecretarial sobre Programas Cientificos Relacionados Con la Oceanografia (CIPCRO): See Inter-Secretariat Committee on Scientific Programmes Relating to Oceanography

Comite Intersecretariats pour les Programmes Scientifiques se rapportant a l'Oceanographie: See ICSPRO

Comite Maritime Internationale (CMI): See International Maritime Committee

Comite Oceanografico Nacional (CONA): 605

Comite pour la Donnees Scientifiques et Techniques: See Committee on Data for Science and Technology

Comite Scientifique pour les Problems de l'Environnement (CSPE): See Special Committee on Problems of the Environment

Comite Scientifique pour les Recherches Antarctiques (CSRA): See Scientific Committee for Antarctic Research

Comite Scientifique pour les Recherches Oceaniques (CSRO): See Scientific Committee for Oceanic Research

Comite Special de l'Annee Geophysique Internationale (CSAGI): 245, 289

Comite Special pour le Programme Biologique International (CSPBI): See Special Committee for the International Biological Programme

Commercial Fisheries Advisory Committee (CFAC): 443

Commission des Pecheries de l'Atlantique Nord-Est (CPANE): See Northeast Atlantic Fisheries Commission

Commission Economique pour l'Amerique Latine (CEPAL): See Economic Commission for Latin America

Commission des Peches pour l' Ocean Indien (CPOI): See Indian Ocean Fishery Commission

Commission Economique pour l' Afrique (CEA): See Economic Commission for Africa

Commission Economique pour l'Asie et l'Extreme Orient (CEAEO): See Economic Commission for Asia and the Far East

Commission Economique pour l'Europe (CEE): See Economic Commission for Europe

Commission Europeenne Consultative pour les Peches dans les Eaus Interieures (CECPI): See European Inland Fisheries Advisory Commission

Commission for Aeronautical Meteorology (CAeM): 29

Commission for Agricultural Meteorology (CAGM): 29

Commission for Atmospheric Sciences (CAS): 29

Commission for Basic Systems (CBS): 29

Commission for Fisheries Research in the Western Pacific: 47

Commission for Hydrology (CHy): 29

Commission for Instruments and Methods of Observation (CIMO): 29

Commission for Marine Geology (CMG): 100, 116, 225, 671

Commission for Marine Meteorology (CMM): 29, 668

Commission for Special Applications of Meteorology and Climatology (COSAMC): 29

Commission for Technical Cooperation in Africa South of the Sahara (CCTA): 87, 283

Commission Interamericaine de Thon Tropical (CITT): See Inter-American Tropical Tuna Commission

Commission Internationale de Baleine (CIB): See International Whaling Commission

Commission Internationale de l'Eclairage (CIE): See International Commission on Illumination

Commission Internationale de Protection contre les Radiations (CIPR): See International Commission on Radiological Protection

Commission Internationale des Peches de l'Atlantique du Nord-Ouest (CIPAN): See International Commission for the Northwest Atlantic Fisheries

Commission Internationale des Peches pour l'Atlantique Sud-Est (CIPASE): See International Commission for the Southeast Atlantic Fisheries

Commission Internationale pour l'Exploration Scientifique de la Mer Mediterranee (CIESM): See International Commission for the Scientific Exploration of the Mediterranean

Commission Internationale pour la Conservation des Thonides de l'Atlantique (CICTA): See International Commission for the Conservation of Atlantic Tunas

Commission Oceanographique Intergouvernementale (COI): See Intergovernmental Oceanographic Commission

Commission of Game and Inland Fisheries (CGIF): 451

Commission on Atmospheric Chemistry and Global Pollution (CACGP): 112

Commission on Coastal Geomorphology: 101

Commission on Fishing and Conservation of the Living Resources in the Baltic Sea and the Belts: 48, 65

Commission on Marine Chemistry: 113

Commission on Marine Geophysics: 113

Commission on Marine Habitats: 196

Commission on Marine Science Engineering and Resources (CMSER): 359

Commission on Physical Oceanography: 93

Commission on Recent Crustal Movements (CRCM): 109

Commission on the International Hydrographic Decade: 81

Commission on Shorelines: 197

Commission on the Division and Study of the Kirroo (Gondwana): 181

Commission on the Geological Map of the World (CGMW): 181

Commission on the History of Oceanography (CHO): 117

Commission on the Stratigraphic Lexicon: 181

Commission on the Study of the Earth's Crust: 181

Commission Permanente de la Convention Internationale des Peches (CPCIP): See Permanent Commission of the International Fisheries Convention

Commission pour la Cooperation Technique en Afrique au Sud du Sahara (CCTA): 87, 283

Commission's Regulatory Area (CRA): 666

Commission's Yellowfin Regulatory Area (CYRA): 666

Commissione Italiana Per La Oceanografia (CIO): 630

Committee for Coordination of Joint Prospecting for Mineral Resources in Asian Offshore Waters (CCOP): 12, 22, 37

Committee for European Marine Biological Symposia (CEMBS): 153

Committee for Inland Fisheries of Africa (CIFA): 20

Committee for the Eastern Central Atlantic Fisheries (CECAF): 20, 265

Committee on Atmosphere and Oceans (CAO): 361

Committee of Ecological Research for the Interoceanic Canal (CERIC): 419

Committee on Climatic Changes and the Ocean (CCCC): 122

Committee on Data for Science and Technology (CODATA): 119

Committee on Data Interchange and Data Centers (CDIDC): 419

Committee on Earth Resources Satellite Systems (CERSS): 361

Committee on Fisheries (COFI): 19

Committee on Food From The Sea (CFFS)

Committee on General Bathymetric Chart of the Oceans (GEBCO): 113

Committee on International Policy in the Marine Environment (CIPME): 361

Committee on Marine Research Education and Facilities (CMREF): 361

Committee on Marine Science and Technology (DKMM): 620

Committee on Marine Technology (CMI): 661

Committee on Multiple Uses of the Coastal Zone (CMUCZ) 361

Committee on Nautical Biometeorology: 195

Committee on Nuclear and Alternative Energy Sources (CONAES): 419

Committee on Ocean Exploration and Environmental Services (COEES):
361

Committee on Oceanography and Garp (COG)

Committee on Science and Technology of the EEC (COST): 56

Committee on Space Research (COSPAR): 120

Committee on Storage, Automatic Processing, and Retrieval of Geological Data (COGEODATA): 116

Committee on the Challenges of Modern Society (CCMS): 81

Committee on the Peaceful Uses of the Seabed and Ocean Floor Beyond the Limits of National Jurisdiction (Seabed Committee): 2

Committee on the Salmon Emergency (CSE): 522

Committee on Tides and Mean Sea Level: 113

Committee on Water: 419

Common Market: See European Economic Community

Commonwealth Scientific and Industrial Research Organization (CSIRO):
596

Communaute Economique de l'Afrique de l'Ouest (CEAO): 99

Communaute Europeene de l'Energie Atomique (CEEa): See European Atomic Energy Community

Compagnie des Moyens de Surfaces Adaptes a l'Ocean (SUEF): 617

Communications Alert and Liaison System (CALL): 369

Compagnie Generale Maritime (CGM)

Compagnie Maritime d'Expertises (COMEX): 617

Comprehensive Atlantic Offshore Oceanographic Plan (CAOOP):

Comprehensive Ocean Area Plan (COAP): 422

Computer-Aided Operations Research Facility (CAORF): 365

Comunidad Economica Europea (CEE): See European Economic Community (EEC)

Conductivity-Temperature-Depth (CTD)

Confederation Mondiales des Activities Subaquatiques (CMAS): 223

Conference of Baltic Oceanographers (CBO): 142, 285

Conference on the Application of Science and Technology to the Development of Africa (CASTAFRICA): 21

Conference on the Application of Science and Technology to the Development of Asia (CASTASIA): 21

Conference des Nations Unies sur le Commerce et le Developpement (CNUCED): See United Nations Conference on Trade and Development (UNCTAD)

Conference on the Application of Science and Technology to the Development of the Arab States (CASTARAB): 21

Conference on Standardization of Geographic Names: 1

Conference on the Human Environment: See United Nations Conference on Human Environment

Congressional Research Service (CRS): 355

Connecticut River Salmon Association (CRSA): 459

Conseil de la Recherche Oceanologique (CRO): 617

Conseil General des Peches pour la Mediterranee (CGPM): See General Fisheries Council for the Mediterranean

Conseil Indo-Pacifique des Peches (CIPP): See Indo-Pacific Fishery Council

Conseil International des Unions Scientifiques (CIUS): See International Council of Scientific Unions

Conseil International pour l'Exploration de la Mer (CIEM): See International Council for the Exploration of the Sea

Conseil International pour la Preservation des Oiseaux (CIP0): See International Council for Bird Preservation

Consejo de Pesca del Indo-Pacifico (CIPP): See Indo-Pacific Fisheries Council

Consejo General De Pesca Del Mediterraneo (CGPM): See General Fisheries Council for the Mediterranean

Consejo Internacional De Uniones Cientificas (CIUC): See International Council of Scientific Unions

Consejo Internacional para la Exploracion del Mar (CIEM): See International Council for the Exploration of the Sea

Consejo Latino-Americano de Oceanografia (CLAO): 144, 237

Consejo Nacional de Ciencia y Tecnologia (CONACYT): 637

Consejo Nacional de Investigaciones Cientificas y Tecnicas (CONICET):
595

Conservation of Clean Air and Water (CONCAWE): 143

Consiglio Nazionale delle Ricerche (CNR): 630

Construction Industry Research and Information Association (CIRIA):
661

Continental Margin Sedimentology (COMSED)

Continental Offshore Stratigraphic Test (COST): 409

Continental Shelf (CONSHELF): 401

Continental Shelf Discus (CSD): 372

Continental Shelf Sedimentology (CONSED)

Continuous Plankton Recorder (CPR)

Controlled Ecosystem Pollution Experiment (CEPEX): 305

Controlled Experimental Ecosystem (CEE): 305

Convection Subprogramme Data Centre (CSDC): 347

Cooperation Europeenne dans la Domaine de la Recherche Scientifique
et Technique (COST): 56

Cooperative Black and Mediterranean Sea Study (COBLAMED): 260

Cooperative Effort Toward Understanding of the Oceanography of the
Eastern Tropical Pacific (EASTROPAC): 287

Cooperative Institute for Marine and Atomspheric Studies (CIMAS):
371

Cooperative Investigations of Tropical Reef Ecosystems (CITRE): 418

Cooperative Investigations in the Mediterranean (CIM): 22, 64,
240, 245, 262

Cooperative Investigations in the North and Central Western Indian
Ocean (CINCWIO): 263

Cooperative Investigations of a Large Ocean Gyre (CILOG): 264

Cooperative Investigations of the Caribbean and Adjacent Regions
(CICAR): 22, 232, 261, 371

Cooperative Investigations of the Northern Part of the Eastern
Central Atlantic (CINECA): 22, 65, 96, 244, 265

Cooperative Ocean Observation Program (COOP): 391

Cooperative Program of Research on Aquaculture (COPRAQ): 266

Cooperative Study of the Kuroshio and Adjacent Areas (CSK): 22, 237, 243, 267

Cooperative Study of the Southern Mediterranean (CSSM): 262

Cooperative Survey of the Eastern Tropical Pacific (EASTROPIC): 273

Cooperative Survey of the Equatorial Zone of the Pacific Ocean (EQUAPAC): 269

Cooperative Survey of the Northern Pacific (NORPAC): 268

Cooperative Synoptic Investigation of the Baltic: 270

Coordinating Committee on Great Lakes Basic Hydraulic and Hydrologic Data (CGGLBHHD): 50

Coordinating Committee on Oceanography (CCO): 361

Corps of Engineers, U.S. Army (COE): 377, 381, 422

Corvallis Environmental Research Laboratory (CERL): 413

Council for Mutual Economic Assistance (CMEA): 51

Council of Europe: 52

Council of Oceanographic Laboratory Directors (COLD): 436

Council of Scientific and Industrial Research (CSIR): 625, 654

Council on Environmental Quality (CEQ): 358, 448, 451

Cousteau Society: 523

CUEA Synthesis and Publication Segment (SYNAPSE): 322

Cultural Resources Protection on the Outer Continental Shelf (CRPOCS): 406

Current Bibliography for Aquatic Sciences and Fisheries (CBASF):
See Aquatic Sciences and Fisheries Abstracts

Current Depth Measurement Subsystem (CDMS): 377

Current Meter Data Base (CMD): 377

Current Meter Intercomparison Experiment (CMICE): 377

Cyana-Mexique (CYAMEX): 271

Dalhousie University Institute of Ocean Sciences (DUIOS): 603

Danske Meteorologiske Institut (DMI): 610

Data Collection Platform (DCP)

Data Systems Test (DST): 346

Dauphin Island Sea Laboratory (DISL): 420

David Davies Memorial Institute of International Studies (DDMIIS):
145

David Taylor Model Basin (DTMB): 396

Decennie Hydrologique Internationale (DHI): See International
Hydrological Decade

Decennie Internationale d'Exploration des Oceans (DIEO): See
International Decade of Ocean Exploration

Declared National Program (DNP): 669

Deep Aircraft Expendable Bathythermograph (DAXBT):

Deep Ocean Mining Environmental Study (DOMES): 364, 371

Deep Ocean Mining Operations (DOMO): 371

Deep Ocean Moored Buoy (DOMB): 372

Deep Ocean Optical Measurement Program (DOOM): 393

Deep Ocean Sediment Probe (DOSP)

Deep Ocean Technology (DOT)

Deep Ocean Untended Digital Data Acquisition System (DOUDDAS)

Deep Ocean Work Boat (DOWB)

Deep Research Vessels (DRV)

Deep Scattering Layer (DSL)

Deep Sea Drilling Project (DSDP): 97, 295, 416, 424

Deep Surface Expendable Bathythermograph (DSXBT):

Deep Submergence Rescue Vehicle (DSRV)

Deep Submergence Search Vehicle (DSSV)

Deep Underwater Muon and Neutrino Detection (DUMAND): 372

Deep Water Isotopic Current Analyzer (DWICA): 399

Deep Water Ports (DWP): 381, 411, 412, 471

Deepwater Ports Act (DWPA): 412

Deepwater Ports Project Office (DPPPO): 375

Defense Advanced Research Projects Agency (DARPA): 380

Defense Mapping Agency/Aerospace Center (DMA/AC): 380
 Defense Mapping Agency/Hydrographic Center (DMA/HC): 380
 Defense Mapping Agency/Topographic Center (DMA/TC): 380
 Defense Documentation Center (DDC): 379, 380
 Defense Mapping Agency (DMA): 380
 Defense Research Board (DRB): 602
 Defense Research Establishment - Atlantic (DREA): 602
 Defense Research Establishment - Ottawa (DREO): 602
 Defense Research Establishment - Pacific (DREP): 602
 Defense Scientific Establishment (DSE): 642
 Delaware River Basin Commission (DRBC): 362
 Delaware Valley Regional Planning Commission (DVRPC): 446
 Delaware's Sea Grant Program (DESG): 427
 Demonstration, Experimentation, et Valorisation de l'Aquaculture (DEVA): 617
 Department of Commerce (DOC): 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379
 Department of Conservation (DOC): 431, 433
 Department of Conservation and Natural Resources (DCNR): 420
 Department of Defense (DOD): 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399
 Department of Ecology (DOE): 452
 Department of Energy (DOE): 399, 602
 Department of Energy, Mines, and Resources (DEMR): 602
 Department of Environmental Conservation (DEC): 442
 Department of Environmental Protection (DEP): 426, 434, 442
 Department of Environmental Quality (DEQ): 445
 Department of Environmental Research (DER): 446
 Department of Fish and Game (DFG): 440
 Department of Fish and Wildlife (DFW): 436
 Department of Fisheries (DOF): 452

Department of Health and Environmental Control (DHEC): 448

Department of Health, Education, and Welfare (HEW): 400

Department of Indian Affairs and Northern Development (DIAND): 602

Department of Interior (DOI): 401, 402, 403, 404, 405, 406, 407, 408, 409

Department of Lands and Natural Resources (DLNR): 430

Department of Marine Resources (DMR): 434

Department of Marine Science (DMS): 433

Department of Marine Sciences (DMS): 447

Department of National Defense (DND): 602

Department of Natural Resources (DNR): 428, 429, 432, 435, 437, 438, 444, 448, 453

Department of Natural Resources and Community Development (DNRCD): 443

Department of Natural Resources and Environmental Control (DNREC): 427

Department of Planning and Economic Development (DPED): 430

Department of Public Health (DPH): 420

Department of Scientific and Industrial Research (DSIR): 642

Department of Sea and Shore Fisheries (DSSF): 433

Department of State (DOS): 410

Department of the Army (DOA): 380

Department of the Environment (DOE): 171

Department of the Environment (DOE): 597

Department of the Navy (DON): 372, 376, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399

Department of Transport and Power (DTP): 628

Department of Transportation Development (DOTD): 433

Departemento Hidrografico Marina de Guerra (DHMG): 611

Departemento Nacional de Producao Mineral (DNPM): 599

Designated National Agency (DNA): 670

Deutsches Demokratisches Republik (DFG): 619

Deutsches Forschungsgemeinschaft (DFG): 620
 Deutsches Hydrographisches Institut (DHI): 620
 Deutsches Ozeanographisches Datenzentrum (DCD): 620
 Deutsches Wetterdienst Seewetteramt (DWS): 620
 Dienst Hydrografie der Koninklijke Marine (KMDH): 640
 Dinas Hidrografi-Angkatan Laut (DISHIDRAL): 626
 Direccao General dos Servicos de Fomento Marinho (DGSFMM):
 651
 Direccion de Educacion Naval (DEN): 637
 Direccion de Hidrografia y Navegacion (DHN): 648, 663
 Direccion de Meterologia (DM): 608
 Direccion General de Capacitacion y Fomento Cooperativo Pesquero
 (DGCFCP): 637
 Direccion General de Obras Maritimes (DGOM): 637
 Direccion General de Obras Portuarias (DGOP): 608
 Direccion General de Oceanografica y Senalamiento Maritima (DGCSM):
 637
 Direccion General de Operacion Portuaria (DGOP): 637
 Direccion General de Planeacion y Promocion Pesqueras (DGPPP) 637
 Direccion General de Regiones Pesqueras (DGRP): 637
 Direccion General de Tecnologia Pesquera (DGTP): 637
 Direction d'Oceanographie et des Peches Maritimes (DOPM): 653
 Direction des Affaires Maritimes (DAM): 635
 Director de la Meteorologie National (DMTV): 601
 Directoria de Hidrografia e Navegacao (DHN): 599
 Directoria Hidrografica Maritima (DHM): 652
 Dissolved Oxygen (DO):
 Diver Equipment Information Center (DEIC): 513
 Diving Information Center (DIC): 395
 Division de Pesca (DDP): 605
 Domestic Annual Fishing Capacity (DAC): 666

Draft Environmental Impact Statement (DEIS): 417
 Dredged Material Research Program (DMRP): 381
 Dredging Operations Technical Support (DOTS): 381
 Duke University Marine Laboratory (DUML): 443
 Earth and Ocean Physics Applications Program (EOPAP): 415
 Earth Resources Aircraft Program (ERAP): 415
 Earth Resources Data Center (ERDC): 437
 Earth Resources Observation Satellite (EROS): 409
 Earth Resources Research Data Facility (ERRDF): 415
 Earth Resources Survey Program Review Committee (ERSPRC)
 Earth Resources Technology Satellite (ERTS): 415
 Earthquake Data File (EDF): 375
 Earthquake Early Reporting System (EERS)
 Earthwatch: 272, 280
 East African Common Services Organization: See East African Community
 East African Community (EAC): 53
 East African Marine Fisheries Research Organization (EAMFRO): 53
 East Asia Hydrographic Commission (EAHC): 54
 East Australian Current (EAC): 252
 East Carolina University (ECU): 443
 East Pacific Rise (EPR): 271
 East West Center Food Institute (EWCFI): 430
 Eastern Arctic Marine Environmental Studies (EAMES): 604
 Eastern Gulf of Mexico (EGMEX): 428
 Eastern Pacific Oceanographic Conference (EPOC): 287, 524
 Eastern Tropical Pacific Cooperative Survey (EASTROPIC): 273
 Ecological Society of America (ESA): 526
 Ecology Council of America (ECA): 525
 Economic and Social Commission for Asia and the Pacific (ESCAP): 12, 37

Economic and Social Council of the UN (ECOSOC): 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12

Economic Commission for Africa (ECA): 12

Economic Commission for Western Asia (ECWA): 12

Economic Commission for Asia and the Far East (ECAFE): 12

Economic Commission for Europe (ECE): 12

Economic Commission for Latin America (ECLA): 12

Economic Community of West African States (ECOWAS): 99

Economic Verification Experiments (EVE): 376

Ecosystem Conservation Group (ECG): 8

Edward Ball Marine Laboratory (EBML): 428

Egyptian National Oceanographic Data Center (ENODC): 613

El Nino Project: 274

Electro-Magnetic Velocity Profiler (EMVP)

Emergency Hurricane Information Center (EHIC): 378

Empresa Nacional de Comercializacao de Produtos Presqueros (PESCOM): 639

Endangered Species Act of 1973 (ESA): 369

Energy And Natural Resources Committee: 354

Energy Information Center (EIC): 513

Energy Research and Development Administration (ERDA): 399

Energy Research and Development Inventory (ERDI): 399

Engineering Committee on Oceanic Resources (ECOR): 122, 163, 211,

Engineering Committee on Oceanic Resources (ECOR): 103, 122, 211, 212, 221, 225, 227

Engineering Design and Analysis Laboratory (EDAL): 440

Engineering Design and Analysis Laboratory Habitat (EDALHAB): 372, 440

Engineering Experimental Phase Buoys (EEP): 372

English-French Geological Mapping of the Seabed Beneath the English Channel (GEOMANCHE): 275

Eniwetok Marine Biological Laboratory (EMBL): 399

Environment Canada: 602

Environment Coordination Board (ECB): 8

Environment Impact Assessments of Mineral Resource Exploration and Exploitation in the Antarctic (EAMREA): 121

Environmental and Population Affairs, Bureau of Oceans and International Environmental and Scientific Affairs (OES/ENP): 410

Environmental Buoy (EB): 372

Environmental Conference on the Public Understanding of Science in Hawaii (ECOPUSH): 430

Environmental Conservation Commission (ECC): 432

Environmental Data and Information Service (EDIS): 345, 373, 374, 375

Environmental Data Base Directory (EDBD): 375

Environmental Data Index (ENDEX): 375

Environmental Data Service (EDS): 375

Environmental Defense Fund (EDF): 527

Environmental Diving Unit (EDU): 395

Environmental Impact Statement (EIS): 399

Environmental Information Analysis Center (EIAC): 513

Environmental Management Service (EMS): 602

Environmental Prediction Research Facility (EPRF): 384

Environmental Protection Agency (EPA): 413

Environmental Protection Service (EPS): 602

Environmental Research Institute of Michigan (ERIM): 437

Environmental Research Laboratories (ERL): 370, 371, 378

Environmental Science Information Center (ESIC): 375, 418

Environmental Science Services Administration (ESSA): 367, 375, 377, 378

Environmental Services (ES): 602

Equatorial Atlantic Studies (EQUALANT): 282, 283

Equatorial Dynamics Study (EDS): 315

Equatorial Pacific Ocean Climate Studies (EPOCS): 371

Equatorial Undercurrent (EUC)

Equilibrium Yield (EY)

Erie-Niagara Counties Regional Planning Board (ENCRPB): 442

EROS Data Center (EDC): 409

Escuela Nacional de Ciencias Biologicas (ENCB): 637

Escuela Superior de Ciencias Maritimas y Tecnologia de Alimentos (ESCMTA): 637

Escuela Superior de Ingenieria Mecanica y Electrica (EISME): 637

Escuela Superior de Ingenieria y Arquitectura (ESIA): 637

Escuela Superior de Oceanografia (ESO): 637

Establishment Principal de la Service Hydrographique et Oceanographique de la Marine (EPSHOM): 617

Estacion de Investigaciones Marinas de Margarita (EIMM): 664

Estuarine and Brackish-Water Sciences Association (EBSA): 662

Estuarine Research Federation (ERF): 527

Estuarine Technical Coordination Committee (ETCC)

Estudio Regional del Fenomeno El Nino (ERFEN): 89

Etude en Commun de la Mediterranee (ECM): See Cooperative Investigations in the Mediterranean

Etude en Commun du Kuro-Shio (ECK): See Cooperative Study of the Kuroshio and Adjacent Regions

Etudes des Moyens Spatiaux et Aeriens de l'Ocean (ESPADON): 617

European Association of Exploration Geophysicists (EAEG): 146

European Atomic Energy Community (EURATOM): 55

European Center for Marine Environmental Problems (CEPEM): 147

European Diving Technology Committee (EDTC): 148

European Economic Community (EEC): 56

European Federation for the Protection of Waters (EFPW): 149

European Geophysical Society (EGS): 150

European Inland Fisheries Advisory Commission (EIFAC): 20, 266

European Malacological Union (EMU): 151

European Mariculture Society (EMS): 152

European Marine Biological Association (EMBA): 153

European Nuclear Energy Agency (ENEA): 86

European Ocean Space Commission: 52

European Oceanic Association (EUROCEAN): 154

European Space Agency (ESA): 57

European Space Research Organization (ESRO): 617

European Undersea Biomedical Society (EUBS): 155

Exclusive Economic Zone (EEZ): 63, 70, 410, 602, 670

Executive Office of Environmental Affairs (EOEA): 436

Expanded Water Column Characterization (XWCC): 371

Expected Domestic Annual Fishing Harvest (DAH): 666

Expedition Internationale de l'Océan Indien (EIOI): See International Indian Ocean Expedition

Expendable Bathythermograph (XBT): 391

Expendable Salinity-Temperature-Depth Probe (XSTD):

Expendable Sound Velocimeter (XSV)

Experimental Arctic Data Buoy (EADB)

Experimental Buoy (EB)

Experimental Environmental Research Buoy (XERB): 372

Experimental GOES Platform (EGP): 372

Expert Panel on the Facilitation of Tuna Research (EPFTR): 18

Far Sea Fisheries Research Laboratory (FSFRL): 632

Farvandsdirektoratet Nautisk Afdeling (FNAF): 610

Feasibility Study on the Establishment of a World Science Information System (UNISIST): 228

Federal Coordinating Council for Science, Engineering, and Technology (FCCSET): 361

Federal Council for Science and Technology (FCST): 361

Federal Energy Administration (FEA): 36

Federal Maritime Commission (FMC): 414

Federal Ocean Program (FOP): 361

Federal Oceanic Exploration Mapping Program (FOEMP)

Federal Power Commission (FPC): 399

Federal Republic of Germany (FRG): 276

Federal Water Pollution Control Act (FWPCA): 413

Federal Water Pollution Control Administration (FWPCA): 413

Federal Water Quality Administration (FWQA): 413

Federation Europeenne pour la Protection des Eaux (FEPE): See
European Federation for the Protection of Waters

Federation Francaise d'Etudes et des Sports Sous-Marins (FFESSM): 617

Federation Internationale des Geometres (FIG): 180

Federation Mondiale des Associations pour les Nations Unie (FMANU):
See World Federation of United Nations Associations

Federation of Astronomical and Geophysical Services (FAGS): 109, 128,
129, 130, 131, 132

Federation of Institutions Concerned with the Study of the Adriatic
Sea (FICSAS): 156

FGGE Operational Year (FOY): 346

Fideicomiso par el Desarrollo de la Fauna Acuatica (FIDEFA): 637

Fideicomiso para la Educacion Pesquera Integral (FEPI): 637

Fideicomiso Unico para el Desarrollo de la Flora y Fauna Acuatica
(FUDFYFA): 637

Field Oil Identification Laboratory (FOIL): 412

Fiji Marine Department (FMD): 615

First Dynamic Response and Kinematics Experiment in the Drake Passage
(F DRAKE): 313

First GARP Global Experiment (FGGE): 272, 315, 346, 372

First International BIOMASS Experiment (FIBEX): 256

First International Saturation Study of Herring and Hydrocoustics
(FISSHH): 276

Fish and Wildlife Administration (F&WA): 435

Fish and Wildlife Reference Service (FWRS): 408

Fish and Wildlife Service (FWS): 369, 408

Fish Protein Concentrate (FPC) 13, 23
 Fisheries and Marine Service (FMS): 602
 Fisheries Board of Sweden (FBS): 657
 Fisheries Conservation and Management Act of 1976 (FCMA): 369,
 412, 665
 Fisheries Conservation Zone (FCZ): 369
 Fisheries Department (FD): 646
 Fisheries Development Corporation (FISCOR or VISCOR): 654
 Fisheries Engineering Laboratory (FEL): 369
 Fisheries Research and Development Agency (FRDA): 633
 Fisheries Research Board of Canada (FRB): 602
 Fisheries Research Station (FRS): 662
 Fishery Committee for the Eastern Central Atlantic (FCECA): 20
 Fishery Data Centre (FDC): 16, 233
 Fishery Statistics Data Base (FSDB): 369
 Fishery Technical Unit (FTU): 629
 Fiskeridirektoratet Havorskningsinstitutt (FHI): 645
 Fladden Ground Experiment (FLEX): 298
 Fleet Applications of Meteorological Observations from Satellites
 (FAMOS)
 Fleet Numerical Oceanographic Center (FNOC): 391
 Fleet Numerical Weather Central (FNWC): 391
 Fleet Numerical Weather Facility (FNWF): 391
 Fleet Observation of Oceanographic Data (FLOOD): 392
 Fleet Weather Central (FWC): 391
 Fleet Weather Facility (FWF): 391
 Floating Instrument Platform (FLIP): 424
 Floating Nuclear Power Plant Study (FNPP): 358
 Florida A & M University (FAMU): 428
 Florida Aquanaut Research Expedition (FLARE): 372
 Florida Atlantic University (FAU): 428

Florida Institute of Oceanography (FIO): 428
 Florida International University (FIU): 428
 Florida Ocean Sciences Institute (FOSI): 530
 Florida Resources Information System (FLORIS): 428
 Florida State University (FSU): 428
 Florida Technological University (FTU): 428
 Flower Garden Ocean Research Center (FGORC): 450
 Food and Agriculture Organization of the United Nations (FAO): 1, 7,
 8, 16, 17, 18, 19, 20, 35, 36, 38, 62, 165, 230, 233, 237, 239, 261,
 262, 265, 272, 283, 290, 293, 325, 326, 331, 369,
 Food and Drug Administration (FDA): 400
 Food Chain Research Group (FCRG): 424
 Foreign Allowable Catch (FAC): 666
 Foreign Fishing Vessel Licensing and Surveillance Hierarchial
 Information System (FLASH): 602
 Foreign Relations Committee: 354
 Forschungsanstalt der Bundeswehr fuer Wasserschall und Geophysik
 (FWG): 620
 Forschungsstelle fuer Insel- und Kustenschutz (FfIK): 620
 Foorsvarets Forskningsinstitut Avdeling for Intervannskrigs-
 forskning (FFIU): 645
 Forward Area Sonar Research (FASOR)
 Foundation For Ocean Research (FOR): 531
 Francis L. LaQue Corrosion Laboratory (FLLCL): 541
 Free-Fall Pop-Up Ocean Bottom Seismometer (POPS)
 Freedom for Ocean Sciences Task Group (FOSTG): 419
 Fundacao Universidade do Rio Grande (FURG): 599
 French-American Mid-Ocean Undersea Study (FAMOUS): 94, 271, 316, 398
 Fundacion la Salle de Ciencias Naturales (FLSCN): 664
 Future of Scientific Ocean Drilling (FUSOD): 295
 Galapagos Rift Zone (GRZ)
 GARP Activities Office (GAO): 343

GARP Atlantic Tropical Experiment (GATE): 30, 343, 347, 375, 617
 GATE Equatorial Profiling Experiment (GEPE): 347
 GATE International Sea Trials (GIST): 347
 GATE Operational Control Center (GOCC): 347
 General Bathymetric Chart of the Oceans (GEBCO): 66, 113
 General Council of British Shipping (GCBS): 662
 General Fisheries Council for the Mediterranean (GFCM): 20, 262, 266, 326
 General Information Program (GIP): 228
 General Land Office (GLO): 450
 Geochemical Ocean Section Study (GEOSECS): 306
 Geodetic Research and Development Laboratory (GRDL): 377
 Geodynamics Post 1980: 288
 Geological Echo Profiler (GEP)
 Geological Reference File (GEOREF): 480
 Geological Society of America (GSA): 532
 Geological Survey of Canada (GSC): 602
 Geological Survey of Japan (GSJ): 461
 Geologisch-Paleontologisches Institut (GPI): 620
 Geophysical and Polar Research Center (GPRC): 453
 Geophysical Exploration Manned Mobile Submersible (GEMMS)
 Geophysical Fluid Dynamics Institute (GFDI): 428
 Geophysical Fluid Dynamics Laboratory (GFDL): 371
 Geophysical Fluid Dynamics Program (GFDP): 371
 Geophysical Sciences Association (GSA): 533
 GEOSECS Operations Group (GOG): 306
 Geostationary Operational Environmental Satellite (GOES): 372, 375, 376, 378, 415
 German Marine Technical Trade Association (WIM): 620
 Get The Oil Out (GOO): 423

Global Atmospheric Research Program (GARP): 30, 112, 313, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 361, 375, 416

Global Circulation Model (GCM)

Global Data Processing System (GDPS): 353

Global Environmental Monitoring System (GEMS): 272, 280, 419

Global Geological and Geophysical Ocean Floor Analysis and Research (GOFAR): 392

Global Investigation of Pollution in the Marine Environment (GIPME): 22, 227, 304

Global Marine Incorporated (GMI): 534

Global Network for Environmental Monitoring (GNEM): 277

Global Network for Monitoring the Biosphere (MABNET): 278

Global Observing System (GOS): 353

Global Ocean Sea Surface Temperature Computation (GOSSTCOMP): 376

Global Oceanographic and Meteorological Experiment (GLOMEX): 345

Global Telecommunication System (GTS): 353

Global Weather Experiment (GWE): See First GARP Global Experiment

Goddard Space Flight Center (GSFC): 415

GOES Data Collection Platform (GOES/DCP)

Gosudarstvennyy Okeanograficheskiy Institut (GOIN): 661

Goteborg Universitet (GU): 657

Governing International Fisheries Agreements (GIFA): 410, 665

Graduate School of Oceanography (GSO): 448

Gray's Harbor College (GHC): 452

Great Lakes and Marine Waters Center (GLMWC): 437

Great Lakes Basin Commission (GLBC): 362

Great Lakes Commission (GLC): 460

Great Lakes Environmental Research Laboratory (GLERL): 371, 377

Great Lakes Fishery Commission (GLFC): 58

Great Lakes Regional Data Center: 157

Great Lakes Regional Information and Referral Center (GLRIRC): 373

Great Lakes Research Division (GLRD): 437

Great Lakes Study Group (GLSG): 157

Group for Technical Coordination (GTC): 262

Group of Experts on Long-Term Scientific Policy and Planning (GELTSPAP): 22, 184, 304

Group of Experts on Methods, Standards, and Intercalibration (GEMSI): 22

Group of Experts on Oceanographic Research as it Relates to IGOSS (IRES): See IOC Group of Experts on Oceanographic Research as it relates to IGOSS

Working Group of Experts on Pollution of the Ocean Originating on Land (POOL) 22

Group of Experts on the Scientific Aspects of Marine Pollution: 38, 174

Groupe d'Intervention sous la Mer (GISMER): 617

Groupe d'Etudes et de Recherches Sous-Marine (GERS): 617

Groupe de Coordination Technique (GTC): See Group for Technical Coordination

Groupe Interministeriel de Coordination de l'Action en Mer des Administrations (GICAMA): 617

Groupement d'Interet Economique pour la Gestion des Navires Oceanologiques (GENAVIR): 617

Guinean Trawling Survey (GTS): 87, 283

Gulf and Caribbean Fisheries Institute (GFCI): 158, 428

Gulf Breeze Environmental Research Laboratory (GBERL): 413

Gulf Coast Fisheries Center (GCFC): 367

Gulf Coast Fisherman's Environmental Defense Fund (GCFEDF): 536

Gulf Coast Research Laboratory (GCRL): 439

Gulf Environmental Measurements Program (GEMP): 462

Gulf Estuarine Research Society (GERS): 537

Gulf Intracoastal Waterway (GIWW):

Gulf Coast Association of Geological Societies (GCAGS): 535

Gulf of Mexico Estuarine Inventory (GMEI): 461

Gulf of Mexico Fishery Management Council (GMGMC): 369

Gulf States Marine Fisheries Commission (GSMFC): 308
 Gulf Underwater Flare Experiment (GUFEX): 308
 Gulf Universities Research Corporation (GURC): 439, 462
 GWE Operational Year (GOY): See FGGE Operational Year
 Hakodate Marine Observatory/Japan Meteorological Agency (HMDJMA): 632
 Harbor Survey Assistance Program (HARSAP): 392
 Hawaii Environmental Simulation Laboratory (HESL): 430
 Hawaii Institute of Geophysics (HIG): 430
 Hawaii Institute of Marine Biology (HIMB): 430
 Health Effects Research Laboratory (HERL): 413
 Helicopter Expendable Bathythermograph (HXBT)
 Heritage Conservation and Recreation Service (HCRS): 405
 Hidrografski Institut Jugoslavenske Ratne Mornarice (HIJRM): 665
 Hidrometeoroloskog Zavoda (HZ): 665
 High Capability Buoy (HCB)
 High Resolution Infrared Radiometer (HRIR): 333
 High Resolution Infrared Sounder (HIRS)
 Historical Sea Surface Temperature Data Project (HSSTD): 284
 Hokkaido Regional Fisheries Research Laboratory (HRFRL): 632
 Hokkaido University (HU): 632
 Hopkins Marine Laboratory (HML): 422
 Hopkins Marine Station (HMS): 425
 Horace Lamb Institute of Oceanography (HLIO): 596
 House Merchant Marine and Fisheries Committee (HMMFC): 354
 House Select Committee on the Outer Continental Shelf (HSCOCS): 354
 Humboldt State University Sea Grant (HSUSG): 424
 Humboldt State University (HSU): 424
 Huntsman Marine Laboratory (HML): 603
 Hurricane Modification Program (STORMFURY): 371
 Hydraulic Engineering Center (HEC): 381

Hydraulic Engineering Information Analysis Center (HEIAC): 381
 Hydrographic Department (HD): 636, 646, 662
 Hydrographic Department of the Maritime Safety Agency (HMSA): 632
 Hydrographic Office (HO): 633, 654
 Hydrographic Office, U.S. Navy (HO or HYDRO): 392
 Ice Navigation Center (INC): 412
 Ice Shelf Drilling Project (ISDP): 121, 279
 ICSU Inter-Union Commission for Geodynamics (IICG): See Inter-Union
 Commission for Geodynamics
 IGOSS Basic Observation Network Design (IBOND): 280
 IGOSS Data Processing and Services System (IDPSS): 280
 IGOSS Observing System (IOS): 280
 IGOSS Operational Programme for the Collection and Exchange of Oceanographic Data (BATHY/TESAC): 280
 IGOSS Pilot Project for the Collection, Exchange, and Evaluation of Bathythermograph Data (BATHY): 280
 IGY Polar Front Survey: 330
 Immediate Oxygen Demand (IOD)
 Indian Meteorological Department (IMD): 625
 Indian Ocean Biological Centre (IOBC): 21, 234, 293
 Indian Ocean GEOSECS Program (INDOCHEM): 306
 Indian Ocean Experiment (INDEX): 348
 Indiana Ocean Fishery Commission (IOFC): 20, 294
 Indicative World Plan for Agriculture (IWP): 331
 Indo-Pacific Fisheries Commission (IPFC): 20, 237, 338
 Indo-Soviet Monsoon Experiment (ISMEX): 348
 Infrared Information Analysis Center (IRIA): 437
 Informal Composite Negotiating Text (ICNT): 2
 Informal Single Negotiating Text (ISNT): 2
 Information on Nuclear Sites Data System (INSITE): 417
 Information Retrieval Limited (IRL): 230

Infrared Radiation Thermometer (IRT)
 Infrared Temperature Profile Radiometer (ITPR)
 Infrared Vertical Sounding System (IRVSS)
 Inland Navigation Congress: See Permanent International Association
 of Navigation Congresses
 Inland Waterways Directorate (IWD): 602
 Inner Continental Shelf Sediment and Structure Program (ICONS): 381
 Institut Francaise Du Petrole (IFP): 617
 Institut fuer Fangtechnik (IfFang): 620
 Institut fuer Kusten und Binnenfischerei (IfKuBiFi): 620
 Institut fuer Meeresforschung (IfMf): 620
 Institut fuer Meeresgeologie und Meeresbiologie 'Senckenberg'
 (SAM): 620
 Institut fuer Meereskunde (IfM): 619, 620
 Institut fuer Seefischerei (IfS): 620
 Institut Oceanographique de Paris (IOP): 617
 Institut Okeanologiy Akademiyi Nauk (IOAN): 661
 Institut Panamericain de Geographie et Historie (IPGH): See Pan
 American Institute of Geography and History
 Institut Scientifique et Technique des Peches Maritimes (ISTPM): 617
 Institut za Biologiju Mora i Oceanografiju (IBMO): 665
 Institut za Oceanografiju i Ribarstvo (IOR): 665
 Institut de Geologie du Bassin d'Aquitaine (IGBA): 617
 Institute for Coastal and Marine Resources (ICMR): 443
 Institute For Engineering Research in the Oceans (IERO): 359
 Institute for Environmental Research (IER): 371
 Institute for Marine and Coastal Studies (IMCS): 425
 Institute for Marine Studies (IMS): 451
 Institute for the Development of Riverine and Estuarine Systems
 (IDRES): 446
 Institute for Water Resources (IWR): 381

Institute of Caribbean Sciences (ICS): 447
 Institute of Arctic Biology (IAB): 421
 Institute of Coastal Oceanography and Tides (ICOT): 634, 662
 Institute of Electrical and Electronics Engineers (IEEE): 53
 Institute of Environmental Sciences (IES): 539
 Institute of Geological Sciences (IGS): 275, 662
 Institute of Marine Biology (IMB) 447, 662
 Institute of Marine Environmental Research (IMER): 662
 Institute of Marine Research (IMR): 616
 Institute of Marine Resources (IMR): 424
 Institute of Marine Science (IMS): 421, 428
 Institute of Ocean Sciences (ICS): 602
 Institute of Oceanographic Sciences (IOS): 662
 Institute of Oceanographic Sciences - Bideston (IOS-B): 662
 Institute of Oceanographic Sciences - Taunton (IOS-T): 662
 Institute of Oceanographic Sciences - Wormley (IOS-W) 662
 Institute of Telecommunications Services (ITS): 398
 Institute of Water Resources (IWR): 421
 Institutes for Oceanography (IOC): 371
 Instituto Antartico Argentino (IAA): 595
 Instituto Antartico Chileno (IAC): 605
 Instituto Argentino de Oceanografia (IADO): 595
 Instituto Cartografico Universitario (ICU): 611
 Instituto Cubano de Hidrografia (ICH): 609
 Instituto de Biologia Marina (IBM): 595
 Instituto de Biologia Maritima (IBM): 651
 Instituto de Fomento Pesqueras (IFOP): 605
 Instituto de Investagaciones Pesqueras (IIP): 655
 Instituto de Investigaciones Oceanologicas (IIO): 637
 Instituto de Pesquisas Da Marinha (IPQM): 599

Instituto del Mar del Peru (IMARPE): 648
 Instituto Espanol de Oceanografia (IEO): 655
 Instituto Geografico Nacional (IGN): 614, 621, 623, 647
 Instituto Hidrografico de la Armada (IH): 605
 Instituto Hidrografico de la Marina (IHM): 655
 Instituto Hidrografico (IH): 651
 Instituto Idrografico della Marina (IIM): 630
 Instituto Mexicano del Petroleo (IMP): 637
 Instituto Nacional de Pesca (INP): 637
 Instituto Nacional de Pesca del Ecuador (INPE): 612
 Instituto Oceanografico Universidad Oriente (IOUO): 664
 Instituto Oceanografico de la Armada (INOCAR): 612
 Instituto Oceanografico do Universidade de Sao Paulo (IOUSP): 599
 Instituto Panamericano de Geografia e Historia (IPGH): See Pan
 American Institute of Geography and History
 Instituto Politecnico Nacional (IPN): 637
 Instituto Tecnologico y de Estudios Superiores de Monterrey
 (ITESM): 637
 Institutul Romin de Cercetari Marine (IRCM): 652
 Instituut voor Visserijprodukten (IVP): 640
 Instrument Society of America (ISA): 540
 Instytut Meteorologii i Gospodarki Wodnej, Oddzial Morski (IMGW/OM):
 650
 Instytut Morski (IM): 650
 Integral Carrier ASW Prediction System (ICAPS): 392
 Integrated Global Ocean Station System (IGOSS): 22, 39, 272, 280,
 378, 668
 Integrated Operational Hydrological System (IOHS): 29
 Inter-American Development Bank (IADB): 59
 Inter-Research Council Committee on Pollution Research (IRCCOPR):
 662
 Inter-Seamount Acoustic Range (ISAR): 382

Inter-Union Committee on Radio Geophysics (IUCRG): 126

Inter-Union Committee on Radio Meteorology (IUCRM): 126

Inter-Union Committee on Radio Oceanography (IUCRO): 126

Interactive Real-time Information System (IRIS): 322

Inter-African Committee for Oceanography, Marine Biology, Sea and Inland Fisheries: 87

Interagency Arctic Research Coordinating Committee (IARCC): 361

Interagency Committee for Marine Environmental Prediction (ICMAREP): 361

Interagency Committee for Marine Science and Engineering (ICMSE): 361

Interagency Committee for the World Weather Programs (ICWWP): 361

Interagency Committee on Food From the Sea (ICFFS): 361

Interagency Committee on Marine Research (ICMREF): 361

Interagency Committee on Multiple Uses of the Coastal Zones (ICMUCZ): 361

Interagency Committee on Ocean Exploration and Environmental Services (ICOEES): 361

Interagency Committee on Oceanography (ICO): 361

Inter-American Economic and Social Council (IA-ECOSOC): 88

Inter-American Tropical Tuna Commission (IATTC): 60, 274, 287, 333, 666

Interdepartmental Committee on Atmospheric Services (ICAS): 361

Intergovernmental Conference on Oceanographic Research (ICOR): 22

Inter-Governmental Maritime Consultative Organization (IMCO): 9, 25, 36, 38, 77, 186, 206, 238

Intergovernmental Oceanographic Commission (IOC): 1, 17, 21, 22, 35, 37, 39, 122, 230, 232, 233, 236, 237, 239, 256, 261, 262, 265, 267, 272, 280, 282, 283, 287, 293, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 326, 337, 632, 670, 671

Intergovernmental Oceanographic Commission/Bureau and Consultative Council (IOC/BCC): 22

Intergovernmental Oceanographic Commission/Executive Council (IOC/EC): 22

Intergovernmental Oceanographic Commission/Voluntary Assistance Plan (IOC/VAP) 22

Intergovernmental Organization (IGO)

Intergovernmental Working Group on Marine Pollution (IWGMP): 8

Intergovernmental Working Group on Monitoring or Surveillance (IWGMS): 8

Interim Marine Affairs Council (IMAC): 434

Internal Tide Experiment (ITEX)

International Advisory Commission on Marine Sciences (IACOMS): 112

International Advisory Committee on Marine Sciences (IACOMS): 21

International Agency for ^{14}C Determination: 159

International Association for Atmospheric Science (IAAS): 112

International Association for Ecology (IAE): 104

International Association for Great Lakes Research (IAGLR): 160

International Association for Hydraulic Research (IAHB): 212, 213

International Association for Medical Oceanography (IAMO): 161

International Association for Pollution Control (IAPC): 162

International Association for the Physical Sciences of the Ocean (IAPSO): 100, 113, 122, 225, 237

International Association for the Study of the European Quaternary:
See International Union for Quaternary Research

International Association of Biological Oceanography (IABO): 100,
105, 122, 225, 256

International Association of Dredging Companies (IADC): 163, 212

International Association of Engineering Geology (IAEG): 116, 212

International Association of Fish and Wildlife Agencies (IAFWA): 164

International Association of Fish Meal Manufacturers (IAFMM): 165

International Association of Game, Fish and Conservation Commissioners (IAGFCC): 164

International Association of Geochemistry and Cosmochemistry (IAGC): 116

International Association of Geodesy (IAG): 109

International Association of Geomagnetism and Aeronomy (IAGA): 110

International Association of Hydrogeologists (IAH): 290

International Association of Hydrological Sciences (IAHS): 111,
227, 290

International Association of Lighthouse Authorities (IALA): 167

International Association of Meteorology and Atmospheric Physics (IAMAP): 112, 113, 122

International Association of Microbiological Societies (IAMS): 106

International Association of Institutes of Navigation (IAIN): 166

International Association of Navigation Institutes (IANI): 166

International Association of Physical Oceanography (IAPO): See
International Association for the Physical Sciences of the Ocean

International Association of Scientific Hydrology (IASH): See
International Association of Hydrological Sciences

International Association of Sedimentology (IAS): 168

International Association of Seismology and Physics of the Earth's
Interior (IASPEI): 114, 235

International Association of Theoretical and Applied Limnology (IAL):
107

International Association of Volcanology (IAV): See International
Association of Volcanology and Chemistry of the Earth's Interior

International Association of Volcanology and Chemistry of the Earth's
Interior (IAVCEI): 115

International Association on Ports and Harbors (IAPH): 169

International Association on Water Pollution Research (IAWPR): 170, 212

International Astronomical Union (IAU): 100

International Atlantic Salmon Foundation (IASF): 171

International Atomic Energy Agency (IAEA): 33, 38, 176, 239, 290

International Baltic Sea Fishery Commission (IBSFC): 61

International Baltic Year (IBY): 285

International Bank for Reconstruction and Development (IBRD): 24

International Bathymetric Chart of the Mediterranean (IBCM): 262

International Biological Programme (IBP): 124, 233, 286, 290, 325, 416

International Biological Programme/Productivity - Marine Section
(IBP/PM): 286

International Cable Protection Committee (ICPC): 172

International Cartographic Association (ICA): 102

International Center for Living Aquatic Resources Management
(ICLARM): 173

International Center on Recent Crustal Movements (ICRCM): 109

International Chamber of Shipping (ICS): 174

International Civil Aviation Organization (ICAO): 26, 186

International Commission for the Conservation of Atlantic Tunas (ICCAT): 20, 62

International Commission for Geodynamics (ICG): 126

International Commission for the Northwest Atlantic Fisheries (ICNAF): 63, 65, 82, 226, 247, 329

International Commission for the Scientific Exploration of the Mediterranean (ICSEM): 64, 262, 326, 334

International Commission for the Southeast Atlantic Fisheries (ICSEAF): 20

International Commission of Snow and Ice (ICSI): 111, 250, 253

International Commission on Illumination (ICI): 175

International Commission on Polar Meteorology (ICPM): 112

International Commission on Radiological Protection (ICRP): 176

International Commission on the Lithosphere (ICL): 288

International Commission on Water Quality (ICWQ): 111

International Congress of Maritime Museums (ICMM): 177

International Cooperative Assistance Program (ICAP): 373

International Cooperative Effort Toward Understanding of the Oceanography of the Eastern Tropical Pacific (EASTROPAC): 234

International Cooperative Investigations of the Tropical Atlantic (ICITA): 282, 283

International Coordination Group (ICG): 22, 267

International Council for Bird Preservation (ICBP): 178

International Council for the Exploration of the Seas (ICES): 48, 65, 72, 82, 239, 244, 254, 265, 270, 272, 285, 300, 330, 335, 610, 662, 670

International Council of Marine Industry Associations (ICOMIA): 179

International Council of Scientific Unions (ICSU): 30, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 233, 234, 235, 245, 277, 286, 288, 325, 340, 344, 345, 347, 348, 349, 358, 351, 351, 352

International Court of Justice (ICJ): 9

International Decade of Ocean Exploration (IDOE): 60, 286, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 416, 418, 443

International Economic Consultative Organization in Korea (IECOK): 633

International Environmental Programs Committee (IEPC): 419

International Federation of Surveyors (FIG): 180

International Field Year for the Great Lakes (IFYGL): 291, 371

International Frequency Registration Board (IFRB): 32

International Game and Fish Conference: 189

International Game Fish Research Conference (IGFRC)

International Geodynamics Project (IGP): 126, 288, 340

International Geographical Union (IGU): 100, 101, 102, 249

International Geological Congress (IGC): 181, 191

International Geological Correlation Program (IGCP): 300

International Geological/Geophysical Cruise Inventory (IGGCI): 116, 670

International Geophysical Committee (CIG): 127, 245

International Geophysical Cooperation (IGC): 289

International Geophysical Year (IGY): 127, 245, 289, 330

International Gravimetric Bureau (IGB): 109, 130

International Gravity Bureau (IGB): 130

International Gravity Commission (IGC): 109

International Group for Scientific Coordination (IGSC): 262

International Hydrochemical Commission (IHC): 111

International Hydrographic Bureau (IHB): 66

International Hydrographic Organization (IHO): 1, 25, 54, 66, 78, 90, 113, 239

International Hydrological Decade (IHD): 76, 123, 290, 291, 292

International Hydrological Program (IHP): 292

International Ice Patrol (IIP): 67, 412

International Indian Ocean Expedition (IIOE): 234, 293

International Indian Ocean Fishery Survey and Development Programme:
294

International Institute for Peace and Conflict Research (SIPRI): 182

International Institute of Maritime Culture (IIMC): 183

International Institute of Physical Oceanography (IIPO): 184

International Joint Commission (IJC): 68

International Labor Organization (ILO): 34

International Laboratory of Marine Radioactivity (ILMR): 33

International Lake Erie Water Pollution Board (ILEWPB): 68

International Lake Ontario and St. Lawrence River Water Pollution
Board (ILOSRLWPB): 68

International Law Association (ILA): 185

International Law Commission (ILC): 10

International Marine Meteorological Punch Card (IMMPC): 667

International Marine Science (newsletter) (IMS): 21

International Marine Science Affairs Policy (IMSAP): 419

International Maritime Dangerous Goods Code (IMDG): 38

International Maritime Satellite Organization (INMARSAT): 25

International Maritime Satellite System (INMARISAT): 25

International Maritime Radio Association (CIRM): 186

International Mathematical Union (IMU): 100

International Meteorological Centre (IMC), Bombay: 293

International Meteorological Conference of 1853: 27

International Meteorological Organization (IMO): 27

International Nickel Company (INCO): 541

International North Pacific Fisheries Commission (INPFC): 69, 237

International Nuclear Information System (INIS): 33

International Numbering System for Tides (INST): 671

International Ocean Institute (IOI): 188

International Oceanographic Data Exchange (IODE): 22, 670

International Oceanographic Foundation (IOF): 189

International Organization for Standardization (ISO): 190

International Pacific Halibut Commission (IPHC): 70

International Pacific Salmon Fisheries Commission (IPSFC): 71

International Paleontological Union (IPU): 191

International Petroleum Industries Environmental Conservation Association (IPIECA): 206

International Phase of Ocean Drilling (IPOD): 97, 295

International Photometric Commission: See International Commission on Illumination

International Referral System (INFOTERRA): 8, 272, 418

International Register of Potentially Toxic Chemicals: (IRPTC): 272

International Regulations for Preventing Collisions at Sea (COLREGS)

International Research Council (IRC): 100

International Scientific and Management Group (ISMG): 343, 347

International Seabed Area (ISBA): 669

International Seabed Resource Authority (ISRA): 2

International Seagrass Committee: 323

International Seaweed Symposia (ISS): 193

International Seismological Centre (ISC): 235

International Ship Structure Congress (ISSC): 19, 212

International Shipping Conference: See International Chamber of Shipping

International Society for Soil Mechanics and Foundation Engineering (ISSMFE): 212, 215

International Society of Biometeorology (ISB): 189, 195

International Southern Ocean Studies (ISOS): 105, 313

International Telecommunications Union (ITU): 32, 186

International Tsunami Information Center (ITIC): 22, 236

International Union for Conservation of Nature and Natural Resources (IUCN): 8, 196, 325

International Union for Protection of Nature: See International Union for Conservation of Nature and Natural Resources

International Union for Quaternary Research (INQUA): 197

International Union of American Republics: See Organization of American States

International Union of Biochemistry (IUB): 100

International Union of Biological Sciences (IUBS): 100, 103, 104, 105, 106, 107, 249

International Union of Crystallography (IUC): 100

International Union of Geodesy and Geophysics (IUGG): 100, 108, 109, 110, 111, 112, 113, 114, 115, 116, 235, 288, 482

International Union of Geological Sciences (IUGS): 100, 116, 249, 288, 301

International Union of History and Philosophy of Sciences (IUHPS): 100, 117

International Union of Immunological Societies (IUIS): 100

International Union of Marine Sciences (IUMS): 100

International Union of Nutritional Sciences (IUNS): 100

International Union of Pharmacology (IUPHAR): 100

International Union of Physiological Sciences (IUPS): 100, 249

International Union of Pure and Applied Biophysics (IUPAB): 100

International Union of Pure and Applied Chemistry (IUPAC): 100, 249

International Union of Pure and Applied Physics (IUPAP): 100

International Union of Radio Science (IURS): 100, 249

International Union of Theoretical and Applied Mechanics (IUTAM): 100

International Upper Mantle Program (IUMP): See Upper Mantle Project

International Water Resources Association (IWRA): 198

International Weddell Sea Oceanographic Expedition (IWSOE): 296

International Whaling Commission (IWC): 72, 667

International X-Ray and Radium Protection Commission: See International Commission for Radiological Protection

Inter-Parliamentary Union (IPU): 199

Inter-secretariat Committee on Scientific Programmes Relating to Oceanography (ICSPRO): 36

Intertropical Convergence Zone (ITCZ): 347

Inter-Union Commission for Geodynamics (ICG): 126

Inter-Union Commission on Solar Terrestrial Physics (IUCSTP): 126

Inter-Union Geodynamics Commission (IGC): See Inter-Union
Commission for Geodynamics

Interrogation, Recording, and Location System (IRLS)

Intra-Coastal Waterway (ICWW): 428

Investigations of Marine Shallow Water Ecosystems Program (IMSWE):
418

IOC Association for the Caribbean and Adjacent Regions (IOCARIBE):
22, 261, 371

IOC Group of Experts on Oceanographic Research as it Relates to
IGOSS (IRES): 39

IOC Working Group for the Western Pacific (WESTPAC): 22, 267

Irish Meteorological Service (IMS): 628

Istituto di Biologia del Mare (IBM): 630

Istituto di Ricerca sulle Acque (IRA): 630

Istituto Idrografico della Marina (IIM): 630

Jackson Estuarine Laboratory (JEL): 440

Japan Atomic Energy Research Institute (JAERI): 632

Japan Fishery Agency (JFA): 632

Japan Marine Fishery Resource Center (JAMARC): 632

Japan Marine Science and Technology Center (JAMSTEC): 632

Japan Maritime Self Defense Force (JMSDF): 632

Japan Meteorological Agency (JMA): 632

Japan Oceanographic Data Center (JODC) 237, 267, 632

Japan-China Joint Fisheries Commission (JCFC): 73

Japan-Korea Joint Fisheries Commission (JKFC): 74

Japanese Antarctic Research Expedition (JARE): 632

Japanese Maritime Safety Agency (JMSA): 632

Japanese Meteorological Society (JMS): 632

Japanese-Soviet Fish Commission (JSFC): 75

Japanese Whaling Information Center (JWIC): 632

Johns Hopkins University (JHU): 435

Joint Air/Sea Interaction Project (JASIN): 281
 Joint CCOP/IOC Program of Research on the South Pacific (SOPAC): 37
 Joint Group of Experts (JGE)
 Joint Ice Center (JIC): 367
 Joint ICES/ICNAF/IOC Coordinating Group for the Systematic Studies
 of the North Atlantic (NAT): 226
 Joint II March-May Study (MAM): 322
 Joint Institute for Marine and Atmospheric Research (JIMAR): 371
 Joint Institute for the Study of the Atmosphere and the Ocean (JISAO):
 371
 Joint International Coordination Group (JICG)
 Joint Investigation of the Southeastern Tropical Atlantic (JISETA):
 297
 Joint IOC/WMO Group of Experts on IGOSS: 39
 Joint IOC/WMO Group of Experts on IGOSS Technical Systems Design and
 Development and Service Requirements (ITECH): 39
 Joint IOC/WMO Planning Group for IGOSS (IPLAN): 39
 Joint Oceanographic North Sea Data Acquisition Program (JONSDAP): 298
 Joint North Sea Information System (JONSIS): 298
 Joint North Sea Modeling Group (JONSMOD): 298
 Joint North Sea Wave Analysis Project (JONSWAP): 299
 Joint Oceanographic Assembly (JOA): 105, 225
 Joint Oceanographic Institutions for Deep Earth Sampling
 (JOIDES): 295, 424
 Joint Organizing Committee for GARP (JOC): 30, 343, 352
 Joint Panel for NORDIC/IHD Cooperation (NUTSAM): 76, 203
 Joint Polymode Organizing Committee (JPMOC): 314
 Joint Skagerrak Expedition: 300
 Joint Tsunami Research Effort (JTRE): 371
 Joint WMO/IOC Group of Experts on Telecommunications (ITEL): 39
 Joint Working Group on River Inputs to Ocean Systems (RIOS): 227
 Kagoshima University (KU): 632

Karachi University Institute of Marine Biology (KUIMB): 640

Kaspiyskiy Nauchno-Isseldovatel'skiy Institut Rybnogo Khozyaystva (KASPNIIRKH): 661

Kobe Marine Observatory/Japan Meteorological Agency (KMOJMA): 632

Koninklijke Nederlandse Akademie van Wetenschappen (KNAW): 640

Koninklijk Nederlands Meteorologisch Instituut (KNMI): 640

Korea Marine Industry Development Corporation (KMIDC): 633

Krupp Atlas - Electronik (KAE): 620

Kuroshio Data Centre (KDC): 237, 267, 632

Laboratorio per la Geologia Marina (LGM): 630

Laboratoire d'Océanographie Physique (LOP): 617

Laboratoire de Géophysique Appliquée à l'Océanographie (LGAO): 617

Laboratorio de Ciencias do Mar (LACIMAR): 599

Laboratorio de Geologia Marinha (LAGEMAR): 599

Laboratorio di Automazione Navale (LAN): 630

Laboratorio di Tecnologia della Pesca (LTP): 630

Laboratorio per lo Studio della Dinamica delle Grandi Masse (LSDGM): 630

Lake Erie Advisory Committee (LEAC): 442

Lake Erie Study Group: See Great Lakes Study Group

Lake Survey Center (LSC): 371, 377

Lamont Geological Observatory (LGO): 442

Lamont-Doherty Geological Observatory (LDGO): 397, 442

Land Monitoring Satellite (LANDSAT): 415

Large Automatic Navigation Buoy (LANBY)

Large Navigation Buoy (LNB)

Laser Geodynamics Satellite (LAGEOS): 415

Latin America Science Cooperation Office (LASCO): 21

Law of the Sea (LOS): 2

Law of the Sea Conference (LOSC): See U. N. Conference on Law of the Sea

Law of the Sea Institute (LOSI): 430, 448
 Lawrence Berkeley Laboratory (LBL): 424
 Lawrence Livermore Laboratory (LLL): 424
 League of Arab States (LAS): 77
 Legal Questions Relating to Scientific Investigations in the Ocean
 (LEG): 22
 Lehigh University (LU): 446
 Lembaga Oseanologi Nasional (LON): 336, 626
 Lembaga Penjelidikan Laut (LPL): 626
 Lembaga Penjelidikan Laut (FISHENES) Laut (LPFL): 626
 Library of Congress (LC): 355
 Light Behind Camera System (LIBEC): 398
 Limited Capability Buoy (LCB)
 Little Window Project: See Project Little Window
 Local Dynamics Experiment (LDE): 314
 Long Cores Drilling Program (LOCO)
 Long Range Acoustic Propagation Project (LRAPP): 398
 Long Range Aid to Navigation (LORAN)
 Long-Term and Expanded Program of Oceanic Exploration and Research
 (LEPOR): 22, 212, 302, 303, 304, 305, 306, 307, 308, 30, 310, 311,
 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324
 Look Laboratory of Ocean Engineering (LLOE): 430
 Louisiana Advisory Commission on Coastal and Marine Resources
 (LACMR): 433
 Louisiana Offshore Oil Port (LOOP): 433
 Louisiana Offshore Terminal Authority (LOTA): 433
 Louisiana State University (LSU): 433
 Louisiana Wildlife and Fisheries Commission (LWFC): 433
 Lyndon B. Johnson Space Center (LBJSC): 415
 Maine Department of Environmental Protection (MDEP): 434
 Maine Department of Sea and Shore Fisheries (MDSSF): 434
 Maizuru Marine Observatory/Japan Meteorological Agency (MMOJMA): 632

Major Investigation for Low-Frequency Ocean Bottom Loss Experiments
(MAINLOBE): 397

Malta Pollution Control Center (MPCC): 238

Man and the Biosphere (MAB): 286, 325

Manganese Nodule Program (MANOP): 317

Manned Open Sea Experimentation Station (MOSES): 430

Manned Undersea Science and Technology (MUS&T): 372

Manned Underwater Activity (MUA): 372

Manned Underwater Laboratories (MUL): 372

Manned Underwater Station (MUS): 372

Manned-Unmanned Environmental Research Station (MUMMERS): 580

Marginal Sea Ice Zone Pacific (MIZPAC): 390

Marina Association of America (MAA): 542

Marine Advisory Program (MAP): 373

Marine Advisory Service (MAS): 373

Marine Affairs Council (MAC): 359

Marine and Coastal Technology Information Service (MACTIS): 1, 339

Marine and Coastal Technology Program (MACTECH): 339

Marine Automatic Meteorological Observing Station (MAMOS):

Marine Automatic Telephone Weather Answering Service (MATWAS)

Marine Biological Association (MBA): 662

Marine Biological Association of India (MBAI): 439

Marine Biological Laboratory (MBL): 543

Marine Biomedical Institute (MBI): 450

Marine Department/Japan Meteorological Agency (MDJMA): 632

Marine Ecosystem Study in Tropical Areas (MESTA): 324

Marine Ecosystems Analysis (MESA): 371

Marine Education Materials System (MEMS): 451

Marine Environment and Resources Research and Management System
(MERRMS): 451

Marine Environment Protection Committee of IMCO (MEPC): 25

Marine Environmental Activities (MEA)
 Marine Environmental Council of Long Island (MECLI): 442
 Marine Environmental Data Information Referral System (MEDI): 22, 239
 Marine Environmental Data Service (MEDS): 602
 Marine Environmental Management Office (MEMO): 390
 Marine Environmental Prediction Service (MAREP): 361
 Marine Environmental Quality (MEQ)
 Marine Environmental Science Consortium (MESC): 420
 Marine Fisheries Advisory Committee (MAFAC): 364
 Marine Forecast (MAFOR)
 Marine Geophysical Survey (MGS)
 Marine Industries Association (MIA): 544
 Marine Industry Advisory Service (MIDAS): 436
 Marine Information and Advisory Service (MIAS): 662
 Marine Information Management (MIM): 22
 Marine Life and Geochemical Studies (MARLAGS): 371
 Marine Mammal Act of 1972 (MMA): 360
 Marine Mammal Commission (MMC): 360
 Marine Mammal Protection Act (MMPA): 360, 360
 Marine Meteorological Services (MAMS)
 Marine Meteorological Services System (MMSS): 668
 Marine Minerals Technology Center (MTCC): 371
 Marine Oil Pick-Up Service (MOPS)
 Marine Option Program (MOP): 430
 Marine Petroleum and Minerals Advisory Committee (MPMAC): 364
 Marine Physical Laboratory (MPL): 424
 Marine Pollution (Petroleum) Monitoring Pilot Project (MAPMOPP): 280
 Marine Pollution Documentation and Information Center (MARPDIC): 662
 Marine Pollution Management Group (MPMG): 662
 Marine Pollution Monitoring Programme: 280

Marine Products Export Development Authority (MPEDA): 625

Marine Protection, Research, and Sanctuaries Act of 1972 (MPRSA): 368

Marine Protein Concentrate (MPC): See Fish Protein Concentrate

Marine Protein Industries (MPI): 545

Marine Recreational Fishing (MRF): 666

Marine Reporting Station Program (MARS): 412

Marine Research Center (MRC): 443, 603

Marine Research Committee (MRC): 422

Marine Research Institute (MRI): 624

Marine Research Laboratory (MRL): 428

Marine Resources and Engineering Coordinating Committee (MRECC): 95

Marine Resources and Engineering Development Act of 1966 (MREDA):
359, 361

Marine Resources Council (MRC): 361

Marine Resources Development Foundation (MRDF): 546

Marine Resources Information Center (MARIC): 436

Marine Resources Monitoring, Assessment, and Prediction (MARMAP): 369

Marine Resources Research Institute (MRRI): 448

Marine Safety Informations System (MSIS): 412

Marine Science Contents Tables (MSCT): 230

Marine Science Council (MSC): 361

Marine Science Division (MASID): 540

Marine Science Experts in East and Southeast Asia: 267

Marine Science Research Center (MSRC): 442

Marine Sciences Center (MSC): 441

Marine Sciences Consortium (MSC): 441, 463

Marine Sciences Directorate (MSD): 602

Marine Sciences Institute (MSI): 424, 426, 450

Marine Sciences Research Laboratory (MSRL): 603

Marine Scientific Equipment Service (MSES): 662

Marine Technology Society (MTS): 538, 547
 Marine Youth Educational Advisory Committee (MYEAC): 442
 Marineamt, Abteilung Geophysik (MarA): 620
 Maritime Administration (MARAD): 364, 365
 Maritime Research Information Service (MRIS): 419
 Maryland Environmental Services (MES): 435
 Massachusetts Institute of Technology (MIT): 436
 Massachusetts Institute of Technology Sea Grant (MITSG): 436
 Master Water Data Index (MWDI): 409
 Maximum Economic Yield (MEY): 666
 Maximum Sustainable Yield (MSY): 666
 Mean Low Tide (MLT)
 Mean Sea Level (MSL)
 Mechanical Bathythermograph (MBT)
 Mediterranean and Black Sea Hydrographic Commission (MBSHC): 78
 Mediterranean Action Plan (MAP): 8
 Mediterranean Association of Marine Biology and Oceanography
 (MAMBO): 200, 262
 Mediterranean Marine Sorting Center (MMSC): 240, 262
 Mediterranean Occidental Survey (MEDOC): 327
 Mediterranean Pollution Monitoring and Research Program (MEDPOL or
 MPMRP): 8, 326
 Mediterranean Pollution Study Pilot Projects (MED I, II, ...X): 326
 Medium Survey Ship (MSS)
 Memorial University of Newfoundland (MUN): 603
 Merchant Marine and Fisheries Committee (MM&F) 354
 Meteorological and Geostrophysical Abstracts (M&GA): 491
 Meteorological Aspects of Ocean Affairs (MAOA): 28, 225, 668
 Meteorological Integrating Data Acquisition System (MIDAS): 311
 Meteorological Office (METO): 662
 Meteorological Services to Marine Activities (MSMA): 668

Meteorologie Nationale (MN): 617
 Meteorologisk Institut (MI): 645
 Meteorology and Oceanography Centre (METOC): 602
 Meteoroloji Genel Mudurlugu (MGM): 660
 Meteorological Department (MD): 646
 Mexican Oceanic Sorting Center (CPOM): 21, 232, 261
 Mid-Atlantic Fishery Management Council (MAFMC): 369
 Mid-Ocean Dynamics Experiment (MODE): 314, 588
 Mid-Pacific Marine Laboratory (MPML): 399
 Middle Atlantic Coastal Fisheries Center (MACFC): 369
 Middle East Treaty Organization: 45
 Mie University (MU): 632
 Military Oceanographic Survey (MILOC): 81
 Military Sea Transportation Service (MSTS): 385
 Military Sealift Command (MSC): 385
 Ministerio de Minas e Energia (MME): 599
 Ministerio de Obras Publicas (MOP): 643
 Ministerio de Pesqueria (MP): 648
 Ministry of Agriculture and Cooperation/Fishery Department
 (MAC/FD): 658
 Ministry of Agriculture and Works (MAW): 646
 Ministry of Agriculture, Fisheries, and Food (MAFF): 662
 Minnesota Marine Advisory Service (MMAS): 438
 Ministry of Agriculture and Fisheries (MAF): 642
 Mirovoy Tsentr Dannykh V-1 (MTD V-1): 661
 Mississippi Air and Water Pollution Control Commission (MAWPCC): 439
 Mississippi Game and Fish Commission (MGFC): 439
 Mississippi Marine Conservation Commission (MMCC): 439
 Mississippi State University (MSU): 439
 Mississippi Test Facility (MTF): 372

Mississippi-Alabama Sea Grant Program (MASGP): 439, 464
 Mississippi/Alabama/Florida Area (MAFLA): 428
 Mixed Commission for Black Sea Fisheries (MCBSF): 79
 Mixed Commission for Cooperation in Marine Fishing (MCCMF): 80
 Mixed Layer Experiment (MILE): 445
 Mobile Sonar Technology (MOST): 390
 Mobile Sonar Technology/Technical Document Information System
 (MOST/TDIS): 390
 Moderate Environment Buoy (MEB)
 Modular Ocean Observation System (MOOS)
 Monex Subprogramme (MONSOON 77): 348
 Monitoring and Assessment Research Centre (MARC): 241
 Monsoon Experiment (MONEX): 348
 Moored Limited Capability Buoy (MLCB)
 Moored Acoustic Buoy System (MABS): 397
 Moored Surveillance System (MSS)
 Mooring Dynamics Experiment (MDE): 372
 Morski Instytut Rybacki (MIR): 650
 Moskovskiy Gosudartstvennyy Universitet (MGU): 661
 Moss Landing Marine Laboratories (MLML): 424
 Mote Marine Laboratory (MML): 548
 Multi-Channel Ocean Color Sensor (MCCS)
 Multinational Marine Science Project (MMSP): 88
 Multispectral Scanner (MSS)
 Museum National d'Histoire Naturelle (MNHM): 617
 Nagasaki University (NU): 632
 Nagasaki Marine Observatory/Japan Meteorological Agency (NMOJMA):
 632
 Naples Zoological Station: 103
 Narragansett Marine Laboratory (NML): 448

Nassau-Suffolk Regional Planning Board (NSRPB): 442

National Academy of Engineering (NAE): 41

National Academy of Engineering Committee on Ocean Engineering (NAECOE): 419

National Academy of Engineering Marine Board (NAEMB): 419

National Academy of Sciences (NAS): 245, 419

National Academy of Sciences Committee on Oceanography (NAS/CO): 419

National Academy of Sciences Environmental Studies Board (NAS/ESB): 419

National Academy of Sciences Geophysical Research Board (NAS/GRB): 419

National Academy of Sciences/Committee on Water (NAS/COW): 419

National Academy of Sciences/National Academy of Engineering (NAS/NAE): 419

National Academy of Sciences/National Research Council (NAS/NRC): 419

National Academy of Sciences/Ocean Affairs Board (NAS/OAB): 419

National Academy of Sciences/Ocean Sciences Board (NAS/OSB): 419

National Academy of Sciences/Transportation Board (NAS/TRB): 419

National Advisory Committee on Oceanography (NACO): 359

National Advisory Committee on Oceans and Atmosphere (NACOA): 359, 371

National Aeronautics and Space Administration (NASA): 375, 415

National Analysis of Trends in Emergency Systems (NATES): 602

National Aquaculture Information System (NAIS): 451

National Association of Marine Surveyors (NAMS): 549

National Association of State Environmental Programs Agencies (NASEPA): 550

National Association of Underwater Instructors (NAUI): 551

National Biomonitoring Inventory Program (NBIP): 399

National Bureau of Standards (NBS): 366

National Canners Association (NCA): 552

National Cartographic Information Center (NCIC): 409

National Center for Atmospheric Research (NCAR): 416

National Climatic Center (NCC): 315, 375

National Coalition for Marine Conservation (NCMC): 553

National Coastal Ecosystems Team (NCET): 408

National Coastal Pollution Research Program (NCPRP): 413

National Coordinator (NATCO): 670

National Council on Marine Resources and Engineering Development (NCMRED): 359, 361

National Data Buoy Development Project (NDBDP): 372

National Data Buoy Program (NDBP): 372

National Earthquake Information Service (NEIS): 409

National Ecological Research Laboratory (NERL): 413

National Emergency Equipment Locator System (NEELS): 602

National Energy Information Center (NEIC): 399

National Environmental Data and Information Service (NEDIS): 375

National Environmental Policy Act (NEPA): 358

National Environmental Research Park (NERP): 399

National Environmental Satellite Center (NESC): 376

National Environmental Satellite Service (NESS): 374, 376, 415

National Environmental Services Administration Committee (NESAC)

National Estuarine Pollution Study (NEPS): 413

National Federation of Fishermen (NFF): 554

National Fish Meal and Oil Association (NFMOA): 555

National Fisheries Institute (NFI): 556

National Geodetic Information Center (NGIC): 377

National Geodetic Survey (NGS): 377

National Geophysical and Solar-Terrestrial Data Center (NGSDC): 375

National Geophysical Data Center (NGDC): 375

National Hurricane and Experimental Meteorology Laboratory (NHEML): 371

National Hurricane Center (NHC): 378

National Infared Information System (IRIS): 437

National Institute of Oceanography (NIO): 234, 625, 662

National Institute of Polar Research (NIPR): 632

National Marine Advisory Service (NMAS): 373

National Marine Data Inventory (NAMDI): 375

National Marine Education Association (NMEA): 557

National Marine Fisheries Service (NMFS): 276, 287, 297, 369, 412

National Marine Water Quality Laboratory (NMWQL): 413

National Maritime Institute (NMI): 662

National Maritime Research Center (NMRC): 365

National Maritime Union (NMU): 558

National Meteorological Center (NMC): 667

National Museum of Natural History (NMNH): 418

National Ocean Industries Association (NOIA): 559

National Ocean Policy Study (NOPS): 354

National Ocean Program (NOP): 361

National Ocean Survey (NOS): 372, 374, 377

National Ocean Survey Tide Station (NOSTS): 377

National Oceanic and Atmospheric Administration (NOAA): 236, 359, 361,
364, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 398,
418

National Oceanographic Association (NOA): 559

National Oceanographic Center (NOC): 280

National Oceanographic Data Center (NODC): 280, 670

National Oceanographic Data Processing and Services Centre (NOPC): 226

National Oceanographic Foundation (NOF): 560

National Oceanographic Instrumentation Center (NOIC): 372

National Oceanographic Program (NOP): 670

National Oceanography Association (NOA): 559

National Park Service (NPS): 406

National Petroleum Council (NPC): 401
 National Pollutant Discharge Elimination System (NPDES) 413
 National Processing Centre (NPC): 347
 National Referral Center (NRC): 355
 National Research Council (NRC): 419
 National Research Council of Canada (NRCC): 602
 National Research Institute for Oceanography (NRIO): 654
 National Response Team (NRC): 412
 National Science Council (NSC): 628
 National Science Foundation (NSF): 295, 315, 373, 392, 416, 428, 435
 National Scientific Committee on Oceanography (NASCO): 419
 National Sea Grant Depository (NSGD): 448
 National Security Industrial Association (NSIA): 561
 National Severe Storms Forecast Center (NSSFC): 378
 National Severe Storms Laboratory (NSSL): 371
 National Shellfish Association (NSA): 562
 National Shellfish Sanitation Program (NSSP): 400
 National Shipping Authority (NSA): 563
 National Strike Force (NSF): 412
 National Taiwan University (NTU): 606
 National Technical Information Service (NTIS): 379, 380
 National Underwater Laboratory System (NULS): 372
 National Water Data Exchange (NAWDEX): 409
 National Water Data Storage and Retrieval System (WATSTORE): 409
 National Water Quality Surveillance System (NWQSS): 413
 National Waterways Study (NWS): 381
 National Weather Records Center (NWRC): 375
 National Weather Service (NWS): 374, 378, 412, 469
 National Wetland Technical Council (NWTTC): 564
 National Wildlife Defense Council (NWDC): 565

National Wildlife Federation (NWF): 560

Natural Environment Research Council (NERC): 298, 662

Natural Resources Institute (NRI): 435

Nauchno Issledovatel'skiy Institut Rybnogo Khozyaystva (NHRKH): 661

Naval Air Development Center (NADC): 386

Naval Arctic Research Laboratory (NARL): 398, 421

Naval Bioscience Laboratory (NBL): 398

Naval Civil Engineering Laboratory (NCEL): 383

Naval Coastal Systems Laboratory (NCSL): 387

Naval Electronics Laboratory (NEL): 390

Naval Electronics Laboratory Center (NELC): 390

Naval Electronics Systems Command (NESC): 388

Naval Environmental Prediction Research Facility (ENVPREDRSCHFAC):
384

Naval Environmental Protection Support Service (NEPSS): 389

Naval Environmental Support Office (NESO): 389

Naval Experimental Manned Observatory (NEMO): 383

Naval Hydrographic Depot (NHD): 600

Naval Hydrographic Office (NHO): 625

Naval Missile Center (NMC)

Naval Ocean Research and Development Activity (NORDA): 398

Naval Ocean Systems Center (NOSC): 390

Naval Oceanographic Office (NAVOCEANO or NOO): 258, 375, 380, 391,
392

Naval Oceanography Command (OCEANAV): 391

Naval Ordnance Laboratory (NOL): 393

Naval Ordnance Test Station (NOTS): 390

Naval Postgraduate School (NPS or NPGS): 394

Naval Research Laboratory (NRL): 398

Naval Sea Systems Command (NSSC): 395

Naval Ship Research and Development Center (NSRDC): 396

Naval Undersea Research and Development Center (NURDC): 390
 Naval Undersea Warfare Center (NUWC): 390
 Naval Undersea Center (NUC): 390
 Naval Underwater Sound Laboratory (NSNUSL): 397
 Naval Underwater Systems Center (NUSC): 392, 397
 Naval Underwater Weapons Research and Engineering Station (NUWRES):
 397
 Naval Weather Research Facility (WEARSCHFAC): 391
 Naval Weather Service Command (NWSC): 381
 Navires Oceanographiques de Recherches, d'Observation, d'Interven-
 tion, et de Soutien (NOROIS): 617
 Navy Automated Research and Development Information System (NARDIS):
 382
 Navy Environmental Protection Data Base (NEPDB): 389
 Navy Fleet Numerical Weather Facility (NFNWF): 391
 Navy Mine Defense Laboratory (NMDL): 387
 Navy Ocean Experimental Acoustic Data Bank (NAVDAB): 390
 Navy Research and Development Information Center (NARDIC): 382
 Navy Underwater Sound Laboratory (NUSL): 397
 Navy Weather Research Facility (NWRF): 375
 Navy/Industry Cooperative Research and Development Program
 (NICRAD): 382
 Nazca Lithospheric Plate Study: 318
 Nearshore Sediment Transport Study (NSTS): 424
 Nederlands Centrum voor Oceanografische Gegevens (NCOG): 640
 Nederlands Commissie voor Zee-Onderzoek (NCZO): 640
 Nederlands Instituut voor Onderzoek der Zee (NIOZ): 640
 Netherlands Interdepartmental Commission for Oceanography (ICVO):
 640
 New Commonwealth Study: See David Davies Memorial Institute of
 International Studies
 New England Coastal Area Planning (NECAP): 436
 New England Cooperative Coastal Research Facility (NECCRF): 436

New England Estuarine Research Society (NEERS): 466, 510
 New England Fisheries Development Program (NEFDP): 467
 New England Fisheries Steering Committee (NEFSC): 467
 New England Fishery Management Council (NEFMC): 369
 New England Interstate Water Pollution Control Commission
 (NEIWPPCC): 465
 New England Marine Advisory Service (NEMAS): 448
 New England Marine Industries Council (NEMIC): 567
 New England Marine Resources Information Program (NEMRIP): 448
 New England Offshore Mining Experiment Study (NOMES): 371
 New England Oil Coalition (NEOC): 568
 New England Regional Commission (NERCOMM): 467
 New England River Basin Commission (NERBC): 362
 New Jersey Department of Environmental Protection (NJDEP): 441
 New York Bight (NYB): 371
 New York Ocean Science Laboratory (NYOSL): 442
 New York Sea Grant Institute (NYSGI): 442
 New York University (NYU): 443
 New Zealand Oceanographic Institute (NZOI): 313, 642
 New Foundland Oceans Research and Development Corporation (NORDCO):
 604
 Nigerian Institute for Oceanography and Marine Research (NIOMR): 644
 Nigerian Navy Hydrographic Office (NNHO): 644
 Nigerian Port Authority (NPA): 644
 Nihonkai Regional Fisheries Research Laboratory (NHRFRL): 632
 NOAA Data Buoy Office (NDBO): 372
 NOAA Ocean Satellite (SEASAT): 376, 415
 NODC Index to Instrument Measured Subsurface Current Observations
 (NIMSCO): 375
 Non-Governmental Organization (NGO)
 Nordic Council (NC): 201

Nordic Council for Marine Biology (NCMB): 189, 202
 Nordic Hydrological Association (NHA): 203
 Nordic Hydrological Association (NAH): 76
 Nordic University Group on Physical Oceanography (NUGPO): 204
 Norges Almenirfenskabelige Forskningsrad (NAVF): 645
 Norges Sjøkartneik (NS): 645
 Norsk Oceanografisk Datasenter (NOD): 645
 Norsk Oseanografisk Komite (NOK): 645
 North American Salmon Association (NASA) 604
 North American Salmon Council (NASC): 569
 North American Slope Water (NASW)
 North American Society for Oceanic History (NASOH): 570
 North Atlantic Gyre Studies (NAGR): 428
 North Atlantic Ocean Stations (NAOS): 26
 North Atlantic Salmon Research Center (NASRC): 171
 North Atlantic Treaty Organization (NATO): 231, 260
 North Carolina Office of Coastal Management (NCOCM): 443
 North Carolina State University (NCSU): 443
 North Equatorial Countercurrent (NECC)
 North Equatorial Current (NEC)
 North Pacific Experiment (NORPAX): 315
 North Pacific Fisheries Project (NORFISH): 452
 North Pacific Fishery Management Council (NPFMC): 369
 North Pacific Sea Condition Monitoring Program (SEA ECHO): 398
 North Sea Hydrographic Commission (NSHC)
 North Sea In and Out Flow Experiment (INOUT): 298
 North Sea International Chart Commission (NSICC): 85
 North Sea Oceanographical Study Group (NSOSG): 662
 North Sea Wave Model (NORSWAM): 299
 North Water Project: 253

Northeast Atlantic Fisheries Commission (NEAFC): 65, 82
 Northeast Fisheries Center (NEFC): 369
 Northeast Gulf of Alaska (NEGOA): 371
 Northeast Regional Coastal Information Center (NERCIC): 373
 Northeast Utilization Research Center (NURC): 369
 Northwest and Alaska Fisheries Center (NWAFC): 369
 Northwestern Atlantic Environmental Study (NORWESTLANT): 246, 329
 Northwest Atlantic Fisheries Organization (NAFO): 63
 Northwest Coastal Information Center (NCIC): 373
 Northwest Fisheries Center (NWFC): 369
 Northwest Pacific Oceanographers (NWPO): 571
 Northwest Regional Calibration Center (NRCC): 372, 452
 Norwegian Council for Fisheries (NFFR): 645
 Nuclear Regulatory Agency (NUREG): 417
 Nuclear Regulatory Commission (NRC): 417
 Numerical Weather and Oceanographic Forecasting Center (NWOFC)
 Observing Station (OS)
 Observing Systems Simulation Experiment (OSSE): 349
 Ocean Acre Project (OCAC): 392
 Ocean Affairs Advisory Committee (OAAC): 410
 Ocean Affairs Board (OAB): See National Academy of Sciences/Ocean
 Affairs Board
 Ocean and Fishery Affairs, Bureau of Oceans and International Envi-
 ronmental and Scientific Affairs (OES/OFA): 410
 Ocean Atmosphere Response Studies (OARS): 322, 371
 Ocean Bottom Scanning Sonar (OBSS)
 Ocean Coordinating Committee (OCC): 538
 Ocean Data Acquisition System (ODAS)
 Ocean Data Gathering Program (ODGP)
 Ocean Data Station (ODS)
 Ocean Dumping Control Act (ODCA): 602

Ocean Dumping Surveillance System (ODSS): 412
 Ocean Dumpsite Research and Monitoring Program (ODRMP)
 Ocean Dynamics Advisory Subcommittee (ODAS): 415
 Ocean Dynamics Information System (ODIS): 415
 Ocean Economics and Technology Branch (OETB): 1
 Ocean Instrumentation Engineering Office (OIEO): 372
 Ocean Mining Associates (OMA): 572
 Ocean Policy Committee (OPC): 419
 Ocean Research Institute (ORITU): 632
 Ocean Science Committee, Ocean Affairs Board (OSC): 419
 Ocean Science Information Center (OSIC): 430
 Ocean Science Technology Advisory Committee (OSTAC): 561
 Ocean Sediment Coring Program (OSCP): 416
 Ocean Services Board (OSB): See National Academy of Sciences
 Ocean Shores Marine Information Center (OSMIC): 452
 Ocean Station (OS)
 Ocean Station Vessel (OSV): 3
 Ocean Survey Advisory Panel (OSAP)
 Ocean Survey Ship (OSS)
 Ocean SYNDARC: 671
 Ocean Test Platform (OTP): 37
 Ocean Thermal Boundary Analysis Charts (OTBA): 378
 Ocean Thermal Energy Conversion (OTEC): 372, 399, 447
 Ocean-Atmosphere Exchange Processes (OAMEX): 122
 Ocean Weather Ship (OWS)
 Oceanic and Atmospheric Scientific Information System (OASIS):
 375, 418
 Oceanic Gamefish Investigation (OGI, also called SKYLAB): 369
 Oceanic Industries Association (OIA): 573
 Oceanic Library and Information Center (OLIC): 574

Oceanic Society (OS): 575

Oceanographer of the Navy (OCEANAV): 341

Oceanographic and Limnological Institute of Israel (IOLI): 629

Oceanographic and Limnological Research Company of Israel (IOLR): 629

Oceanographic Commission of Washington (OCW): 452

Oceanographic Data for the Environmental Science Services Administration (ODESSA): 377

Oceanographic Institute of Washington (OIW): 372, 452

Oceanographic Research Buoy (ORB): 424

Oceanographic Research Ships (ORS)

Oceanographic Subprogramme Data Centre (OSDC): 347, 617

Oceans and Aquatic Sciences (OAS): 602

Office de la Recherche Scientifique et Technique d'Outre-Mer (ORSTOM): 259, 617, 631, 635, 641, 653

Office International pour la Protection de la Nature: See International Union for Conservation of Nature and Natural Resources

Office National des Peches (ONP): 638

Office National des Ports (ONP): 601

Office of Biological Service (OBS): 408

Office of Coastal Zone Management (OCZM): 368, 373

Office of Engineering and Quality Control (OEQC): 430

Office of Fisheries: 369

Office of Management, Budget, and Planning (OMBP): 427

Office of Naval Research (ONR): 315, 371, 372, 398

Office of Ocean Engineering (OOE): 372

Office of Ocean Management (OOM)

Office of Oceanic and Atmospheric Services (OAS): 374

Office of Pipeline Safety (OPS): 411

Office of Research and Development (ORD): 370, 371, 372, 373

Office of Saline Water (OSW): 407

Office of Sea Grant (OSG): 370, 372, 373

Office of Sea Grant Development (OSGD): 433

Office of Secretary of Commerce and Resources (OSCR): 451

Office of Technology Assessment (OTA): 356

Office of Chief of Naval Operations (OPNAV): 382

Office of Water Data Coordination (OWDC): 409

Office of Water Research and Technology (OWRT): 407

Office of Water Resources Research (OWRR): 407

Officine Allestimento e Riparazioni Navi (OARN): 630

Offshore Ecology Investigation (OEI): 462

Offshore Engineering Conference (OECON): 576

Offshore Installations Technical Advisory Committee (OFINTAC): 662

Offshore Technology Board (OFTB): 662

Offshore Technology Conference (OTC): 205

Oficina de Estadísticas Balleneras Internacionales: See Bureau of International Whaling Statistics

Oficina Nacional de Pescas (ONP): 664

Ohio State University (OSU): 444

Oil and Hazardous Material/Technical Assistance Data System (OHM/TADS): 513

Oil and Natural Gas Commission (ONGC): 625

Oil Corporation International Marine Forum (OCIMF): 206

Oil Spill Assessment Team (OSAT): 449

Oil Spill Control Association of America (OSCAA): 577

Old Dominion University (ODU): 451

Ontario Water Resources Commission (OWRC): 604

Operation Fish Watch (OFW): 369

Operational Hydrology Programme (OHP): 29

Operations Coordinator (OPECO): 670

Optimum Sustainable Population (OSP): 667

Optimum Yield (OY): 666

Oregon Coastal Conservation and Development Committee (ORCDC): 445

Oregon Estuarine Research Council (OERC): 445

Oregon Fish Commission (OFC): 445

Oregon Sea Grant Project (ORESG): 445

Oregon State University (ORESU): 445

Oregon State University (OSU): 445

Organisation de Cooperation et de Developpement Economique (OCDE): See
Organization for Economic Cooperation and Development

Organisation de l'Alimentation et de l'Agriculture (OAA): See
Food and Agriculture Organization

Organisation de l'Aviation Civile Internationale (OACI): See
International Civil Aviation Organization

Organisation de l'Unite Africaine (OUA): See Organization of
African Unity

Organisation des Caraibes: See Caribbean Organization

Organisation des Etats Americains (OEA): See Organization of
American States

Organisation des Nations Unies (ONU): See United Nations

Organisation du Traite de l'Atlantique Nord (OTAN): See North
Atlantic Treaty Organization

Organisation du Traite de Defense Collective pour l'Asie du Sud-Est
(OTASE): See Southeast Asia Treaty Organization

Organisation Europeenne de Cooperation Economique (OECE): See
Organization for European Economic Cooperation

Organisation Hydrographique Internationale (OHI): See Inter-
national Hydrographic Organization

Organisation Intergouvernementale Consultative de la Navigation
Maritime (OMCI): See Inter-Governmental Maritime Consultative
Organization

Organisation Internationale du Travail (OIT): See International
Labor Organization

Organisation Meteorologique Mondiale (OMM): See World Meteor-
ological Organization

Organisation Mondiale de la Sante (OMS): See World Health Organi-
zation

Organisation Panamericaine de la Sante: See Pan American Health
Organization

Organismo Internacional de Energia Atomica (OIEA): See International Atomic Energy Agency

Organizacion Consultativa Maritima Intergubernamental (OCMI): See Inter-Governmental Maritime Consultative Organization

Organizacion de Cooperacion y Desarrollo Economicos (OCDE): See Organization for Economic Cooperation and Development

Organizacion de la Unidad Africana (OUA): See Organization of African Unity

Organizacion de los Estados Americanos (OEA): See Organization of American States

Organizacion Meteorologica Mundial (OMM): See World Meteorological Organization

Organization Hidrografica Internacional (OHI): See International Hydrographic Organization

Organization for Economic Cooperation and Development (OECD): 86

Organization for Economic Cooperation and Development/Environment Committee (OECD/EN): 86

Organization for European Economic Cooperation (OEEC): 86

Organization of African Unity (OAU): 87, 283

Organization of American States (OAS): 88

Osservatoria Geofisico Sperimentale (OGS): 630

Outer Continental Shelf (OCS): 354, 669

Outer Continental Shelf Energy Program (OCSEP)

Outer Continental Shelf Environmental Assessment (OCSEA): 371

Outer Continental Shelf Environmental Assessment Program (OCSEAP) 371, 402, 421

Outer Continental Shelf Environmental Studies Advisory Commission (OCSEAC): 401

Outer Continental Shelf Events File (OCSEF): 409

Over the Horizon Radar (OTH): 398

Overflow Program 330

Pacem in Maribus (PIM): 188

Pacific Acoustic Research Kaneohe-Alaska (PARKA): 392, 430

Pacific Area Cooperative Enforcement System (PACES): 422

Pacific Biomedical Research Center (PBRC): 430

Pacific Environmental Group (PEG): 369
 Pacific Fishery Management Council (PFMC): 369
 Pacific Marine Center (PMC): 377
 Pacific Marine Environmental Laboratory (PMEL): 371
 Pacific Marine Fisheries Commission (PMFC): 468
 Pacific Marine Station (PMS): 425
 Pacific Missile Center (PMC): 382
 Pacific Missile Range Facility (PMRF): 372
 Pacific Missile Test Center (PMTTC): 382
 Pacific Northwest Environmental Research Laboratory (PNERL): 413
 Pacific Northwest Laboratories (PNWL): 513
 Pacific Northwest River Basin Commission (PNWRBC): 362
 Pacific Ocean Biological Survey Program (POBSP): 418
 Pacific Oceanographic Laboratory (POL): 371
 Pacific Rim Alliances of Marine Technology Sections (PACRIM): 547
 Pacific Science Association (PSA) 207, 237
 Pacific Science Information Center (PSIC): 514
 Pacific Sea Grant Advisory Program (PASGAP)
 Pacific Seabird Group (PSG): 578
 Pacific Tsunami Warning Center (PTWC): 378
 Pacific Utilization Research Center (PURC): 369
 Pan American Health Organization (PAHO): 88
 Pan American Institute of Geography and History (PAIGH): 88
 Pan American Union (PAU): 88
 Pan Indian Ocean Congress: 208
 Pan Indian Ocean Scientific Association (PIOSA): 208
 Pan Pacific Institute of Oceans and Sciences (PAN PAC): 579
 Panel of Experts for the Facilitation of Tuna Research: 18
 Panel of Experts on Climatic Change (PECC): 28
 Panel of Experts on Environmental Pollution (PEEP): 28

Panel on International Programs and International Cooperation
in Ocean Affairs (PIPICO): 361

Panel on Oceanography (POO): 357

Panel on Systems for the Acquisition, Transmission, and Processing
of Hydrological Data (SAPHYDATA): 290

Panel on World Data Centers (PWDC): 127, 245

Park and Wildlife Department (PWD): 450

Pell Marine Science Library (PMSL): 448

Pennsylvania Fish Commission (PFC): 446

Permanent Commission for the Conservation of the Marine Resources of
the South Pacific: See Permanent Commission of the South Pacific

Permanent Commission of the International Fisheries Convention
(PCIFC): 82

Permanent Commission of the South Pacific (PCSP): 89

Permanent Commission on the Exploitation and Conservation of the
Maritime Resources of the South Pacific: See Permanent Commission
of the South Pacific

Permanent International Association of Navigational Congresses
(PIANC): 163, 212, 216

Permanent International Committee for Research on the Preservation of
Materials in the Marine Environment: 86

Permanent Service for Mean Sea Level (PSMSL): 113, 131, 315

Permanent Service on Earth Tides (SPMT): 132

Perpendicular Ocean Platform (POP)

Perspective Study of World Agricultural Development (PSWAD): 17, 331

Petroleo Brasileiro (PETROBRAS)

Petroleos Mexicanos (PEMEX): 637

Petroleum Association for Conservation of the Environment (PACE): 604

Petroleum Industries Marine Association (PIMA): 632

Philippine Oceanographic Data Center (PODC): 649

Phuket Marine Biological Center (PMBC): 242

Plan de la Lutte contre les Pollutions Marines Accidentelles
(POLMAR): 617

Planning for Offshore Ports (POP): 436

Platforms of Opportunity (POO): 369
 PMEL/NOAA Project--Magnetic Anomalies (TRANSPAC-MAG): 371
 Polar Experiment (POLEX): 350
 Polar Experiment, Northern Hemisphere (POLEX-NORTH): 350
 Polar Experiment, Southern Hemisphere (POLEX-SOUTH): 313, 350
 Polar Front Zone (PFZ)
 Polar Ice Core Drilling Office (PICO): 416
 Polar Research Laboratories (PRL): 580
 Policy Group on Scientific Information (POGSI): 128
 Pollutant Response in Marine Animals (PRIMA): 309
 Pollution Control Agency (PCA): 438
 Pollution Incident Reporting System: (PIRS): 412
 Pollution Transfer Program (PTP): 310
 Polska Akademia Nauk (PAN): 650
 Polyarnyy Nauchno-Issledovatel'skiy Institut Morskogo Rybnogo
 Khozyaystva i Okeanografii (PINRO): 661
 POLYGON Mid-Ocean Dynamics Experiment (POLYMODE): 314, 328, 378,
 436, 588
 Pop-Up Bottom Seismograph (PUBS)
 Port Meteorological Office (PMO): 377
 Portable Ocean Platform Motion Instrumentation Package (POPMIP)
 President's Science Advisory Committee (PSAC): 357
 President's Scientific Advisory Committee Panel on Oceanography
 (PSACPOO): 357
 Princeton University Research Center (PURC): 371
 Process Oriented Observation Program (POOP): 315
 Preliminary Mid-Ocean Dynamics Experiment (Pre-MODE): 314
 Processes and Resources of the Bering Sea Shelf (PROBES): 421
 Processing, Research, Inspection, and Marine Extension (PRIME): 369
 Profiling Current Meter (PCM)
 Programa de las Naciones Unidas para el Desarrollo (PNUO): See
 United Nations Development Program

Programa de las Naciones Unidas para el Medio (PNUM): See United Nations Environment Program

Program Plurianual de Geologia e Geofisica Marinha (GEOMAR): 599

Programme Biologique Internationale (PBI): See International Biological Programme

Programme des Nations Unies pour le Developement (PNUD): See United Nations Development Program

Programme for the Analysis of World Ecosystems (PAWE): 332

Programme des Nations Unies pour l'Environnement (PNUE): United Nations Environment Program

Programme Hydrologique International (PHI): See International Hydrological Program

Programme Internationale de Correlation Geologique (PICG): See International Geological Correlation Program

Project Little Window: 333

Radiation Subprogramme Data Centre (RSDC): 347

Prototype Environmental Buoy (PEB): 372

Public Health Service (PHS): 400

Puerto Rico Nuclear Center (PRNC): 447

Puerto Rico Undersea R & D Corp. (PRURDCO): 447

Puerto Rico Water Resources Authority (PRWRA): 447

Puerto Rico Inter-National Undersea Laboratory (PRINUL): 447

Radar Sea State Analyzer (RASSAN): 428

Radioisotopic Sand Tracer (RIST)

Radiological North Sea Project (RANOSP): 662

Ralph M. Parsons Laboratory for Water Resources and Hydrodynamics (RMPLWRH): 436

Rational Use of the Sea Floor (RUSEF): 371

Recherches Internationales Concertees dans l'Atlantique Tropical (RICAT): See International Cooperative Investigation of the Tropical Atlantic

Reconhecimento da Margeon Continental Brasileira (REMAC): 321, 599

Regional Associations (RA): 30

Regional Coastal Information Center (RCIC): 373

Regional Fisheries Commission for Western Africa (RFCWA): 20

Regional Fisheries Commission for Western Africa (RFCWA): 20

Regional Fishery Management Council (RFMC): 369

Regional Marine Biological Centre (RMBC): 21, 243, 267

Regional Meteorological Centre (RMC): 667

Regional Data Center (RODC): 65, 237, 244, 245, 261, 262, 265, 267,
670

Regional Office for Science and Technology (ROST): 21

Regional Office for Science and Technology in Africa (ROSTA): 21

Regional Office for Science and Technology in Latin America and
the Caribbean (ROSTLAC): 21

Regional Office for Science and Technology in the Arab States
(ROSTAS): 21

Regional Office for Science and Technology in Latin America
(ROSTLA): 21

Regional Office for Science and Technology in South and Central
Asia (ROSTSCA): 21

Regional Office for Science and Technology in Southeast Asia
(ROSTSEA): 21

Regional Oil Combating Center (ROCC): 8

Regional Pollution Studies in the Ligurian Sea (RAMOGE): 334

Register of Rivers Discharging into the Oceans (RRDO): 8

Remote Controlled Vehicle (RCV)

Remote Underwater Fishery Assessment System (FUFAS): 369

Remote Underwater Manipulator (RUM)

Remote Unmanned Work System (RUWS): 390

Report of Observations/Samples Collected by Oceanographic Programs
(ROSCOP): 375, 671

Research Applied to National Need (RANN): 416

Research Ship of Opportunity (RSO)

Research Vessel (R/V)

Reseau National d'Observation de la Qualite du Mileu Marin (RNO): 617

Resources Agency Sea Grant Advisory Panel (RASGAP): 422

Responsible National Oceanographic Data Center (RNODC): 280, 670
 Results of Marine Biological Investigations (ROMBI): 671
 Revised Single Negotiating Text (RSNT): 2
 Rhodamine Experiment in the North Sea (RHENO): 335
 Rhode Island Coastal Resources Management Council (RICRMC): 448
 Ridge Interaction and Downstream Gradient Experiment (RIDGE): 313
 Rijks Geologische Dienst (RGD): 640
 Rijks Instituut voor Visserijonderzoek (RIVO): 640
 Rijkswaterstaat (RW): 640
 Rivera and Tamayo Fault Exploration (RITA): 271
 Rivera Ocean Seismic Experiment (ROSE): 452
 Rosentiel School of Marine and Atmospheric Sciences (RSMAS): 428
 Ross Ice Shelf Project (RISP): 279
 Ross Sea Deep Water (RSDW)
 Ross Sea Winter Water (RSWW)
 Royal Australian Navy (RAN): 596
 Royal Australian Navy Experimental Laboratory (RANEL): 596
 Royal Australian Navy Research Laboratory (RANRL)
 Royal Society for the Protection of Birds (RSPB): 662
 Royal Thai Navy/Hydrographic Department (RTN/HD): 658
 Ruder Boskovic Institut (RBI): 665
 Rumphius Expedition: 336
 SACLANT ASW Research Centre (SACLANTCEN): 81
 Safeman Banader va Keshti Rani (SEKR): 627
 Safety of Life at Sea Conference (SOLAS): 25
 Sahara Upwelling Experiment (SUE): 96, 265
 Salinity/Temperature/Depth (STD)
 Salmon Research Trust (SRT): 628
 Salt Dome Environmental Monitoring System (SADEMS): 375
 San Francisco Bay Conservation and Development Commission
 (SFB CDC): 423

Sandy Hook Marine Laboratory (SHML): 442
 Santa Barbara Mariculture Foundation (SBMF): 423
 Santa Cruz Acoustic Range Facility (SCARF): 382
 Satellite Surveillance Program (SURSAT): 602
 Scandinavian Hydrographic Union (SHU): 84, 85, 90
 School of Engineering and Environmental Design (SEED): 428
 Scientific Advisory Board (SAB): 22
 Scientific and Technical Assessment of Environmental Pollutants (STAEP): 419
 Scientific and Technological Affairs, Bureau of Oceans and International Environmental and Scientific Affairs (OES/SCI): 410
 Scientific and Technical Research Commission of the Organization for African Unity (OAU/STRC): 87, 283
 Scientific Aspects of International Ocean Research Working Party (SAIOR): 229
 Scientific Committee on Antarctic Research (SCAR): 121, 122, 249, 256, 279
 Scientific Committee on Oceanic Research (SCOR): 21, 122, 225, 227, 229, 234, 237, 254, 256, 293, 352, 671
 Scientific Committee on Water Research (COWAR): 123
 Scientific Cooperative Operational Research Expedition (SCORE): 372
 Scientific Council for Africa (CSA): 87
 Scientific Events Alert Network (SEAN): 418
 Scientists in the Sea (SITS): 372
 Scott Polar Research Institute (SPRI): 662
 Scottish Marine Biological Association (SMBA): 662
 Scottish Ornithologist Club (SOC): 662
 Scripps Institution of Oceanography (SIO): 295, 422, 424
 Scripps Tuna Oceanography Research Program (STOR): 424
 Sea Education Association (SEA): 443, 581
 Sea Fisheries Branch (SFB): 654
 Sea Fisheries Research Station (SFRS): 629
 Sea Grant (SG): 373

Sea Ice Observation Code (ICEOB): 668
 Sea Level Pressure (SLP)
 Sea Surface Temperature (SST)
 Sea Use Council (SUC): 469
 Sea Air Interaction Laboratory (SAIL): 371
 Sea/Air Chemical Exchange (SEAREX): 311
 Seabed Committee: 2
 Seagoing Platform for Acoustic Research (SPAR)
 Seagrass Ecosystem Study (SES): 323
 Seagrass Ecosystems Component Study (SECS): 323
 Search and Rescue (SAR): 412
 SEASAT Users Group of Europe (SURGE): 57
 SEASAT-A Scatterometer System (SASS): 376
 Seattle Ocean Services Unit (SOSU): 378
 Second Dynamic Response and Kinematics Experiment (S DRAKE): 313
 Second International BIOMASS Experiment (SIBEX): 256
 Secretaria de Agricultura y Ganadeira (SAG): 637
 Secretaria de Industria y Comercio (SIC): 637
 Secretaria de Recursos Hidraulicos (SRH): 637
 Secretary of the Navy (SECNAV): 382
 Section d'Océanographie Université de Québec a Rimouski (SOUGAR):
 603
 Seikai Regional Fisheries Research Laboratory (SRFRL): 632
 Seismic Reflection Profile (SRP)
 Seismic Sea Wave Warning System (SSWWS): 378
 Selected Legally Protected Animals (SLPA): 3B1
 Self Leveling Unit for Removing Pollution (SLURP)
 Self-Contained Underwater Breathing Apparatus (SCUBA)
 Sensitive Wildlife Information System (SWIS): 381
 Service des Phares et Balises (SPB): 638

Service Hydrographique de la Cote (SHC): 598

Service Hydrographique et Oceanographique de la Marine (SHOM): 617

Service Maritime Fluvial (SMF): 618

Service Hydrographique: 65, 244, 265, 670

Service Permanent des Marees Terrestres (SPMT): 132

Service Technique des Equipment Profonds (STEP): 617

Servicio de Hidrografia Naval (SHN): 595

Servicio de Meteorologia Nacional (SMN): 637

Servicio de Oceanografia e Hidrografia (SOH): 663

Servicio Meteorologico de la Armada (SMA): 605

Servicio Meteorologico Nacional (SMN): 611, 651, 655

Servicio Nacional de Instrumentacion Oceanografica (SNIO): 637

Servicio Nacional de Pesca (SNP): 595

Servicio Nazionale Raccolta Dati Oceanografici (SNRDO): 630

Servizio Meteorologico dell'Aeronautica Militaire (SMAM): 630

Severe Environmental Storms and Mesoscale Experiment (SESAME): 378

Severnyy Polyarnyy Nauchno-Issledovatel'skiy Institut Morskogo Rybnogo Khozyaystva i Okeanografii (SEVPINRO): 661

Seyir ve Hidrografi Daire Baskanlgi (SHDB): 660

Shallow Water Oceanographic Research Data (SWORD): 377

Shelf Dynamics Project (SDP): 322

Shelf Edge Exchange Processes (SEEP): 516

Shellfish Advisory Committee (SAC): 442

Shellfish Institute of North America (SINA): 582

Shimonoseki University of Fisheries (SUF): 632

Ship and Marine Technology Requirements Board (SMTRB): 662

Ship of Opportunity Program (SOOP): 369

Ship Research Committee (SRC): 419

Ship Structure Committee (SSC): 419

Shipboard Environmental Data Acquisition System (SEAS): 378

Shipboard Oceanographic Survey System (SOSS): 392
 Shipbuilding Council of America (SCA): 583
 Shoals Marine Laboratory (SML): 443
 Short Range Navigation (SHORAN)
 Sierra Club and Friends of the Earth (SC&FE): 584
 Signalement et Archivages Des Information Courantometriques (SAIC):
 617
 Skidaway Institute of Oceanography (SIO or SKIO): 429
 Skylab Upwelling Experiment (SUE): See Sahara Upwelling Experiment
 Sludge Tracking Acoustical Experiment (STAX): 371
 Small Expendable Air-Dropped Remote Ocean Platform (SEADROP)
 Smithsonian Institution (SI): 240, 392, 418
 Smithsonian Oceanographic Sorting Center (SOSC): 418
 Smithsonian Science Information Exchange (SSIE): 418
 Smithsonian Tropical Research Institute (STRI): 418
 Societe National des Petroles d'Aquataine (SNPA): 617
 Societe pour le Developpement de l'Aquaculture en Bretagne (SODAB):
 617
 Societe de Developpement Operationnel des Richesses Sous-Marines
 (DORIS): 617
 Society Of Economic Paleontologists and Mineralogists (SEPM): 585
 Society of Exploration Geophysists (SEG): 586
 Society of Naval Architects and Marine Engineers (SNAME): 209
 Solid Waste Information Retrieval System (SWIRS): 413
 Somali Current Monitoring System (SCMS): 348
 Sonar In-Situ Mode Assessment System (SIMAS): 397
 Sonderforschungsberichte (SFG): 620
 Sound and Sea Fisherman's Association, Inc. (SSFA): 443
 South African Institute of Oceanographic Research (SAIOR): 654
 South African National Antarctic Expedition (SANAE): 654
 South African National Commission for Oceanographic Research
 (SANCOR): 654

South African Scientific Committee for Antarctic Search (SANCAR): 654
 South Atlantic Cooperative Investigations (SACI): 144, 337
 South Atlantic Fishery Management Council (SAFMC): 369
 South Carolina Coastal Council (SCCC): 448
 South Carolina Wildlife and Marine Resources Department (SCWMRD): 449
 South China Sea Fisheries Development and Coordination Programme: 338
 South China Sea Hydrographic Commission (SCSHC): 92
 South China Sea Project: See South China Sea Fisheries Development
 and Coordination Programme
 South Equatorial Counter Current (SECC)
 South Equatorial Current (SEC)
 South Pacific Commission (SPC): 93
 South Pacific Island Fishery Development Agency (SPIFDA): 93
 Southeast Asia Science Cooperation Office (SEASCO): 21
 Southeast Asia Treaty Organization (SEATO): 91
 Southeast Fisheries Center (SEFC): 369
 Southern California Bight Studies (SCBS): 424
 Southern California Coastal Water Research Project (SCCWRP): 423
 Southern California Ocean Studies Consortium (SCOSC): 424
 Southern Coastal Plains Expedition (SCOPE): 377
 Southern Maine Marine Vocational Training Institute (SMMVTI): 434
 Southern New England Marine Technical Society (SNEMTS): 547
 Southern Ocean Float Experiment (SOFEX): 346
 Southern Oceans Study (SOC): 22, 313
 Southern Oil Exploration Company (SOEKOR): 654
 Southwest Atlantic Continental Margin Studies (SWACM): 321
 Southwest Atlantic Fisheries Advisory Commission (SWAFAC): 20
 Southwest Fisheries Center (SWFC): 369, 422
 Spacecraft Oceanography project (SPOC): 376
 Special Committee for the International Biological Programme
 (SCIPB): 124, 286

Special Committee for the International Geophysical Year (CSAGI):
127, 245, 289

Special Committee on Problems of the Environment (SCOPE):
125, 241, 325

Special Committee on Solar-Terrestrial Physics (SCOSTEP): 126

Specialized Oceanographic Center (SOC): 280, 378

Spectro-Angular Density Method of Forecasting Ocean Waves (DSA)

Spill Prevention Control and Countermeasures (SPCC)

Spilled Oil Research (SOR): 371

Spilled Oil Response Team (SORT): 371, 375

Sport Fishing Institute (SFI): 587

Sport Fishing Research Foundation (SFRF): 587

St. Lawrence River Advisory Committee (SLRAC): 442

Standard Format for Exchange of Data Between Archiving Centers
(SYNDARC): 671

Standard Seawater Service (SSS): 662

Standing Advisory Committee on Fisheries of the Caribbean
Organization (SAPCO): 44

Standing Committee For Research And Statistics (STACRES): 63

Standing Committee of the South Pacific: See Permanent Commission
of the South Pacific

Stanford Research Institute (SRI): 588

Stanford University (SU): 425

State Emergency Communications Committee (SECC): 378

State University of New York (SUNY): 442

State University System Of Florida (SUSF): 428

State University System Of Florida Institute Of Oceanography (SUSIO):
372, 428

Station Keeping And Mobile Platform (SKAMP)

Stock Assessment And Fishery Investigations (SAFE): 369

Storage And Retrieval For Water Quality Data (STORET): 413

Studies Of Coastal And Estuarine Environments (SCENE): 371

Studies Of Ocean Upper Layers (SOUL): 371

Study Commission On Ocean Data Stations (SCODS): 298, 361

Study Of Critical Environmental Problems (SCEP): 436

Study Of Dynamics Of Equatorial Currents And Structure Of Water (DINEKT): 661

Study Of Oceanological Basis For Bioproductivity Of Prospective Open-Ocean Fishing Grounds (BIOTALASSA): 661

Study Of Sedimentary Layer Of Oceans (GEOS): 661

Study Of Shelf And Continental Divide (BIOSHELF): 661

Study Of Surface And Internal Waves (VOLNA) 661

Sub-Antarctic Surface Water (SAASW)

Sub-Committee On Geographical Names and Nomenclature Of Ocean Bottom Features: 1

Sub-Group Of Experts On Marine Pollution Monitoring (MARPOLMON): 39

Submarine Expendable Bathythermograph (SSXBT)

Submarine Sand Recovery System (SSRS)

Submersible Oriented Platform For Deep Ocean Sediment Studies (SOPDOSS)

Submersible Training Platform (SUBTRAP)

Subprogramme Data Centre (SDC): 347

Supreme Allied Command, Atlantic (SACLANT): 81

Summary Of Synoptic Meteorological Observations (SSMO): 375

Surface Expendable Bathythermograph (SXBT)

Surface Mixed Layer Experiment (SMILE): 516

Sveriges Meteorologiska och Hydrologiska Institut (SMHI): 657

Swedish Environmental Protection Board (SEPB): 657

Synchronous Meteorological Satellite (SMS): 346

Synoptic-Scale Subprogramme Data Centre (SSDC): 347

Synoptic Observations Of Profiles In The Straits (Of Florida) (SYNOPS): 428

Synoptic Oceanographic Data Acquisition System (SODAS): 392

Synthetic Aperture Radar (SAR): 398

Synthetic Bathymetric Profiling System (SYNBAPS): 398

Systematic Exploration And Mapping Program (SEAMAP): 377

Systematic Studies of the North Atlantic (NAT): 226

Systeme d'Aquisition de Donnees Oceaniques (SADO): See Ocean Data Acquisition System

Systeme Mondial Integre de Station Oceaniques (SMISO): See Integrated Global Ocean Station System

Tactical Automatic Weather Station (Buoy) (TAWS)

Task Group On Identification Of Problems, Opportunities, and Needs, Existing and Potential (IPON): 361

Task Group on Interagency Coordination, Federal-State Relationships, And Legal Problems (COSREL): 361

Technical Advisory Group (TAG): 12, 263

Technical Cooperation Bureau (TCB): 633

Technical Information Center (TIC): 520

Telemetering Ocean Bottom Seismometer (TOBS)

Television Infrared Observation Satellite (TIROS)

Ten Year Oceanographic Plan (U.S. Navy) (TENOC): 382

Temperature, Salinity, and Currents (TESAC): 671

Ten Year Plan For Ocean Exploration (TYPOE): 361

Terres Australes et Antarctiques Francaises (TAAF): 617

Tethered Remotely Operational Vehicle (Trov)

Texaco, Humble, Union, Mobile, and Shell Four-Island Man-Made Complex (THUMS)

Texas A&M University (TAMU): 450

Texas Coastal And Marine Council (TCMC): 450

Texas Deepwater Port Consortium (SEADOCK): 450

Texas Deepwater Ports Authority (TDPA): 450

Texas Water Quality Board (TWQB): 450

Thai National Documentation Centre (TNDC): 659

The Coastal Society (TCS): 589

The Research Institute Of The Gulf Of Maine (TRIGOM): 434

Thermal Structure Monitoring Program In The Pacific (TRANSPAC): 315

Tidal Constants Data Base (TC): 377
 Tidal Current Survey System (TICUS): 377
 Tides Data Base (TIDES): 377
 Tidewater Artificial Reef Association Of Virginia (TARAV): 451
 Tikhookeanskaya Okeanograficheskaya Nauchnaya Stantsiya (TONS): 661
 Tikhookeanskiy Institut Rybnogo Khozyaystva (TIRKH): 661
 Tikhookeanskiy Nauchno-Isseldovatel'skiy Institut Rybnogo Khozyaystva i Okeanografii (TINRO): 661
 Tohoku Regional Fisheries Research Laboratory (THRFL): 632
 Tokai Regional Fisheries Research Laboratory (TRFRL): 632
 Tokyo University Of Fisheries (TUF): 632
 Tongue Of The Ocean (TOTO): 382
 Total Allowable Catch (TAC): 666
 Total Organic Carbon (TOC)
 Towed Acoustic Surveillance System (TASS)
 Towed Oceanographic Data Acquisition System (TODAS): 381
 Towed Optical Assessment Device (TOAD): 369
 Trade Wind Zone Oceanography (TWZO)
 Training, Education, and Mutual Assistance (TEMA): 22
 Trans-Oceanic Geophysical Investigations (TOGI)
 Transatlantic Geotraverse (TAG): 319
 Transport and Harbors Department (THD): 622
 Transportation Induced Pollution Surveillance (TIPS)
 Trident: 144, 337
 Trinity College, Dublin (TCD): 628
 Tropical Atlantic Biological Laboratory (TABL): 369
 Tropical Experiment (TROPEX): 351
 Tropical Experiment Board for GATE (TEB): 30, 347
 Tropical Experiment Council for GATE (TEC) 30, 347
 Tropical Oceanographical And Meteorological Experiment (TROMEX): 345

- Tropical Wind Energy Conversions And Reference Level Experiments (U.K.) (TWERLE): 662
- Tropical Wind Observing Ships (TWOS): 346
- Tsentral'nyy Nauchno-Issledovatel'skiy Institut Informatskiy i Techniko Ekonomicheskikh Issledovaniy Rybnogo Khozyaystva (TSNIITEIRKH): 661
- Tsunami Warning System in the Pacific (ITSU): 22
- Tuna Research Foundation (TRF): 590
- U.S. Commission of Maritime History (USCMH): 418
- U.S. Congress: 354
- U.S. Environment and Resource Council (USREC): 219
- U.S. Merchant Marine Academy (USMMA): 365
- Under Seas Equipment Manufacturers Association (USEMA): 591
- Undersea Instrument Chamber (USIC)
- Undersea Medical Society (UMS): 592
- Undersea Research Vehicle (URV)
- Underwater Engineering Group (UEG): 662
- Union de Asociaciones Tecnicas Internacionales (UATI): See Union of International Engineering Organizations
- Union des Associations Techniques Internationales (UATI): See Union of International Engineering Organizations
- Union des Associations Internationales (UAI): See Union Of International Associations
- Union Europeenne de Malacologie (UEM): See European Malacological Union
- Union Geodesie et Geophysique Internationale (UGGI): See International Union of Geodesy and Geophysics
- Union Geographique International (UGI): See International Geographic Union
- Union Internacional de Biofisica Pura y Aplicada (UIBA): See International Union of Pure and Applied Biophysics
- Union Internacional de Bioquimica (UIG): See International Union of Biochemistry
- Union Internacional de Ciencias Biologicas (UICB): See International Union of Biological Sciences

Union Internacional de Ciencias Fisiologicas (UICF): See International Union of Physiological Sciences

Union Internacional de Ciencias Geologicas (UICG): See International Union of Geological Sciences

Union Internacional de Fisica Pura y Aplicada (UIFPA): See International Union of Pure and Applied Physics

Union Internacional de Geodesia y Geofisica (UIGG): See International Union of Geodesy and Geophysics

Union Internacional de Quimica Pura y Aplicada (UIQPA): See International Union of Pure and Applied Chemistry

Union Internacional para la Conservacion de la Naturaleza y Sus Recursos (UICN): See International Union for Conservation of Nature and Natural Resources

Union Internationale de Biophysique Pure Et Appliquee (UIBPA): See International Union of Pure and Applied Biophysics

Union Internationale de Chimie Pure et Appliquee (UICPA): See International Union of Pure and Applied Chemistry

Union Internationale de Mecanique Theorique et Appliquee (UITAM): See International Union of Theoretical and Applied Mechanics

Union Internationale des Sciences Physiologiques (UISP): See International Union of Physiological Sciences

Union Internationale de Physique Pure et Appliquee (UIPPA): See International Union of Pure and Applied Physics

Union Internationale des Sciences Biologiques (UISB): See International Union of Biological Sciences

Union Internationale des Sciences Geologiques (UISG): See International Union of Geological Sciences

Union Internationale des Telecommunications (UIT): See International Telecommunications Union

Union Internationale pour la Conservation de la Nature et de ses Ressources (UICN): See International Union for Conservation of Nature and Natural Resources

Union of International Associations (UIA): 210

Union of International Engineering Organizations (UIEO): 211, 212, 213, 214, 215, 216

Union Radio-Scientifique Internationale (URSI): See IURS

Union Telegraphique Internationale (UTI): 32

Unitas Malacologica Europaea (UME): See European Malacological Union

Unite Regionale de Developpement de l'Aquaculture (URDA): 617

United Kingdom Offshore Operators Association (UKOOA): 662

United Nations (UN): 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 88, 230

United Nations Children's Fund (UNICEF): 13

United Nations Committee on Peaceful Uses of the Seabed and the Ocean Floor Beyond the Limits of National Jurisdiction: 2

United Nations Conference on the Human Environment (UNCHE): 1, 8, 11, 199, 230, 332

United Nations Conference on the Law of the Sea (UNCLOS): 2, 10, 40, 87, 361, 410, 499

United Nations Conference On Trade And Development (UNCTAD): 6

United Nations Development Program (UNDP): 3, 7, 77, 188, 294, 338

United Nations Educational, Scientific and Cultural Organization (UNESCO): 21, 22, 36, 38, 196, 234, 235, 240, 243, 262, 270, 283, 290, 293, 300, 301, 325, 336

United Nations Environment Program (UNEP): 4, 8, 38, 125, 192, 230, 238, 239, 241, 272, 277, 326, 418

United Nations General Assembly (UNGA): 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15

United Nations Industrial Development Organization (UNIDO): 44

United Nations Institute for Training and Research (UNITAR): 3, 11

United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR): 15

United Nations Seabed Committee: 2

United States Antarctic Research Program (USARP): 416, 428, 442

United States Coast and Geodetic Survey (USC&GS): 377

United States Coast Guard (USCG): 67, 369, 372, 411, 412

United States Coast Guard Auxiliary (USCGAUX): 412

United States Fish and Wildlife Service (USF&WS): 408

United States-French Agreement for Scientific and Technical Cooperation: 94

United States Geological Survey (USGS): 409

United States-Japan Cooperative Program in Natural Resources (UJNR): 95

United States Lake Survey (USLS): 377

United States Naval Oceanographic Office (USN00): 392

United States Navy (USN): See Department of Navy

United States-Japan Science Program (UJSP): 95

United States-Spain Scientific Cooperation: 96

United States-Union of Soviet Socialist Republics Joint Committee
on Cooperation in World Ocean Studies: 97, 314

United States-Union of Soviet Socialist Republics Joint Working
Group on the Effects of Pollutants on Marine Organisms: 98

Universidad Autonoma de Baja California (UABC): 637

Universidad de Navarrit (UNINAY): 637

Universidad Nacional "Federico Villarreal" (UNFV): 648

Universidad Nacional Autonoma de Mexico (UNAM): 637

Universidade Federal de Pernambuco (UFP): 599

Universidade Federal do Ceara (UFC): 599

Universidade Federal do Rio de Janeiro (UFRJ): 599

Universidade Federal do Rio Grande do Sul (UFRGS): 599

Universitetet i Bergen (UIB): 645

Universitetet i Oslo (UIO): 645

Universitetet i Tromso (UIT): 645

University College, Cork (UCC): 628

University College, Galway (UCG): 628

University Corporation For Atmospheric Research (UCAR): 416

University Marine Center (UMC): 464

University National Oceanographic Laboratory System (UNOLS): 416,

University of Alaska (UAL): 398, 421

University of British Columbia Institute Of Oceanography (UBCIO):

University of California (UC): 424

University Of California at Davis (UCD): 424

University of California at San Diego (UCSD): 424

University of California at Santa Barbara (UCSB): 424

University of California at Santa Cruz (UCSC): 424

University of Cape Town Institute Of Oceanography (UCTIO): 654
 University of Connecticut (UCT): 426
 University of Delaware (UDE): 427
 University of Florida (UF): 428
 University of Georgia (UGA): 429
 University of Hawaii (UNIHI): 371, 430
 University of Hawaii Sea Grant Program (UNIHISG): 430
 University of Maine (UM): 434
 University of Maryland (UMD): 435, 455
 University of Massachusetts (UMA): 436
 University of Miami (UM): 428
 University of Michigan (MICHU): 437
 University of Michigan Sea Grant Program (MICHUSG): 437
 University of Minnesota (UMN): 458
 University of Mississippi (UM): 439
 University of New Hampshire (UNH): 440, 442
 University of North Carolina (UNC): 443
 University of North Florida (UNFI): 428
 University of Puerto Rico (UPR): 261, 447
 University of Rhode Island (URI): 392, 430, 448
 University of South Carolina (USC): 448
 University of South Florida (USF): 428
 University of Southern California (USC): 425
 University of Texas (UT): 450
 University of Texas Medical Branch (UTMB): 450
 University of The Pacific (UP): 425
 University of Virginia (UVA): 451
 University of Washington (UW): 250, 371, 372, 451,
 University of Washington Applied Research Laboratory (UW/APL): 390,
 451

University of West Florida (UWF): 428
 University of Wisconsin (UWIS): 453
 Upper Mantle Committee (UMC): 126, 340
 Upper Mantle Project (UMP): 126, 288, 340
 Upwelling Biome Integrated Research Program: 286
 Upwelling Study Oregon Coast (UP): 445
 USSR Mesoscale Project In The North Atlantic (POLYGON): 314
 Vector Averaging Current Meter (VACM)
 Veille Meteorologique Mondiale (VMM): See World Weather Watch
 Vening Meinesz Laboratories (VML): 640
 Vertical Current Meter (VCM)
 Very Large Crude Carrier (VLCC)
 Vigilancia Meteorologica Mundial (VMM): See World Weather Watch
 Virginia Fisheries Laboratory (VFL): 451
 Virginia Institute Of Marine Science (VIMS): 451, 455
 Virginia Marine Resources Commission (VMRC): 451
 Virginia Polytechnic Institute And State University (VPISU): 451
 Virginia Sea Wave Climate Model (VSWCM): 451
 Voluntary Assistance Program (VAP): 22, 27
 Voluntary Observing Ships (VOS): 346
 Vsesoyuznyy Nauchno-Issledovatel'skiy Institut Morskogo Rynbnogo
 Khozyaystva i Okeanografii (VNIRO): 661
 Wallops Flight Center (WFC): 415
 WAMEX Scientific And Management Regional Commission (WSMRC): 348
 Wave Propagation Laboratory (WPL): 371
 Washington Sea Grant Program (WSG): 451
 Water Data Sources Directory (WDSD): 409
 Water Pollution Control Federation (WPCF): 593
 Water Quality Indicator System (WQIS): 372
 Water Resources Council (WRC): 362

Water Resources Document Reference Centre (WATDOC): 602
 Water Resources Research Center (WRRC): 430
 Water Resources Research Institute (WRRI): 407
 Water Resources Scientific Information Center (WRSIC): 407
 Waterways Experiment Station (WES): 381
 Wave And Current Advisory Service (WACAS): 662
 Wave Climate Study (WCS): 602
 Wave Data Analyzer (WDA): 372
 Weather Bureau (WB): 375, 378, 649, 654
 Weather Modification Program Office (WMPO): 371
 Weather Service Forecast Office (WSFO): 378
 West African Monsoon Experiment (WAMEX) 348
 Western Beaufort Sea Ecological Cruise (WEBSEC): 412
 Western Boundary Current (WBC)
 Western Central Atlantic Fishery Commission (WECAFC): 20
 Western Fish Toxicology Station (WFTS): 413
 Western Pacific Fishery Management Council (WPFMC): 369
 Wetlands Institute (WI): 446
 Wildfowl Trust (WFT): 662
 Wildlife And Marine Resources Department (WMRD): 449
 Wind Energy Conversion System (WECS): 399
 Winter-Spring Study of Oceanographic Conditions off the Oregon
 Coast (WISP): 445
 Woodrow Wilson International Center for Scholars (WWICS): 217
 Woods Hole Oceanographic Institution (WHOI): 316, 426, 436
 Workshop On Impact Studies In The Environment (WISE): 125
 World Administrative Radio Conference (WARC): 280
 World Appraisal of Fishery Resources (WAFR): 301
 World Bank: 24
 World Conservation Strategy (WCS): 190

World Data Center (WDC): 65, 66, 127, 233, 245, 289, 419, 670, 671

World Data Center-A for Oceanography (WDC-A): 245, 280, 347, 671

World Data Center-A for Solid Earth Geophysics and Solar-Terrestrial Physics (WDC-A): 375

World Data Center-B for Oceanography (WDC-B): 245, 262, 280, 347, 660

World Data Referral Center (WDRC): 119

World Dredging Association (WODA): 212, 218

World Dredging Confernece (WODCON): 218

World Environment and Resources Council (WERC): 219

World Environmental Institute (WEI): See World Environment and Resources Council

World Federation for Protection of Animals (WFPA): 220

World Federation of Engineering Organizations (WFEO): 221

World Federation of United Nations Associations (WFUNA): 222

World Health Organization (WHO): 23, 38, 88, 272, 290, 293, 325

World Magnetic Survey (WMS): 110

World Magnetic Survey Board (WMSQ): 110

World Maritime Administrative Radio Conference (WMARC): 280

World Meteorological Organization (WMO): 21, 26, 27, 33, 36, 38, 112, 189, 229, 237, 239, 249, 261, 272, 280, 284, 290, 325, 342, 350, 351, 352, 353, 375, 378, 632, 640, 668

World Meteorological Association Regional Associations (RA): 31

World Mollusca Census: 341

World Oceanographic Organization (WOO): 21

World Oceanographic Center (WOC): 280

World Underwater Federation (CMAS): 223

World Weather Program: 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 378

World Weather Watch (WWW): 272, 280, 353, 361

World-Wide Radio Navigation Warning System (WRNWS): 25

World Wildlife Fund (WWF): 224, 446

Wrightsville Beach Test Facility (WBTF): 407

Yale University (YU): 426

Zakład Oceanologii Instytut Geofizy (ZOIG): 650

Zavodza Biologiju Mora (ZBM): 665

INDEX OF ACRONYMS AND ABBREVIATIONS

This alphabetical listing is keyed to the entry numbers in Parts I through IV. Some entries are unkeyed because there was insufficient time to research them to determine their proper context.

AABW:	Antarctic Bottom Waters: 296
AAEO:	Astronomical, Atmospheric, Earth, and Ocean Sciences: 416
AAIW:	Antarctic Intermediate Water
AALCC:	Asian-African Legal Consultative Committee: 40
AAMH:	Australian Association of Maritime History: 596
AANII:	Arkticheskiy i Antarkticheskiy Nauchno-Issledovatel'skiy Institut: 661
AANS:	Aquaculture Association of Nova Scotia: 604
AAPA:	American Association of Port Authorities: 133, 471
AAPG:	American Association of Petroleum Geologists: 470, 535, 585
AASO:	Association of American Ship Owners: 508
AASW:	Antarctic Surface Water
AAZPA:	American Association of Zoological Parks and Aquariums: 472
ABC:	Acceptable Biological Catch: 666
ABS:	American Bureau of Shipping: 473
ABSORS:	American Bureau of Shipping Information Retrieval System: 473
ACAN:	Advisory Committee on Antarctic Names
ACAST:	Advisory Committee on the Application of Science and Technology to Development: 3, 5
ACC:	Antarctic Circumpolar Current
ACC:	Administrative Committee on Coordination: 4, 8
ACCESS:	Arctic Canadian Continental Shelf Exploration Services Co., Ltd.
ACCMR:	Advisory Commission on Coastal and Marine Resources: 433
ACCS:	Antarctic Circumpolar Current System

ACE: Army Corps of Engineers: 377, 381, 422
 ACENTO: Augmented Colombian El Nino Tuna Oceanography: 274
 ACFM: Advisory Committee on Fishery Management: 65
 ACI: Asociacion Cartografica Internacional: See ICA
 ACI: Association Cartographique Internationale: See ICA
 ACIC: Aeronautical Chart and Information Center: 380
 ACIOA: Advisory Committee on International Oceanographic Affairs: 662
 ACLOS: Advisory Committee on the Law of the Sea: 361
 ACMRR: Advisory Committee on Marine Resources Research: 17, 18, 122, 225, 227, 229, 256
 ACODAC: Acoustic Data Capsule
 ACOH: Advisory Committee for Operational Hydrology: 28
 ACOMR: Advisory Committee on Oceanic Meteorological Research: 28, 225
 ACOPS: Advisory Committee on Oil Pollution of the Sea: 662
 ACPF: Advisory Committee on Polar Programs: 416
 ACS: American Cetacean Society: 474
 ACS: Atmosphere Climate Study: 315
 ACSM: American Congress on Surveying and Mapping: 473
 ADAPTS: Air Delivered Anti-Pollution Transfer System: 412
 ADE: Arctic Development and the Environment: 134
 ADEC: Alaska Department of Environmental Conservation: 421
 ADEOS: Air Droppable, Expendable Ocean Sensor
 ADF&G: Alaska Department of Fish and Game: 421
 ADRAMS: Air Droppable Measurement System: 372
 ADS: Anomaly Dynamics Study: 315
 AE: Amazon Expedition: 246
 AEB: Arctic Environmental Buoy: 372
 AEC: Atomic Energy Commission: 399, 417
 AEFC: Atlantic Estuarine Fisheries Center: 367

AEFS: Arctic Environmental Field Station: 413

AEG: Atlantic Environmental Group: 369

AEIDC: Arctic Environmental Information and Data Center:
421

AERL: Arctic Environmental Research Laboratory: 413

AERS: Atlantic Estuarine Research Society: 510

AES: Atmospheric Environmental Service: 602

AEWC: Alaska Eskimo Whaling Commission: 421

AEWES: Army Engineers Waterways Experiment Station: 381

AFAR: Azores Fixed Acoustic Range: 231

AFC: Alaska Fisheries Center: 369

AFDC: Alaska Fisheries Development Corporation: 421

AFEE: Association Francaise pour l'Etude des Eaux: 617

AFERNOD: Association Francaise pour l'Exploitation et
la Recherche des Nodules: 617

AFMAB: Atmospheric Forcings for the Mid Atlantic Bight: 328

AFOS: Automation of Field Operations and Services: 378

AFRF: American Fisheries Research Foundation: 477

AFS: American Fisheries Society: 476

AFSIP: American Fisherman's Safety Incentive Program: 478

AGA: American Gas Association: 479

AGARD: Advisory Group for Aerospace Research and
Development: 81

AGEDOS: Advisory Group on Environmental Data for Offshore
Structures: 662

AGI: American Geological Institute: 480

AGI: Annee Geophysique Internationale: See IGY

AGOR: Auxiliary General Oceanographic Research: 392

AGS: American Geographical Society: 481

AGS: Auxiliary General Survey: 392

AGU: American Geophysical Union: 482

AHF: Allan Hancock Foundation: 425

AHOS: Automated Hydrologic Observation System

AIBS: American Institute of Biological Sciences: 483

AICFO: Asociacion Internacional para las Ciencias Fisicas del Oceano: See IAPSO

AID: Agency for International Development: 410

AIDJEX: Arctic Ice Dynamics Joint Experiment: 111, 250, 372

AIEA: Agence Internationale de l'Energie Atomique: See IAEA

AIFRB: American Institute of Fishery Research Biologists: 484

AIG: Association Internationale de Geodesie: See IAG

AIGA: Association Internationale de Geomagnetisme et d'Aeronomie: See IAGA

AIHC: Asociacion Internacional de Hidrologia Cientifica: See IASH

AIHS: Association Internationale d'Hydrologie Scientifique: See IAHS

AIICA: Asociacion Internacional sobre Investigaciones Relativas a la Contaminacion de las Aguas: See IAWPR

AIIH: Asociacion Internacional de Investigaciones Hidraulicas: See IAHR

AIL: Asociacion Internacional de Limnologia Teorica y Aplicada: See IAL

AIL: Association Internationale de Limnologie Theorique et Appliquee: See IAL

AIME: American Institute of Mining Engineers: 486

AIME: American Institute of Mining, Metallurgical, and Petroleum Engineers: 486

AIMFA: Asociacion Internacional de Meteorologia y Fisica Atmosferica: See IAMAP

AIMLC: Association of Island Marine Laboratories of the Caribbean: 135

AIMPA: Association Internationale de Meteorologie et de Physique Atmospherique: See IAMAP

AIMS: American Institute of Merchant Shipping: 485

AIMS: Australian Institute of Marine Sciences: 596

AINA: American Institute of Nautical Archeology: 487
 AINA: Arctic Institute of North America: 134, 250, 253
 AIOB: Asociacion Internacional de Oceanografia
 Biologica: See IABO
 AIOB: Association Internationale d'Oceanographie
 Biologique: See IABO
 AIOP: Association Internationale d'Oceanographie
 Physique: See IAPO
 AIPCEE: Association of Fish Industries of the EEC
 (Association des Industries du Poisson de la
 CEE): 56
 AIPCN: Asociacion Internacional Permanente de los
 Congresos de Navegacion: See PIANC
 AIPCN: Association Internationale Permanente des Congres
 de Navigation: See PIANC
 AIRE: Association Internationale des Ressources en Eau:
 See IWRA
 AIRH: Association Internationale des Recherches Hydraul-
 iques: See IAHR
 AIRPAX: Aircraft Expendable Bathythermograph Program in the
 Pacific: 315
 AIRPE: Association Internationale de Recherche sur la
 Pollution de l'Eau: See IAWPR
 AISH: Association Internationale des Sciences Hydro-
 logiques: See IAHS
 AISM: Asociacion Internacional de Senalizacion
 Maritima: See IALA
 AISM: Asociacion Internacional de Sociedades de
 Microbiologia: See IAMS
 AISM: Association Internationale de Signalisation
 Maritime: See IALA
 AISM: Association Internationale des Societies de
 Microbiologie: See IAMS
 AISPIT: Association Internationale de Seismologie et de
 Physique de l'Interieur de la Terre: See IASPEI
 AISPO: Association Internationale des Sciences Physiques
 de l'Ocean: See IAPSO
 AIVCIT: Association Internationale de Volcanologie et de
 Chimie de l'Interieur de la Terre: See IAVCEI

ALECSO: Arab Educational, Cultural, and Scientific Organization: 78
 ALS: American Littoral Society: 488
 AMA: American Maritime Association: 490
 AMC: Atlantic Marine Center: 377
 AMEC: Acoustic Model Evaluation Committee: 436
 AMEE: Admiralty Marine Engineering Establishment: 662
 AMGREF: Antarctic Marine Geology Research Facility: 428
 AMIC: Analytical Methodology Information Center: 513
 AMOB: Automatic Meteorological Oceanographic Buoy
 AMOS: Automatic Meteorological Observing System
 AMR: Atlantic Missile Range
 AMRL: Alabama Marine Resources Laboratory: 420
 AMS: American Meteorological Society: 491
 AMS: Army Map Service: 380
 AMSA: Australian Marine Sciences Association: 596
 AMTEX: Air-Mass Transformation Experiment: 344
 ANZAAS: Australian and New Zealand Association for the Advancement of Science: 596
 ANZUS: Australian-New Zealand-United States Eddy Project: 252
 AOCS: Atlantic Outer Continental Shelf
 AODC: Australian Oceanographic Data Center: 596
 AOEL: Advanced Ocean Engineering Laboratory: 424
 AOFLA: Atlantic Offshore Fish and Lobster Association: 511
 AOL: Admiralty Oil Laboratory: 662
 AOL: Atlantic Oceanographic Laboratory: 371, 602
 AOML: Atlantic Oceanographic and Meteorological Laboratory: 371
 AOO: American Oceanic Organization: 492
 AOSS: Airborne Oil Surveillance System: 412

APCRP: Aquatic Plant Control Research Program: 381

APEX: Atlantische Passatwind Experiment: See ATEX

API: American Petroleum Institute: 493

API: Associazione Pescicoltori Italiana: 630

APL/JHU: Applied Physics Laboratory, Johns Hopkins University: 435

APL/UW: Applied Physics Laboratory, University of Washington: 390

APO: Advisory Panel for Oceanography: 416

APP: Acoustic Performance Prediction: 395

APOS: Advanced Polar Orbiting Satellite

APT: Automatic Picture Transmission

AQUACOP: Aquaculture Programme du Centre Oceanologique du Pacifique: 617

AREA: Arctic Research in Environmental Acoustics: 398

ARL: Admiralty Research Laboratory: 662

ARL: Arctic Research Laboratory: 398, 421

ARL: Atlantic Regional Laboratory: 602

ARLIS: Arctic Research Laboratory Ice Station: 398

ARP: Antarctic Research Programs: 121, 249 (See also USARP)

ARPA: Advanced Research Projects Agency: 380

ARSOP: Airborne Remote Sensing Oceanography Project: 392

ART: Airborne Radiation Thermometer: 412

ASA: Atlantic Salmon Association: 604

ASBC: American Society of Biological Chemists: 496

ASBPA: American Shore and Beach Preservation Association: 494

ASCAS: Automated System for the Control of Atmospheric Sampling: 311

ASCE: American Society of Civil Engineers: 497

ASDC: Aeronomy and Space Data Center: 375

ASEAN: Association of Southeast Asian Nations: 41

AS-EROS: Adriatic Sea Expanded Regional Oceanological
Studies: 246

ASFA: Aquatic Sciences and Fisheries Abstracts: 230

ASFB: Australian Society for Fish Biology: 596

ASFIS: Aquatic Sciences and Fisheries Information
System: 1, 16, 22, 35, 230, 339, 375

ASGP: Alaska Sea Grant Program: 421, 478

ASGPI: Association of Sea Grant Program Institutions: 509

ASIH: American Society of Ichthyologists and
Herpetologists: 498

ASIL: American Society of International Law: 499

ASL: Arctic Submarine Laboratory: 390

ASLO: American Society of Limnology and Oceanography: 500

ASM: American Society for Microbiology: 503

ASM: American Society of Mammalogists: 501

ASME: American Society of Mechanical Engineers: 502

ASMFC: Atlantic States Marine Fisheries Commission: 454

ASNE: American Society of Naval Engineers: 504

ASODAS: Augmented Synoptic Oceanographic Data Acquisition
System: 392

ASP: American Society of Photogrammetry: 505

ASRSC: Atlantic Sea Run Salmon Commission: 434

ASRT: Atlantic Salmon Research Trust Ltd.: 136

ASSR: Airborne Sea/Swell Recorder

ASTE0: Association Scientifique et Technique pour
l'Exploration des Oceans: 617

ASTIS: Arctic Science and Technology Information System: 134

ASTM: American Society for Testing and Materials: 495

ASV: Auxiliary Survey Vessel: 322

ASW: Anti-Submarine Warfare: 382, 392, 561

ASWAC: Anti-Submarine Warfare Advisory Committee: 561

ASWEPS: Anti-Submarine Warfare Environmental Prediction
System: 392

ASWPO: Anti-Submarine Warfare Project Office: 382

ATA: American Tunaboat Association: 506

ATEX: Atlantic Tradewind Experiment: 251

ATWC: Alaska Tsunami Warning Center: 378

ATWS: Alaska Tsunami Warning System: 378

AUTEC: Atlantic Undersea Test and Evaluation Center: 382

AWG: Aquaculture Working Group: 56

AWPPA: Arctic Water Pollution Prevention Act: 602

AWRA: American Water Resources Association: 507

AXBT: Aircraft Expendable Bathythermograph: 315

AZCHERNIRO: Azovsko-Chernomorskiy Nauchno-Issledovatel'skiy
Institut Morskogo Rybnogo Khozyaystva i
Okeanografii: 661

AZNIIRKH: Azovskiy Nauchno-Issledovatel'skiy Institut
Rybnogo Khozyaystva: 661

BACER: Biological and Climatic Effects Research Program: 413

BAH: Biologische Anstalt Helgoland: 620

BALEAR: Baltic Environmental and Acoustic Range: 620

BALTNIRO: Baltiyskiy Nauchno-Issledovatel'skiy Institut
Morskogo Rybnogo Khozyaystva i Okeanografii: 661

BARC: Bhabha Atomic Research Centre: 625

BAS: British Antarctic Survey: 662

BATHY: Bathythermograph: 671

BATHY: Bathythermograph report (radio message): 280, 671

BBS: Bermuda Biological Station: 662

BC: Bureau of the Census: 364

BC&GS: Bureau of Coast and Geodetic Survey: 649

BCDC: Bay Conservation and Development Commission: 423

BCF: Bureau of Commercial Fisheries: 369, 408, 461

BCIS: Bureau Central International de Seismologie: 129

BDP: Brine Disposal Program: 375

BEA: Bureau of Economics Analysis: 364

BEB: Beach Erosion Board: 381
 BEO: Bureau d'Etudes Oceanographiques: 617
 BEP: Biological Effects Program: 307
 BESEX: Bering Sea Expedition: 255
 BESMEX: Bering Sea Marine Mammal Experiment: 371
 BESS: Bottom Environmental Sensing System
 BF&AR: Bureau of Fisheries and Aquatic Resources: 649
 BFD: Burma Fisheries Department: 600
 BGI: Bureau Gravimetrique International: 109, 130
 BGN: Board on Geographical Names: 363
 BHI: Bureau Hydrographique International: See IHB
 BI: Biologiju Institut: 665
 BIBI: Block Island - Fisher Island Range: 397
 BIM: Bubble Interfacial Microlayer Sampler: 317
 BIMCO: Baltic and International Maritime Conference: 138
 BIMBCR: Belle W. Baruch Institute for Marine Biology and
 Coastal Research: 449
 BIO: Bedford Institute of Oceanography: 258, 602
 BIOMASS: Biological Investigations of the Marine Antarctic
 System and Stocks: 121, 122, 256
 BIOSHELF: Study of Shelf and Continental Divide: 661
 BIOSIS: Biological Sciences Information Service: 515
 BIOTALASSA: Study of Oceanological Basis for Bioproductivity
 of Prospective Open-Ocean Fishing Grounds: 661
 BIRD: Banque Internationale pour la Reconstruction et le
 Developement: See BIRD
 BIRF: Banco Internacional de Reconstruccion y Fomento:
 See IBRD
 BIRS: Biology Information Retrieval System: 375
 BIWI: Bermuda Inshore Waters Investigation: 662
 BIWS: Bureau of International Whaling Statistics: 72
 BLIS: Boundary Layer Instrument System: 347

BLM: Bureau of Land Management: 371, 402, 448

BLOS: Bigelow Laboratory for Ocean Sciences: 434

BMBO: Baltic Marine Biology Organization: 138

BMB: Baltic Marine Biologists: 138

BME: Baltimore Maritime Exchange: 512

BMI: Battelle Memorial Institute: 513

BML: Bodega Marine Laboratory: 424

BMILA: British Maritime Law Association: 662

BMRGG: Bureau of Marine Resources, Geology and Geophysics:
596

BNCAR: British National Committee on Antarctic Research:
662

BNCOE: British National Committee on Ocean Engineering: 662

BNCOR: British National Committee on Ocean Research: 662

BNDO: Bureau National des Donnees Oceaniques: 617

BNIO: British National Institute of Oceanography: See NIO

BNL: Brookhaven National Laboratory: 516

BOA: Base Oceanografica Atlantica: 599

BOD: Biological Oxygen Demand

BODS: British Oceanographic Data Service: 662

BOL: Bingham Oceanographic Laboratory: 426

BOM: Base Oceanologique de Mediterranee: 617

BOM: Bottom Ocean Monitor: 317

BOM: Bureau of Mines: 403, 649

BOMAP: Barbados Oceanographic and Meteorological Analysis
Project: 345

BOMEX: Barbados Oceanographic and Meteorological Experi-
ment: 345, 375

BOR: Bureau of Outdoor Recreation: 405

BOR: Bureau of Reclamation: 404

BOSA: Board on Ocean Science Affairs: 419

BOSEX: Baltic Open Sea Experiment: 254

BOU: British Ornithologists Union: 662

BPBM: Bernice P. Bishop Museum: 514

BRGM: Bureau de Recherches Geologiques et Minieres: 275, 617

BRI: Bellairs Research Institute: 603

BSBI: Bureau de Statistiques Baleinieres Internationales: See BIWS

BSDC: Boundary-Layer Sub-Programme Data Centre: 347

BSE: Black Sea Expedition: 257

BSFW: Bureau of Sport Fisheries and Wildlife: 408

BSRC: British Ship Research Council: 662

BSSS: Bathymetric Swath Survey System: 377

BSSSC: Baltic Sea Salmon Standing Committee: 42

BT: Bathythermograph

BTOT: British Trust for Ornithology: 662

BUFOFI: Bundesforschungsanstalt fuer Fischerei: 620

BUG: Bundesanstalt fuer Unterwasserschall und Geophysik: 620

BUMP: Boston University Marine Program: 436

BWBIMBCR: Belle W. Baruch Institute for Marine Biology and Coastal Resources: 449

BWU: Blue Whale Unit: 667

C&GS: Coast and Geodetic Survey: 377, 378

C-CORE: Centre for Cold Ocean Resources Engineering: 603

CAACTD: Comite Asesor sobre la Aplicacion de la Ciencia y la Tecnologia al Desarrollo: See ACAST

CAC: Comite Administrativo de Coordinacion: See ACC

CAC: Comite Administratif de Coordination: See ACC

CACGP: Commission on Atmospheric Chemistry and Global Pollution: 112

CACMCR: California Advisory Commission on Marine and Coastal Resources: 422

CAeM: Commission for Aeronautical Meteorology: 29

CAG: Caribbean-Atlantic Geotraverse: 320
 CAgM: Commission for Agricultural Meteorology: 29
 CAIMO: Comité Asesor de Investigaciones Meteorológicas
 Oceanicas: See ACOMR
 CAIRM: Comité Asesor de la FAO sobre Investigaciones de
 Recursos Marinos: See ACMRR
 CAIS: Central Abstracting and Indexing Service: 493
 CALCOFI: California Cooperative Oceanic Fisheries
 Investigations: 422
 CALL: Communications Alert and Liaison System: 369
 CAM: Coastal Area Management: 426
 CAMA: Coastal Area Management Act: 443
 CANUS: Canada-U.S. Cooperative Survey of the Gulf Stream:
 258
 CAO: Committee on Atmosphere and Oceans: 361
 CAOOP: Comprehensive Atlantic Offshore Oceanographic
 Plan: 427
 CAORF: Computer-Aided Operations Research Facility: 365
 CAPA: California Association of Port Authorities: 517
 CARICOM: Caribbean Community: 43
 CARMABI: Caribbean Marine Biological Institute: 139, 261
 CARPAS: Comisión Asesora Regional de Pesca para el
 Atlántico Sud-Occidental: 20
 CAS: California Academy of Sciences: 422
 CAS: Commission for Atmospheric Sciences: 29
 CASTAFRICA: Conference on the Application of Science and Tech-
 nology to the Development of Africa: 21
 CASTARAB: Conference on the Application of Science and Tech-
 nology to the Development of the Arab States:
 21, 49
 CASTASIA: Conference on the Application of Science and Tech-
 nology to the Development of Asia: 21
 CBASF: Current Bibliography for Aquatic Sciences and
 Fisheries: See ASFA
 CBATMU: Centro de Biología Acuática Tropical Ministerio
 do Ultramar: 651

CBCES: Chesapeake Bay Center for Environmental Studies: 418, 455
 CBF: Chesapeake Bay Foundation: 518
 CBI: Chesapeake Bay Institute: 435, 455
 CBI: Comision Ballenera Internacional: See IWC
 CBL: Chesapeake Biological Laboratory: 435
 CBO: Conference of Baltic Oceanographers: 142, 285
 CBS: Commission for Basic Systems: 29
 CBWCM: Chesapeake Bay Wave Climate Model: 451
 CCASTD: Comite Consultatif sur l'Application de la Science et de la Technique au Developpement: See ACAST
 CCC: Coastal Coordinating Council: 428
 CCCAS: Centro de Cooperacion Cientifica de Asia Sudoriental: See SEASCO
 CCCO: Committee on Climatic Changes and the Ocean: 122
 CCEA: Center for Climatic and Environmental Assessment: 375
 CCEDN: California Coastal Engineering Data Network: 422
 CCGD: Canadian Centre for Geoscience Data: 602
 CCGLBHHD: Coordinating Committee on Great Lakes Basic Hydraulic and Hydrologic Data: 50
 CCHO: Comite Consultatif d'Hydrologie Operationelle: See ACOH
 CCIA: Comite Cientifico de Investigaciones Antarticas: See SCAR
 CCIO: Comite Cientifico de Investigaciones Oceanicas: See SCOR
 CCIW: Canada Centre for Inland Waters: 602
 CCML: Centro de Ciencias del Mar y Limnologia: 637
 CCMS: Committee on the Challenges of Modern Society: 81
 CCO: Canadian Committee on Oceanography: 62
 CO: Comision Colombiana de Oceanografia: 606
 CO: Coordinating Committee on Oceanography: 361
 CCOFI: See CALCOFI

CCOP/ESCAP: Committee for Coordination of Joint Prospecting
for Mineral Resources in Asian Offshore Areas:
12, 22, 37

CCOP/SOPAC: Committee for Coordination of Joint Prospecting
for Mineral Resources in South Pacific Offshore
Areas: 12, 22

CCRM: Commission on Recent Crustal Movements: 109

CCRMO: Comite Consultatif de la Recherche Meteorologique
Oceanique: See ACOMR

CCRRM: Comite Consultatif de la Recherche sur les
Ressources de la Mer: See ACMRR

CCTA: Commission pour la Cooperation Technique en
Afrique au Sud du Sahara: 87, 283

CCZMCC: California Coastal Zone Management and Conservation
Commission: 422

CDCC: Caribbean Development and Cooperation Committee: 12

CDFG: California Department of Fish and Game: 369, 422

CDIDC: Committee on Data Interchange and Data Centers: 419

CDMS: Current Depth Measurement Subsystem: 377

CDNOD: California Department of Navigation and Ocean
Development: 422

CDS: Center for Dredging Studies: 450

CDWR: California Department of Water Resources: 422

CE: Council of Europe: 52

CEA: Commission Economique pour l'Afrique: See ECA

CEAC: Coastal Engineering Advisory Committee: 443

CEADO: Centro Argentino de Datos Oceanograficos: 595

CEAEO: Commission Economique pour l'Asie et l'Extreme-
Orient: See ECAFE

CEALM: Comissao de Estudo do Aprovatamento do Letto
do Mar: 651

CEAO: Communaute Economique de l'Afrique de l'Ouest: 99

CEAS: Center for Environmental Assessment Services: 375

CECAF: Committee for the Eastern Central Atlantic
Fisheries: 20, 265

CECO: Centro de Estudios Costeira e Oceanica: 599

CECOLD:	Centro Colombiano de Datos Oceanograficos: 607
CECPI:	Commission Europeenne Consultative pour les Peches dans les Eaux Interieures: See EIFAC
CEDDA:	Center for Experiment Design and Data Analysis: 375
CEDO:	Centro de Datos Oceanograficos: 637
CEDO:	Centro Espanol de Datos Oceanograficos: 655
CEDRE:	Centre d'Etudes de Documentation, de Recherches, et d'Experimentation: 617
CEE:	Comunidad Economica Europea: See EEC
CEE:	Controlled Experimental Ecosystem: 305
CEE:	Commission Economique pour l'Europe: See ECE
CEEA:	Communaute Europeenne de l'Energie Atomique: See EURATOM
CEER:	Center for Energy and Environmental Research: 447
CEES:	Center for Environment and Estuarine Studies: 435
CEIAC:	Coastal Engineering Information and Analysis Center: 381
CEIP:	Coastal Energy Impact Program: 368
CEL:	Civil Engineering Laboratory: 383
CEMA:	Centre d'Etudes Marines Avancees: 617
CEMBS:	Committee for European Marine Biological Symposia: 153
CEMFRI:	Central Marine Fisheries Research Institute: 625
CENADA:	Centro Nacional de Datos Oceanograficos: 637
CENDOC:	Centro Nacional de Datos Oceanograficos: 605
CENFAM:	Centro Nazionale di Fisica dell'Atmosfera e Meteorologia: 630
CENOP:	Cenozoic Paleo-Oceanography
CENTO:	Central Treaty Organization: 45
CENTOB:	Centre National de Tri d'Océanographie Biologique: 617
CEOBM:	Centre pour l'Etude Oceanographique et Biologique Marine: 617
CEP:	Chile-Ecuador-Peru: 89

CEPA: Comision Economica para Africa: See ECA

CEPAL: Comision Economica para America Latina: See ECLA

CEPAL: Commission Economique pour l'Amerique Latine:
See ECLA

CEPE: Comision Economica para Europa: See ECE

CEPEM: Centre d'Etude Europeenne pour le Problems de
l'Environment Marine: 147

CEPEX: Controlled Ecosystem Pollution Experiment: 305

CEPM: Comite d'Etudes Petrolieres Marines: 617

CEQ: Council on Environmental Quality: 358, 448, 451

CER: Coastal and Estuarine Regimes: 122

CERC: Coastal Engineering Research Center: 381

CERDEM: Centre d'Etudes et de Recherches sur le Droit
et l'Environment Marin: 617

CERIC: Committee of Ecological Research for the Inter-
oceanic Canal: 419

CERL: Corvallis Environmental Research Laboratory: 413

CERSS: Committee on Earth Resources Satellite Systems: 361

CERTSM: Centre d'Etudes et de Recherches Techniques
Sous-Marines: 617

CETAP: Cetacean and Turtle Assessment Program: 448

CETENAL: Comision de Estudios del Territorio Nacional: 637

CFAC: Commercial Fisheries Advisory Committee: 443

CFE: Comision Federal de Electricidad: 637

CFFS: Committee on Food From the Sea: 361

CFMC: Caribbean Fishery Management Council: 369

CG: Coast Guard: See USCG

CGIF: Commission of Game and Inland Fisheries: 451

CGLS: Center for Great Lakes Studies: 453

CGM: Compagnie Generale Maritime: 617

CGMW: Commission on the Geological Map of the World: 181

CGOU: Coast Guard Oceanographic Unit: 412

CGPM: Consejo General de Pesca del Mediterraneo: See GFCM

CGPM: Conseil General des Peches pour la Mediterranee:
See GPCM

CHA: Canadian Hydrographers Association: 604

CHO: Commission on the History of Oceanography: 117

CHS: Canadian Hydrographic Service: 602

CHy: Commission for Hydrology: 29

CIAT: Comision Interamericana del Atun Tropical: See IATTC

CIB: Commission Internationale de la Baleine: See IWC

CIBIMA: Centro de Investigacion de Biologia Marina: 595

CICAA: Comision Internacional para la Conservacion del
Atun del Atlantico: See ICCAT

CICAR: Cooperative Investigation of the Caribbean and
Adjacent Regions: 22, 232, 261, 371

CICARDI: CICAR Data Inventory: 261

CICESE: Centro de Investigacion Cientifica y Educacion
Superior de Ensenada: 637

CICTA: Commission Internationale pour la Conservation
des Thonides de l'Atlantique: See ICCAT

CIE: Commission Internationale de l'Eclairage: See ICI

CIEA: Centro de Investigacion y Estudios Avanzados: 637

CIEM: Consejo Internacional para la Exploracion del
Mar: See ICES

CIEM: Conseil International pour l'Exploitation
de la Mer: See ICES

CIESM: Commission Internationale pour l'Exploration
Scientifique de la Mer Mediterranee: See ICSEM

CIFA: Committee for Inland Fisheries of Africa: 20

CIG: Comite International de Geophysique: 127, 245

CILOG: Cooperative Investigations of a Large Ocean Gyre: 264

CIM: Cooperative Investigations in the Mediterranean:
22, 64, 240, 245, 262

CIMAR: Centro de Investigaciones del Mar: 605

CIMAS: Cooperative Institute for Marine and Atmospheric
Studies: 371

CIMO: Commission for Instruments and Methods of Observation: 29

CINCWIO: Cooperative Investigations in the North and Central Western Indian Ocean: 263

CINECA: Cooperative Investigations of the Northern Part of the Eastern Central Atlantic: 22, 65, 96, 244, 265

CINTEX: CICAR Intercalibration Experiment: 261

CIO: Commissione Italiana per la Oceanografia: 630

CIOH: Centro de Investigaciones Oceanograficas y Hidrograficas: 607

CIP: Centro de Informacion de Pesca: 637

CIPAN: Comision Internacional de Pesquerias del Atlantico Noroeste: See ICNAF

CIPAN: Commission Internationale des Peches de l'Atlantique du Nord-Ouest: See ICNAF

CIPASE: Comision Internacional de Pesquerias del Atlantico Sudoriental: See ICSEAF

CIPCRO: Comite Intersecretarial sobre Programs Cientificos Relacionados con la Oceanografia: See ICSPRO

CIPME: Committee on International Policy in the Marine Environment: 361

CIPO: Conseil International pour la Preservation des Oiseaux: See ICEP

CIPP: Conseil Indo-Pacifique des Peches: See IPFC

CIPP: Consejo de Pesca del Indo-Pacifico: See IPFC

CIPR: Comision Internacional de Proteccion contra las Radiaciones: See ICRP

CIPR: Commission Internationale de Protection contre Les Radiations: See ICRP

CIPREA: Circulation et Production a l'Equateur Atlantique: 259

CIPSRO: Comite Intersecretariats pour les Programmes Scientifiques se rapportant a l'Oceanographie: See ICSPRO

CIRIA: Construction Industry Research and Information Association: 662

CIRM: Comite International Radio-Maritime: 186

CITRE: Cooperative Investigations of Tropical Reef
Ecosystems: 418

CITT: Commission Interamericaine de Thon Tropical:
See IATTC

CIUC: Consejo Internacional de Uniones Cientificas:
See ICSU

CIUS: Conseil International des Unions Scientifiques:
See ICSU

CLAO: Consejo Latino-Americano de Oceanografia: 144, 337

CLEAR: Center for Lake Erie Area Research: 444

CLIMAP: Climate: Long-Range Investigation, Mapping, and
Prediction Project: 312

CMAP: California Marine Advisory Program: 424

CMAS: Confederation Mondiale des Activites Subaquatiques:
223

CMC: California Advisory Commission on Marine and Coastal
Resources: 422

CMC: Canadian Meteorological Centre: 602

CMCS: Center for Marine and Coastal Studies: 443

CMD: Central Meteorological Office: 633

CMD: Current Meter Data Base: 377

CMD: Centre Mondiale de Rassemblement des Donnees: See WDC

CMEA: Council for Mutual Economic Assistance: 51

CMES: Center for Marine and Environmental Studies: 446

CMFC: California Marine Fisheries Council: 422

CMFRI: Central Marine Fisheries Research Institute: 625

CMG: Commission for Marine Geology: 100, 116, 225, 671

CMHG: Canadian Maritime History Group: 603

CMI: Comite Maritime Internationale: See IMC

CMICE: Current Meter Intercomparison Experiment: 377

CML: Coastal Marine Laboratory: 424

CMM: Commission for Marine Meteorology: 24, 668

CMR: Center for Marine Resources: 450

CMR: Centro Meteorologico Regional: See RMC
 CMREF: Committee on Marine Research, Education, and Facilities: 361
 CMS: College of Marine Studies: 427
 CMSC: Catalina Marine Sciences Center: 425
 CMSER: Commission on Marine Science Engineering and Resources: 359
 CMSTTKU College of Marine Science and Technology Tokai University: 632
 CMT: Committee on Marine Technology: 662
 CMUCZ: Committee on Multiple Uses of the Coastal Zone: 361
 CNCOR: Chinese National Committee for Ocean Resources: 658
 CNCP: Comision Nacional Consultiva de Pesca: 637
 CNDO: Centro Nacional de Datos Oceanograficos: 595
 CNES: Centre National d'Etudes Spatiales: 617
 CNEXO: Centre National pour l'Exploitation des Oceans: 275, 316, 617
 CNHOO: Chinese Naval Hydrographic and Oceanographic Office: 658
 CNMC: Chinese Naval Meteorology Center: 658
 CNO: Chief of Naval Operations: 382
 CNR: Consiglio Nazionale delle Ricerche: 630
 CNRDO: Centro Nazionale Raccolta Dati Oceanografici: 630
 CNRS: Centre National de la Recherche Scientifique: 617
 CNUCED: Conference des Nations Unies sur le Commerce et le Developpement: See UNCTAD
 COAP: California Ocean Area Plan: 422
 COAP: Comprehensive Ocean Area Plan: 422
 COAST: Coastal Oceanic Awareness Studies: 427
 COB: Centre Oceanologique de Bretagne: 617
 COBLAMED: Cooperative Black and Mediterranean Sea Study: 260
 COBOLT: Coastal Boundary Layer Transect: 516

COCIC: Comision Coordinadora de las Investigaciones Cientificas: 89
 COD: Chemical Oxygen Demand
 CODATA: Committee on Data for Science and Technology: 119
 CODC: Canadian Oceanographic Data Center: 602
 COE: Corps of Engineers, U.S. Army: 377, 381, 422
 COEES: Committee on Ocean Exploration and Environmental Services: 361
 COFI: Committee on Fisheries: 19
 COFRC: Chevron Oil Field Research Company: 520
 COG: Committee on Oceanography and GARP
 COGEODATA: Committee on Storage, Automatic Processing, and Retrieval of Geological Data: 116
 COI: Comision Oceanografica Intergubernamental: See IOC
 COI: Commission Oceanographique Intergouvernementale: See IOC
 COIL: Central Oil Identification Laboratory: 412
 COLD: Council of Oceanographic Laboratory Directors: 436
 COLP: Center for Ocean Law and Policy: 451
 COLREGS: International Regulations for Preventing Collisions at Sea
 COMEX: Compagnie Maritime d'Expertises: 617
 COMS: Center for Ocean Management Studies: 448
 COMSED: Continental Margin Sedimentology
 CONA: Comité Oceanografico Nacional: 605
 CONACYT: Consejo Nacional de Ciencia y Tecnologia: 637
 CONAES: Committee on Nuclear and Alternative Energy Sources: 419
 CONCAWE: Conservation of Clean Air and Water: 143
 CONICET: Consejo Nacional de Investigaciones Cientificas y Tecnicas: 595
 CONSED: Continental Shelf Sedimentology
 CONSHELF: Continental Shelf: 401

COOP: Cooperative Ocean Observation Program: 391

COP: Centre Oceanologique du Pacific: 617

COPACE: Comite des Peches pour l'Atlantique Centre-Est:
See CECAF

COPRAQ: Cooperative Program of Research on Aquaculture: 266

COSAMC: Commission for Special Applications of Meteorology
and Climatology: 29

COSMOS: Coast Survey Marine Observation System: 377

COSPAR: Committee on Space Research: 120

COSREL: Task Group on Interagency Coordination, Federal-
State Relationships, and Legal Problems: 361

COST: Centre of Oil Spill Technology: 602

COST: Continental Offshore Stratigraphic Test: 409

COST: Cooperation Europeenne dans la Domaine de la
Recherche Scientifique et Technique: 56

COWAR: Scientific Committee on Water Research: 123

COW: Committee on Water: 419

CPAC: Coastal Processes Advisory Committee: 442

CPACE: Comite des Peches pour l'Atlantique Centre-Est:
See CECAF

CPACO: Comite de Pesca para el Atlantico Centro-
Oriental: See CECAF

CPANE: Commission des Pecheries de l'Atlantique Nord-Est:
See NEAFC

CPC: Chinese Petroleum Corporation: 658

CPCA: Comite de Pesca Continental para Africa: See CIFA

CPCA: Comite des Peches Continentales pour l'Afrique:
See CIFA

CPCERMPS: Comision Permanente para la Conservacion y
Exploitation de los Recursos Maritimos del
Pacifico Sur: See PCSP

CPCIP: Commission Permanente de la Convention Inter-
nationale des Peches: See PCIFC

CPCMDS: Coastal Plains Center for Marine Development
Services: 457

CPDC: Coastal Planning and Development Commission: 429

CPOI: Comision de Pesca para el Oceano Indico: See IOFC
 CPOI: Commission des Peches pour l'Ocean Indien: See IOFC
 CPOM: Centro de Preclasificacion Oceanica de Mexico: 21, 232, 261
 CPPS: Comision Permanente del Pacifico Sur: See PCSP
 CPR: Continuous Plankton Recorder
 CPRC: Coastal Plains Regional Commission: 457
 CPS: Comision del Pacifico Sur: See SPC
 CPS: Comission du Pacifique Sud: See SPC
 CPSDF: Catch per Standard Day of Fishing: 666
 CPUE: Catch Per Unit Effort: 666
 CRA: Commission's Regulatory Area: 666
 CRAB: Coastal Research Amphibious Buggy: 381
 CRAC: Coastal Recreation Advisory Committee: 442
 CRAC: Coastal Resources Advisory Commission: 435
 CRBM: Centre Regional de Biologie Marine: See RMBC
 CRBM: Centro Regional de Biologia Marina: See RMBC
 CRC: Chesapeake Research Consortium: 455
 CRC: Coastal Research Center: 436
 CRC: Coastal Resources Commission: 443
 CRCM: Commission on Recent Crustal Movements: 109
 CREO: Centre de Recherches et d'Etudes Oceanographiques: 617
 CREST: Columbia River Estuary Study Task Force: 458
 CRG: Coastal Research Group: 436
 CRISIA: Center for Remote Sensing Information and Analysis: 437
 CRMAC: Coastal Resources Management Advisory Committee: 451
 CRMS: Coastal Resources Management Study: 451
 CRO: Centre de Recherches Oceanographiques: 631
 CRO: Conseil de la Recherche Oceanologique: 617

CRODT: Centre de Recherches Oceanographiques de Dakar-
 Thiaroye: 653

CROP: Centre de Recherche Oceanographique et des Peches:
 594

CRPOCS: Cultural Resources Protection on the Outer Conti-
 nental Shelf: 406

CRREL: Cold Regions Research and Engineering Laboratory:
 381

CRS: Congressional Research Service: 355

CRSA: Connecticut River Salmon Association: 459

CRSTIAC: Cold Regions Science and Technology Information
 Analysis Center: 381

CRWR: Center for Research in Water Resources: 450

CSA: Canadian Shipping Act: 602

CSA: Conseil Scientifique d'Afrique: 87

CSAGI: Comite Special de l'Annee Geophysique Interna-
 tionale: 245, 289

CSC: Coastal Study Commission: 451

CSCDH: California State College at Dominguez Hills: 424

CSCS: California State College at Stanislaus: 424

CSD: Coast Study Division: 629

CSD: Continental Shelf Discus: 372

CSDC: Convection Subprogramme Data Centre: 347

CSE: Committee on the Salmon Emergency: 522

CSI: Coastal Studies Institute: 433

CSIB: Cooperative Synoptic Investigations of the
 Baltic: 270

CSIR: Council for Scientific and Industrial Research: 654

CSIR: Council of Scientific and Industrial Research: 625

CSIRO: Commonwealth Scientific and Industrial Research
 Organization: 596

CSK: Cooperative Study of the Kuroshio and Adjacent
 Regions: 22, 237, 243, 267

CSLP: Center for Short-Lived Phenomena: 418

CSO: Coastal States Organization: 456

CSOP: Coastal Shelf Oceanography Program

CSPBI: Comite Special pour le Programme Biologique
International: See SCIBP

CSPE: Comite Scientifique pour les Problems de
l'Environnement: See SCOPE

CSRA: Comite Scientifique pour les Recherches
Antarctiques: See SCAR

CSRO: Comite Scientifique pour les Recherches
Oceaniques: See SCOR

CSS: Coastal Survey Ship

CSSM: Cooperative Study of the Southern Mediterranean: 262

CST: Centro Studi Talassografici: 630

CSUF: California State University at Fresno: 424

CSUF: California State University at Fullerton: 424

CSUH: California State University at Hayward: 424

CSULA: California State University at Los Angeles: 424

CSULB: California State University at Long Beach: 424

CSUN: California State University at Northridge: 424

CSUP: California State University at Pomona: 424

CSUS: California State University at Sacramento: 424

CSUSJ: California State University at San Jose: 424

CSWQB: California State Water Quality Control Board: 422

CSWRCB: California State Water Resources Control Board: 422

CTD: Conductivity-Temperature-Depth

CUA: California Undersea Aquaduct: 404

CUARO: California Undersea Aquaduct Reconnaissance
Oceanography: 404

CUE: Coastal Upwelling Experiment: 322

CUEA: Coastal Upwelling Ecosystems Analysis: 60,
286, 322, 445

CUNY: City University of New York: 442

CURV: Cable Controlled Underwater Recovery Vehicle

CWI: Clean World International: 141
 CWPCA: Chesapeake Water Pollution Control Association: 519
 CWRAC: Coastal Water Resources Advisory Committee: 442
 CWS: Canadian Wildlife Service: 602
 CWS: Center For Wetland Studies: 433
 CYAMEX: Cyana-Mexique: 271
 CZCS: Coastal Zone Color Scanner Study: 376
 CZM: Coastal Zone Management: 368
 CZMA: Coastal Zone Management Act: 368
 CZMAC: Coastal Zone Management Advisory Committee: 364
 CZMI: Coastal Zone Management Institute: 521
 CYRA: Commission's Yellowfin Regulatory Area: 666
 DAC: Domestic Annual Fishing Capacity: 666
 DAH: Expected Domestic Annual Fishing Harvest: 666
 DAM: Direction des Affaires Maritimes: 635
 DARPA: Defense Advanced Research Projects Agency: 380
 DAXBT: Deep Aircraft Expendable Bathythermograph
 DCNR: Department of Conservation and Natural Resources:
 420
 DCP: Data Collection Platform:
 DDC: Defense Documentation Center: 379, 380
 DDMIIS: David Davies Memorial Institute of International
 Studies: 145
 DDP: Division de Pesca: 605
 DDR: Deutsches Demokratisches Republik: 619
 DEC: Department of Environmental Conservation: 442
 DEEP FREEZE: Antarctic Research Program: 392
 DEIC: Diver Equipment Information Center: 513
 DEIS: Draft Environmental Impact Statement: 417
 DEMR: Department of Energy, Mines, and Resources: 602
 DEN: Direccion de Educacion Naval: 637

DEP: Department of Environmental Protection: 426, 434, 442

DEQ: Department of Environmental Quality: 445

DER: Department of Environmental Research: 446

DESG: Delaware's Sea Grant Program: 427

DEVA: Demonstration, Experimentation, et Valorisation de l'Aquaculture: 617

DFG: Department of Fish and Game: 440

DFG: Deutsches Forschungsgemeinschaft: 620

DFW: Department of Fish and Wildlife: 436

DGCFCP: Direccion General de Capacitacion y Fomento Cooperativo Pesquero: 637

DGOM: Direccion General de Obras Maritimes: 637

DGOP: Direccion General de Obras Portuarias: 608

DGOP: Direccion General de Operacion Portuaria: 637

DGOSM: Direccion General de Oceanografia y Senalamiento Maritimo: 637

DGPPP: Direccion General de Planeacion y Promocion Pesqueras: 637

DGRP: Direccion General de Regiones Pesqueras: 637

DGSFMM: Direccao General dos Servicos de Fomento Maritimo Marinho: 651

DGTP: Direccion General de Tecnologia Pesquera: 637

DHEC: Department of Health and Environmental Control: 448

DHI: Deutsches Hydrographisches Institut: 620

DHI: Decennie Hydrologique Internationale: See IHD

DHM: Directoria Hidrografica Maritima: 652

DHMG: Departamento Hidrografico de la Marina de Guerra: 611

DHN: Direccion de Hidrografia y Navegacion: 648, 664

DHN: Diretoria de Hidrografia e Navegacao: 599

DIAND: Department of Indian Affairs and Northern Development: 602

DIC: Diving Information Center: 395

DIEO: Decennie Internationale d'Exploration des Oceans:
See IDOE

DINEKT: Study of Dynamics of Equatorial Currents and
Structure of Water: 661

DISHIDRAL: Dinas Hidrografi-Angkatan Laut: 626

DISL: Dauphin Island Sea Laboratory: 420

DKMM: Committee on Marine Science and Technology: 620

DLNR: Department of Lands and Natural Resources: 430

DM: Direccion de Meteorologia: 608

DMA: Defense Mapping Agency: 380

DMA/AC: Defense Mapping Agency/Aerospace Center: 380

DMA/HC: Defense Mapping Agency/Hydrographic Center: 380

DMA/TC: Defense Mapping Agency/Topographic Center: 380

DMI: Danske Meteorologiske Institut: 610

DMN: Direction de la Meteorologie Nationale: 601

DMR: Department of Marine Resources: 434

DMRP: Dredged Material Research Program: 381

DMS: Department of Marine Science: 433

DMS: Department of Marine Sciences: 447

DNA: Designated National Agency: 670

DND: Department of National Defense: 602

DNP: Declared National Program: 670

DNPM: Departamento Nacional de Producao Mineral: 599

DNR: Department of Natural Resources: 428, 432, 435,
437, 438, 444, 448, 453

DNRCD: Department of Natural Resources and Community
Development: 443

DNREC: Department of Natural Resources and Environmental
Control: 427

DO: Dissolved Oxygen

DOA: Department of the Army: 380

DOC: Department of Commerce: 365, 366, 367, 368, 369,
370, 371, 372, 373, 374, 375, 376, 377, 378, 379

DOC: Department of Conservation: 431, 433

DOD: Department of Defense: 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399

DOE: Deutsches Ozeanographisches Datenzentrum: 620

DOE: Department of Ecology: 452

DOE: Department of Energy: 399, 602

DOE: Department of Environment: 597

DOE: Department of the Environment: 171

DOF: Department of Fisheries: 452

DOI: Department of Interior: 401, 402, 403, 404, 405, 406, 407, 408, 409

DOMB: Deep Ocean Moored Buoy: 372

DOMES: Deep Ocean Mining Environmental Study: 364, 371

DOMO: Deep Ocean Mining Operations: 371

DON: Department of the Navy: 372, 376, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399,

DOOM: Deep Ocean Optical Measurement Program: 393

DOPM: Direction d'Océanographie et des Pêches Maritimes: 653

DORIS: Societe de Developement Operationel des Richesses: Sous-Marines: 617

DOS: Department of State: 410

DOSP: Deep Ocean Sediment Probe

DOT: Deep Ocean Technology

DOT: Department of Transportation: 411, 412

DOTD: Department of Transportation Development: 433

DOTS: Dredging Operations Technical Support: 38

DOUDDAS: Deep Ocean Untended Digital Data Acquisition System

DOWB: Deep Ocean Work Boat

DPED: Department of Planning and Economic Development: 430

DPH: Department of Public Health: 420

DPPO: Deepwater Ports Project Office: 375
 DRB: Defense Research Board: 602
 DRBC: Delaware River Basin Commission: 362
 DREA: Defense Research Establishment - Atlantic: 602
 DREO: Defense Research Establishment - Ottawa: 602
 DREP: Defense Research Establishment - Pacific: 602
 DRV: Deep Research Vessels
 DSA: Spectro-Angular Density Method of Forecasting
 Ocean Waves
 DSDP: Deep Sea Drilling Project: 97, 295, 416, 424
 DSE: Defense Scientific Establishment: 642
 DSIR: Department of Scientific and Industrial Research: 642
 DSL: Deep Scattering Layer
 DSRV: Deep Submergence Rescue Vehicle
 DSSF: Department of Sea and Shore Fisheries: 433
 DSSV: Deep Submergence Search Vehicle
 DST: Data Systems Test (GARP): 346
 DSXBT: Deep Surface Expendable Bathythermograph
 DTMB: David Taylor Model Basin: 396
 DTP: Department of Transport and Power: 628
 DUIOS: Dalhousie University Institute of Ocean
 Sciences: 603
 DUMAND: Deep Underwater Muon and Neutrino Detection: 372
 DUML: Duke University Marine Laboratory: 443
 DVRPC: Delaware Valley Regional Planning Commission: 446
 DWICA: Deep Water Isotopic Current Analyzer: 399
 DWP: Deep Water Ports: 381, 411, 412, 471
 DWPA: Deepwater Ports Act: 412
 DWS: Deutsches Wetterdienst Seewetteramt: 620
 EAC: East Australian Current: 252
 EAC: East African Community: 53

EADB: Experimental Arctic Data Buoy

EAEG: European Association of Exploration Geophysicists: 146

EAHC: East Asia Hydrographic Commission: 54

EAMES: Eastern Arctic Marine Environmental Studies: 604

EAMFRO: East African Marine Fisheries Research Organization: 42

EAMREA: Environment Impact Assessments of Mineral Resource Exploration and Exploitation in the Antarctic: 121

EASTROPAC: Cooperative Effort Toward Understanding of the Oceanography of the Eastern Tropical Pacific: 287

EASTROPIC: Cooperative Survey of the Eastern Tropical Pacific: 273

EB: Environmental Buoy: 372

EB: Experimental Buoy

EBML: Edward Ball Marine Laboratory: 428

EBSA: Estuarine and Brackish-water Sciences Association: 662

ECA: Ecology Council of America: 525

ECA: Economic Commission for Africa: 12

ECAFE: Economic Commission for Asia and the Far East: 12

ECB: Environment Coordination Board: 8

ECC: Environmental Conservation Commission: 432

ECE: Economic Commission for Europe: 12

ECG: Ecosystem Conservation Group: 8

ECK: Etude en Commun du Kuro-shio et des regions adjacentes: See CSK

ECLA: Economic Commission for Latin America: 12

ECM: Etude en Commun de la Mediterranee: See CIM

ECOPUSH: Environmental Conference on the Public Understanding of Science in Hawaii: 430

ECOR: Engineering Committee on Oceanic Resources: 103, 122, 211, 212, 221, 225, 227

ECOSOC: Economic and Social Council of the UN: 2, 3, 4, 5,
6, 7, 8, 9, 10, 11, 12

ECOWAS: Economic Community of West African States: 99

ECU: East Carolina University: 443

ECWA: Economic Commission for Western Asia: 12

EDAL: Engineering Design and Analysis Laboratory: 439

EDALHAB: Engineering Design and Analysis Laboratory Habitat:
372, 440

EDBD: Environmental Data Base Directory: 375

EDC: EROS Data Center: 409

EDF: Earthquake Data File: 375

EDF: Environmental Defense Fund: 527

EDIS: Environmental Data and Information Service: 345,
373, 374, 375

EDS.: Environmental Data Service: 375

EDS: Equatorial Dynamics Study: 315

EDTC: European Diving Technology Committee: 148

EDU: Environmental Diving Unit: 395

EEC: European Economic Community: 56

EEP: Engineering Experimental Phase Buoys: 372

EERS: Earthquake Early Reporting System

EEZ: Exclusive Economic Zone: 63, 70, 410, 602, 670

EFPW: European Federation for the Protection of Water: 149

EGMEX: Eastern Gulf of Mexico: 428

EGP: Experimental GOES Platform: 372

EGS: European Geophysical Society: 150

EHIC: Emergency Hurricane Information Center: 378

EIAC: Environmental Information Analysis Center: 513

EIC: Energy Information Center: 513

EIFAC: European Inland Fisheries Advisory Commission: 20,
266

EIMM:	Estacion de Investigaciones Marinas de Margarita: 664
EIOI:	Expedition Internationale de l'Ocean Indien: See IIOE
EIS:	Environmental Impact Statement: 399
EMBA:	European Marine Biological Association: 153
EMBL:	Eniwetok Marine Biological Laboratory: 399
EMS:	Environmental Management Service: 602
EMS:	European Mariculture Society: 152
EMU:	European Malacological Union: 151
EMVP:	Electro-Magnetic Velocity Profiler
ENCB:	Escuela Nacional de Ciencias Biologicas: 637
ENCRPB:	Erie-Niagara Counties Regional Planning Board: 442
ENDEX:	Environmental Data Index: 375
ENEA:	European Nuclear Energy Agency: 86
ENODC:	Egyptian National Oceanographic Data Center: 613
ENVPREDRSCHFAC	Naval Environmental Prediction Research Facility: 384
EOEA:	Executive Office of Environmental Affairs: 436
EOPAP:	Earth and Ocean Physics Applications Program: 415
EPA:	Environmental Protection Agency: 413
EPFTR:	Expert Panel on the Facilitation of Tuna Research: 18
EPOC:	Eastern Pacific Oceanographic Conference: 287, 504, 524
EPOCS:	Equatorial Pacific Ocean Climate Studies: 371
EPR:	East Pacific Rise: 271
EPRF:	Environment Prediction Research Facility: 384
EPS:	Environmental Protection Services: 602
EPSHOM:	Ettablissement Principal de la Service Hydrographique et Oceanographique de la Marine: 617
EQUALANT:	Equatorial Atlantic Survey: 282, 283

EQUAPAC: Cooperative Survey of the Equatorial Zone of the Pacific Ocean: 269

ERAP: Earth Resources Aircraft Program: 415

ERDA: Energy Research and Development Administration: 399

ERDC: Earth Resources Data Center: 437

ERDI: Energy Research and Development Inventory: 399

ERF: Estuarine Research Federation: 527

ERFEN: Estudio Regional del Fenomeno El Nino: 89

ERIM: Environmental Research Institute of Michigan: 437

ERL: Environmental Research Laboratories: 370, 371, 378

EROS: Earth Resources Observation Satellite: 409

ERRDF: Earth Resources Research Data Facility: 415

ERSPRC: Earth Resources Survey Program Review Committee

ERTS: Earth Resources Technology Satellite: 415

ES: Environmental Services: 602

ESA: Ecological Society of America: 526

ESA: Endangered Species Act of 1973: 369

ESA: European Space Agency: 57

ESCAP: Economic and Social Commission for Asia and the Pacific: 12, 37

ESCMTA: Escuela Superior de Ciencias Maritimas y Tecnologia de Alimentos: 637

ESIA: Escuela Superior de Ingenieria y Arquitectura: 637

ESIC: Environmental Science Information Center: 375, 418

ESIME: Escuela Superior de Ingenieria Mecanica y Electrica: 637

ESO: Escuela Superior de Oceanografia: 637

ESPADON: Etudes des Moyens Spatiaux et Aeriens de l'Ocean: 617

ESRO: European Space Research Organization: 617

ESSA: Environmental Science Services Administration: 367, 371, 375, 377, 378

ETCC: Estuarine Technical Coordination Committee

EUBS: European Undersea Biomedical Society: 155

EUC: Equatorial Undercurrent

EURATOM: European Atomic Energy Community: 55

EUROCEAN: European Oceanic Association: 154

EUROPECHE: Association of National Organizations of Fishing Enterprises of the EEC: 56

EVE: Economic Verification Experiments: 376

EWCFI: East West Center Food Institute: 430

EY: Equilibrium Yield

F&WA: Fish and Wildlife Administration: 435

FAC: Foreign Allowable Catch: 666

FAGS: Federation of Astronomical and Geophysical Services: 109, 128, 129, 130, 131, 132

FAMOS: Fleet Applications of Meteorological Observations from Satellites

FAMOUS: French-American Mid-Ocean Undersea Study: 94, 271, 316, 398

FAMU: Florida A&M University: 428

FAO: Food and Agriculture Organization of the United Nations: 1, 7, 8, 16, 17, 18, 19, 20, 35, 36, 38, 62, 165, 230, 233, 237, 239, 261, 262, 265, 272, 283, 290, 293, 325, 326, 331, 369

FASOR: Forward Area Sonar Research

FAU: Florida Atlantic University: 428

FBS: Fisheries Board of Sweden: 657

FCCSET: Federal Coordinating Council for Science, Engineering, and Technology: 361

FCECA: Fishery Committee for the Eastern Central Atlantic: 20

FCMA: Fisheries Conservation and Management Act of 1976: 369, 412, 665

FCRG: Food Chain Research Group: 424

FCST: Federal Council for Science and Technology: 361

FCZ: Fisheries Conservation Zone: 369

FCZ: Fisheries Conservation Zone: 369

FD: Fisheries Department: 646

FDA: Food and Drug Administration: 400

F DRAKE: First Dynamic Response and Kinematics Experiment in the Drake Passage: 313

FDC: Fishery Data Centre: 16, 233

FEA: Federal Energy Administration: 369

FEL: Fisheries Engineering Laboratory: 369

FEPE: Federation Europeenne pour la Protection des Eaux: See EFPW

FEPI: Fideicomiso para la Educacion Pesquera Integral: 637

FESSM: Federation Francaise d'Etudes et des Sports Sous-Marins: 617

FFIK: Forschungsstelle fuer Insel- und Kustenschutz: 620

FFIU: Forsvarets Forskningsinstitut Avdeling for Under-vannskrigsforskning: 645

FGGE: First GARP Global Experiment: 272, 315, 346, 372

FGORC: Flower Garden Ocean Research Center: 450

FHI: Fiskeridirektoratet Havforskningsinstitut: 645

FIBEX: First International BIOMASS Experiment: 256

FICSAS: Federation of Institutions Concerned with the Study of the Adriatic Sea: 156

FIDEFA: Fideicomiso Par el Desarrollo de la Fauna Acuatica: 637

FIG: Federation Internationale des Geometres (International Federation of Surveyors): 180

FIO: Florida Institute of Oceanography: 428

FISCOR: Fisheries Development Corporation: 654

FISSHH: First International Saturation Study of Herring and Hydroacoustics: 276

FIU: Florida International University: 428

FLARE: Florida Aquanaut Research Expedition: 372

FLASH: Foreign Fishing Vessel Licensing and Surveillance Hierarchial Information System: 402

FLEX: Fladden Ground Experiment: 298

FLIP: Floating Instrument Platform: 424

FLLCL:	Francis L. LaQue Corrosion Laboratory: 541
FLOOD:	Fleet Observation of Oceanographic Data: 392
FLORIS:	Florida Resources Information System: 428
FLSCN:	Fundacion La Salle de Ciencias Naturales: 664
FMANU:	Federation Mondiale des Associations pour les Nations Unies: See WFUNA
FMC:	Federal Maritime Commission: 414
FMD:	Fiji Marine Department: 615
FMS:	Fisheries and Marine Service: 602
FNAF:	Farvandsdirektoratet Nautisk Afdeling: 610
FNPP:	Floating Nuclear Power Plant Study: 358
FNOC:	Fleet Numerical Oceanographic Center: 391
FNWC:	Fleet Numerical Weather Central: 391
FNWF:	Fleet Numerical Weather Facility: 391
FOEMP:	Federal Oceanic Exploration Mapping Program
FOIL:	Field Oil Identification Laboratory: 412
FOP:	Federal Ocean Program: 361
FOR:	Foundation for Ocean Research: 531
FOSI:	Florida Ocean Sciences Institute: 530
FOSTG:	Freedom for Ocean Sciences Task Group: 419
FOY:	FGGE Operational Year: 346
FPC:	Federal Power Commission: 399
FPC:	Fish Protein Concentrate: 13, 23
FRB:	Fisheries Research Board of Canada: 602
FRDA:	Fisheries Research and Development Agency: 633
FRS:	Fisheries Research Station: 662
FSDB:	Fishery Statistics Data Base: 369
FSFRL:	Far Seas Fisheries Research Laboratory: 632
FSU:	Florida State University: 428
FTU:	Fishery Technical Unit: 629

FTU: Florida Technological University: 428

FUDFYFA: Fideicomiso Unico para el Desarrollo de la Flora y Fauna Acuatica: 637

FURG: Fundacao Universidade do Rio Grande: 599

FUSOD: Future of Scientific Ocean Drilling: 295

FWC: Fleet Weather Central: 391

FWF: Fleet Weather Facility: 391

FWG: Forschungsanstalt der Bundeswehr fuer Wasserschall und Geophysik: 620

FWPCA: Federal Water Pollution Control Act: 413

FWPCA: Federal Water Pollution Control Administration: 413

FWQA: Federal Water Quality Administration: 413

FWRS: Fish and Wildlife Reference Service: 408

FWS: Fish and Wildlife Service: 369, 408

GAO: GARP Activities Office: 343

GARP: Global Atmospheric Research Program: 30, 112, 313, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 361, 375, 416

GATE: GARP Atlantic Tropical Experiment: 30, 343, 347, 375, 617

GBERL: Gulf Breeze Environmental Research Laboratory: 413

GCAGS: Gulf Coast Association of Geological Societies: 535

GCBS: General Council of British Shipping: 662

GCFC: Gulf Coast Fisheries Center: 367

GCFEDF: Gulf Coast Fisherman's Environmental Defense Fund: 536

GCFI: Gulf and Caribbean Fisheries Institute: 158, 428

GCM: Global Circulation Model

GCRL: Gulf Coast Research Laboratory: 439

GCT: Groupe de Coordination Technique: See GTC

GDPS: Global Data Processing System: 353

GEBCO: General Bathymetric Chart of the Ocean: 66, 113

GELTSPAP: Group of Experts on Long-Term Scientific Policy and Planning: 22, 184, 304

GEMMS: Geophysical Exploration Manned Mobile Submersible

GEMP: Gulf Environmental Measurements Program: 462

GEMS: Global Environmental Monitoring System: 272, 280, 419

GEMSI: Group of Experts on Methods, Standards, and Inter-calibration: 22

GENAVIR: Groupement d'Interet Economique pour la Gestion des Navires Oceanologiques: 617

GEOMANCHE: English-French Geological Mapping of the Seabed beneath the English Channel: 275

GEOMAR: Programa Plurianual de Geologia e Geofisica Marinha: 599

GEOREF: Geological Reference File: 480

GEOS: Study of Sedimentary Layer of Oceans: 661

GEOSECS: Geochemical Ocean Section Study: 306

GEP: Geological Echo Profiler

GEPE: GATE Equatorial Profiling Experiment: 347

GERS: Groupe d'Etudes et de Recherches Sous-Marines: 617

GERS: Gulf Estuarine Research Society: 537

GESAMP: Group of Experts on the Scientific Aspects of Marine Pollution: 38, 174

GFCM: General Fisheries Council for the Mediterranean: 20, 262, 266, 326

GFDI: Geophysical Fluid Dynamics Institute: 428

GFDL: Geophysical Fluid Dynamics Laboratory: 371

GFDP: Geophysical Fluid Dynamics Program: 371

GHC: Gray's Harbor College: 452

GICAMA: Groupe Interministeriel de Coordination de l'Action en Mer des Administrations: 617

GIFA: Governing International Fisheries Agreements: 410, 666

GIP: General Information Program: 228

GIPME: Global Investigation of Pollution in the Marine Environment: 22, 227, 304

GISMER: Groupe d'Intervention sous la Mer: 617
 GIWW: Gulf Intracoastal Waterway
 GLBC: Great Lakes Basin Commission: 362
 GLC: Great Lakes Commission: 460
 GLERL: Great Lakes Environmental Research Laboratory: 371,
 377
 GLFC: Great Lakes Fishery Commission: 58
 GLMWC: Great Lakes and Marine Waters Center: 437
 GLO: General Land Office: 450
 GLOMEX: Global Oceanographic and Meteorological Experiment:
 345
 GLRD: Great Lakes Research Division: 437
 GLRIRC: Great Lakes Regional Information and Referral Center:
 373
 GMEI: Gulf of Mexico Estuarine Inventory: 461
 GLSG: Great Lakes Study Group: 157
 GMFMC: Gulf of Mexico Fishery Management Council: 369
 GMI: Global Marine Incorporated: 534
 GNEM: Global Network for Environmental Monitoring: 277
 GOCC: GATE Operational Control Centre: 347
 GOES: Geostationary Operational Environmental Satellite:
 372, 275, 376, 378, 415
 GOES/DCP: GOES Data Collection Platform
 GOFAR: Global Geological and Geophysical Ocean Floor
 Analysis and Research: 392
 GOG: GEOSECS Operations Group: 306
 GOIN: Gosudarstvennyy Okeanograficheskiy Institut: 661
 GOO: Get the Oil Out: 423
 GOS: Global Observing System: 353
 GOSSTCOMP: Global Ocean Sea Surface Temperature Computation:
 376
 GOY: GWE Operational Year: See FOY
 GPI: Geologisch-Paleontologisches Institut: 620

GPRC: Geophysical and Polar Research Center: 453

GRDL: Geodetic Research and Development Laboratory: 377

GRZ: Galapagos Rift Zone

GSA: Geological Society of America: 532

GSA: Geophysical Sciences Association: 533

GSC: Geological Survey of Canada: 602

GSFC: Goddard Space Flight Center: 415

GSJ: Geological Survey of Japan: 632

GSMFC: Gulf States Marine Fisheries Commission: 308

GSO: Graduate School of Oceanography: 448

GTC: Group for Technical Coordination: 262

GTS: Global Telecommunication System: 353

GTS: Guinean Trawling Survey: 87, 283

GU: Goteborgs Universitet: 657

GUFEX: Gulf Underwater Flare Experiment: 308

GURC: Gulf Universities Research Corporation: 439, 462

GWE: Global Weather Experiment: See FGGE

HARSAP: Harbor Survey Assistance Program: 392

HCB: High Capability Buoy

HCRS: Heritage Conservation and Recreation Service: 405

HD: Hydrographic Department: 636, 646, 662

HDMSA: Hydrographic Department of the Maritime Safety
Agency: 632

HEC: Hydraulic Engineering Center: 381

HEIAC: Hydraulic Engineering Information Analysis Center:
381

HERL: Health Effects Research Laboratory: 413

HESL: Hawaii Environmental Simulation Laboratory: 430

HEW: Department of Health, Education, and Welfare: 400

HIG: Hawaii Institute of Geophysics: 430

HIJRM: Hidrografski Institut Jugoslavenske Ratne Mornarice: 665

HIMB: Hawaii Institute of Marine Biology: 430

HIRS: High Resolution Infrared Sounder

HLIO: Horace Lamb Institute of Oceanography: 596

HML: Huntsman Marine Laboratory: 603

HMMFC: House Merchant Marine and Fisheries Committee: 354

HMOJMA: Hakodate Marine Observatory/Japan Meteorological Agency: 632

HMS: Hopkins Marine Station: 422, 425

HO: Hydrographic Office: 633, 654

HO: Hydrographic Office, U.S. Navy: 392

HRFRL: Hokkaido Regional Fisheries Research Laboratory: 632

HRIR: High Resolution Infrared Radiometer: 333

HSCOCS: House Select Committee on the Outer Continental Shelf: 354

HSSTD: Historical Sea Surface Temperature Data Project: 284

HYDRO: Hydrographic Office, U.S. Navy: 392

IAA: Instituto Antartico Argentino: 595

IAAS: International Association for Atmospheric Science: 112

IAB: Institute of Arctic Biology: 421

IABO: International Association of Biological Oceanography: 100, 105, 122, 225, 256

IAC: Instituto Antartico Chileno: 605

IACOMS: International Advisory Commission on Marine Sciences: 112

IACOMS: International Advisory Committee on Marine Sciences: 21

IADB: Inter-American Development Bank: 59

IADC: International Association of Dredging Companies: 163, 212

IADO: Instituto Argentino de Oceanografia: 595

IAE: International Association for Ecology: 104

IAEA:	International Atomic Energy Agency: 33, 38, 176, 239, 290
IA/ECOSOC:	Inter-American Economic and Social Council: 88
IAEG:	International Association of Engineering Geology: 116, 212
IAFMM:	International Association of Fish Meal Manufacturers: 165
IAFWA:	International Association of Fish and Wildlife Agencies: 164
IAG:	International Association of Geodesy: 109
IAGA:	International Association of Geomagnetism and Aeronomy: 110
IAGC:	International Association of Geochemistry and Cosmochemistry: 116
IAGFCC:	International Association of Game, Fish and Conservation Commissioners: 164
IAGLR:	International Association for Great Lakes Research: 160
IAH:	International Association of Hydrogeologists: 290
IAHR:	International Association for Hydraulic Research: 212, 213
IAHS:	International Association of Hydrological Sciences: 111, 227, 290
IAIN:	International Association of Institutes of Navigation: 166
IAL:	International Association of Theoretical and Applied Limnology: 107
IALA:	International Association of Lighthouse Authorities: 167
IAMAP:	International Association of Meteorology and Atmospheric Physics: 112, 112, 122
IAMO:	International Association for Medical Oceanography: 161
IAMS:	International Association of Microbiological Societies: 106
IANI:	International Association of Navigation Institutes: 166
IAPC:	International Association for Pollution Control: 162

IAPH: International Association on Ports and Harbors: 169
 IAPO: International Association of Physical Oceanography:
 See IAPSO
 IAPSO: International Association for the Physical Sciences
 of the Ocean: 100, 113, 122, 225, 237
 IARCC: Interagency Arctic Research Coordinating Committee:
 361
 IAS: International Association of Sedimentology: 168
 IASF: International Atlantic Salmon Foundation: 171
 IASH: International Association of Scientific Hydrology:
 See IAHS
 IASPEI: International Association of Seismology and Physics
 of the Earth's Interior: 114, 235
 IATTC: Inter-American Tropical Tuna Commission: 60, 274,
 287, 333, 666
 IAU: International Astronomical Union: 100
 IAV: International Association of Volcanology: See IAVCEI
 IAVCEI: International Association of Volcanology and Chem-
 istry of the Earth's Interior: 115
 IAWPR: International Association on Water Pollution
 Research: 170, 212
 IBCM: International Bathymetric Chart of the
 Mediterranean: 242
 IBM: Instituto de Biologia Marina: 595
 IBM: Instituto de Biologia Maritima: 651
 IBM: Istituto di Biologia del Mare: 630
 IBMO: Institut za Biologiju Mora i Oceanografiju: 665
 IBOND: IGOSS Basic Observation Network Design: 280
 IBP: International Biological Programme: 124, 233
 286, 290, 325, 416
 IBP/PM: International Biological Program/Productivity-
 Marine Section: 286
 IBRD: International Bank for Reconstruction and Development:
 IBSFC: International Baltic Sea Fishery Commission: 61
 24
 IBY: International Baltic Year: 285

ICA: International Cartographic Association: 102

ICAO: International Civil Aviation Organization: 26, 186

ICAP: International Cooperative Assistance Program: 373

ICAPS: Integral Carrier ASW Prediction System: 392

ICAS: Interdepartmental Committee on Atmospheric Services: 361

ICBP: International Council for Bird Preservation: 178

ICCAT: International Commission for the Conservation of Atlantic Tunas: 20, 62

ICEOB: Sea Ice Observation Code: 668

ICES: International Council for the Exploration of the Sea: 48, 65, 72, 82, 239, 244, 254, 265, 270, 272, 285, 300, 330, 335, 610, 662, 670

ICFFS: Interagency Committee on Food from the Sea: 361

ICG: Inter-Union Commission for Geodynamics: 126

ICG: International Coordination Group: 22, 267

ICH: Instituto Cubano de Hidrografia: 609

ICI: International Commission on Illumination: 175

ICITA: International Cooperative Investigations of the Tropical Atlantic: 282, 283

ICJ: International Court of Justice: 9

ICL: International Commission on the Lithosphere: 288

ICLARM: International Center for Living Aquatic Resources Management: 173

ICMAREP: Interagency Committee for Marine Environmental Prediction: 361

ICMM: International Congress of Maritime Museums: 177

ICMR: Institute for Coastal and Marine Resources: 443

ICMREF: Interagency Committee on Marine Research: 361

ICMSE: Interagency Committee for Marine Science and Engineering: 361

ICMUCZ: Interagency Committee on Multiple Uses of the Coastal Zones: 361

ICNAF: International Commission for the Northwest Atlantic Fisheries: 63, 65, 82, 226, 247, 329

ICNT: Informal Composite Negotiating Text: 2
 ICO: Interagency Committee on Oceanography: 361
 ICOEES: Interagency Committee on Ocean Exploration and
 Environmental Services: 361
 ICOMIA: International Council of Marine Industry Associa-
 tions: 179
 ICONS: Inner Continental Shelf Sediment and Structure
 Program: 381
 ICOR: Intergovernmental Conference on Oceanographic
 Research: 22
 ICOT: Institute of Coastal Oceanography and Tides: 634,
 662
 ICPC: International Cable Protection Committee: 172
 ICPM: International Commission on Polar Meteorology: 112
 ICRCM: International Center on Recent Crustal Movements: 109
 ICRP: International Commission on Radiological Protection:
 176
 ICS: Institute of Caribbean Sciences: 447
 ICS: International Chamber of Shipping: 174
 ICSEAF: International Commission for the Southeast Atlantic
 Fisheries: 20
 ICSEM: International Commission for the Scientific Explor-
 ation of the Mediterranean Sea: 64, 262, 326, 334
 ICSI: International Commission of Snow and Ice: 111, 250,
 253
 ICSPRO: Inter-Secretariat Committee on Scientific Programmes
 Relating to Oceanography: 36
 ICSU: International Council of Scientific Unions: 30,
 100, 101, 102, 103, 104, 105, 106, 107, 108, 109,
 110, 111, 112, 113, 114, 115, 116, 117, 118, 119,
 120, 121, 122, 123, 124, 125, 126, 127, 128, 129,
 130, 131, 132, 133, 233, 234, 245, 277, 286, 288,
 325, 340, 344, 345, 346, 347, 348, 349, 350, 351,
 352
 ICU: Instituto Cartografico Universitario: 611
 ICVO: Netherlands Interdepartmental Commission for
 Oceanography: 640
 ICWQ: International Commission on Water Quality: 111

ICWW: Intra-Coastal Waterway: 428

ICWWP: Interagency Committee for the World Weather Programs: 361

IDOE: International Decade of Ocean Exploration: 60, 286
302, 303, 304, 305, 306, 307, 308, 309, 310, 311,
312, 313, 314, 315, 316, 317, 318, 319, 320, 321,
322, 323, 324, 416, 418, 443

IDPSS: IGOSS Data Processing and Services System: 280

IDRES: Institute for the Development of Riverine and Estuarine Systems: 446

IECOK: International Economic Consultative Organization in Korea: 633

IEEE: Institute of Electrical and Electronics Engineers: 53

IEO: Instituto Espanol de Oceanografia: 655

IEPC: International Environmental Programs Committee: 419

IER: Institute for Environmental Research: 371

IERO: Institute for Engineering Research in the Oceans: 359

IES: Institute of Environmental Sciences: 539

IfFang: Institut fuer Fangtechnik: 620

IfKuBiFi: Institute fuer Kuesten und Binnenfischerei: 620

IfM: Institut fuer Meereskunde: 619, 620

IfMf: Institut fuer Meeresforschung: 620

IFOP: Instituto de Fomento Pesqueras: 605

IFP: Institut Francais du Petrole: 617

IFs: Institut fuer Seefischerei: 620

IFRB: International Frequency Registration Board: 32

IFYGL: International Field Year for the Great Lakes: 291, 371

IGB: International Gravimetric Bureau: 109, 130

IGBA: Institute de Geologie du Bassin D'Aquitaine: 617

IGC: International Gravity Commission: 109

IGC: Inter-Union Geodynamics Commission: See ICG

IGC: International Geological Congress: 181, 191

IGC: International Geophysical Cooperation: 289

IGCP: International Geological Correlation Programme: 300

IGFRC: International Game Fish Research Conference

IGGCI: International Geological/Geophysical Cruise
Inventory: 116, 670

IGN: Instituto Geografico Nacional: 614, 621, 623, 647

IGO: Intergovernmental Organization

IGOSS: Integrated Global Ocean Station System: 22, 39, 272,
280, 378, 668

IGP: International Geodynamics Project: 126, 288, 340

IGS: Institute of Geological Sciences: 275, 662

IGSC: International Group for Scientific Coordination:
262

IGU: International Gas Union: 214

IGU: International Geographical Union: 100, 101, 102, 249

IGY: International Geophysical Year: 127, 245, 289, 330

IH: Instituto Hidrografico de la Armada: 605

IH: Instituto Hidrografico: 651

IHB: International Hydrographic Bureau: 66

IHC: International Hydrochemical Commission: 111

IHD: International Hydrological Decade: 76, 123, 290,
291, 292

IHM: Instituto Hidrografico de la Marina: 655

IHO: International Hydrographic Organization: 1, 25,
54, 66, 78, 90, 113, 239

IHP: International Hydrological Program: 292

IICG: ICSU Inter-Union Commission for Geodynamics: See ICG

IIM: Istituto Idrografico della Marina: 630

IIMC: International Institute of Maritime Culture: 183

IIO: Instituto de Investigaciones Oceanologicas: 637

IIOE: International Indian Ocean Expedition: 234, 293

IIP: Instituto de Investigaciones Pesqueras: 655

IIP:	International Ice Patrol: 67, 412
IIP0:	International Institute of Physical Oceanography: 184
IJC:	International Joint Commission: 68
ILA:	International Law Association: 185
ILC:	International Law Commission: 10
ILEWPB:	Internationa Lake Erie Water Pollution Board: 68
ILMR:	International Laboratory of Marine Radioactivity: 33
ILO:	International Labor Organization: 34
ILOSLRWPB:	International Lake Ontario and St. Lawrence River Water Pollution Board: 68
IM:	Instytut Morski: 650
IMAC:	Interim Marine Affairs Council: 434
IMARPE:	Instituto del Mar del Peru: 648
IMB:	Institute of Marine Biology: 447
IMC:	International Maritime Committee: 187
IMC:	International Meteorological Centre, Bombay: 293
IMCO:	Inter-Governmental Maritime Consultative Organiza- tion: 9, 25, 36, 38, 77, 186, 206, 238
IMCS:	Institute for Marine and Coastal Studies: 425
IMD:	Indian Meteorological Department: 625
IMDG:	International Maritime Dangerous Goods Code: 38
IMER:	Institute of Marine Environmental Research: 662
IMGW/OM	Instytut Meteorologii i Gospodarki Wodnej, Oddział Morski: 650
IMMPC:	International Marine Meteorological Punch Card: 668
IMO:	International Meteorological Organization: 27
IMP:	Instituto Mexicano del Petroleo: 637
IMR:	Institute of Marine Research: 616
IMR:	Institute of Marine Resources: 424
IMS:	Institute for Marine Studies: 451
IMS:	Institute of Marine Science: 421, 428

IMS: Irish Meteorological Service: 628

IMS: International Marine Science (newsletter): 21

IMSAP: International Marine Science Affairs Policy: 419

IMSWE: Investigations of Marine Shallow Water Ecosystems
Program: 418

IMU: International Mathematical Union: 100

INC: Ice Navigation Center: 412

INCO: International Nickel Company: 541

INDEX: Indian Ocean Experiment: 348

INDOCHEM: Indian Ocean GEOSECS Program: 306

INFOTERRA: UNEP's International Referral System: 8, 272, 418

INIS: International Nuclear Information System: 33

INMARISAT: International Maritime Satellite System: 25

INMARSAT: International Maritime Satellite Organization: 25

INOCAR: Instituto Oceanografico de la Armada: 612

INOUT: North Sea In and Out Flow Experiment: 298

INP: Instituto Nacional de Pesca: 637

INPE: Instituto Nacional de Pesca del Ecuador: 612

INPFC: International North Pacific Fisheries Commission:
69, 237

INQUA: International Union for Quaternary Research: 197

INSITE: Information on Nuclear Sites Data System: 417

INST: International Numbering System for Tides: 671

IOAN: Institut Okeanologiy Akademiy Nauk: 661

IOBC: Indian Ocean Biological Center: 21, 234, 293

IOC: Institutes for Oceanography: 371

IOC: Intergovernmental Oceanographic Commission: 1, 17,
21, 22, 35, 37, 39, 122, 230, 232, 233, 236, 237,
239, 256, 261, 262, 263, 265, 267, 272, 280, 282,
283, 287, 293, 302, 303, 304, 305, 306, 307, 308,
309, 310, 311, 312, 313, 314, 315, 316, 317, 318,
319, 320, 321, 322, 323, 324, 326, 337, 632, 670,
671

IOC/BCC: Intergovernmental Oceanographic Commission/Bureau and Consultative Council: 22

IOC/EC: Intergovernmental Oceanographic Commission/Executive Council: 22

IOC/VAP: Intergovernmental Oceanographic Commission/Voluntary Assistance Program: 22

IOCARIBE: IOC Association for the Caribbean and Adjacent Regions: 22, 261, 371

IOD: Immediate Oxygen Demand

IODE: International Oceanographic Data Exchange: 22, 670

IOF: International Oceanographic Foundation: 189

IOFC: Indian Ocean Fishery Commission: 20

IOHS: Integrated Operational Hydrological System: 29

IOI: International Ocean Institute: 188

IOLI: Israel Oceanographic and Limnological Institute: 629

IOLR: Israel Oceanographic and Limnological Research Company: 629

IOP: Institut Oceanographique de Paris: 617

IOR: Institut za Oceanografiju i Ribarstvo: 665

IOS: IGOS Observing System: 280

IOS: Institute of Ocean Sciences: 602

IOS: Institute of Oceanographic Sciences: 662

IOS-B: Institute of Oceanographic Sciences - Bideston: 662

IOS-T: Institute of Oceanographic Sciences - Taunton: 662

IOS-W: Institute of Oceanographic Sciences - Wormley: 662

IOUO: Instituto Oceanografico Universidad de Oriente: 664

IOUSP: Instituto Oceanografico do Universidad de Sao Paulo: 599

IPFC: Indo-Pacific Fisheries Commission: 20, 237, 338

IPGH: Institut Panamericain de Geographie et d'Histoire: See PAIGH

IPGH: Instituto Panamericano de Geografia e Historia: See PAIGH

IPHC: International Pacific Halibut Commission: 70
 IPIECA: International Petroleum Industries Environmental
 Conservation Association: 192, 206
 IPLAN: Joint IOC/WMO Planning Group for IGOS: 39
 IPN: Instituto Politecnico Nacional: 637
 IPOD: International Phase of Ocean Drilling: 97, 295
 IPON: Task Group on Identification of Problems, Opportuni-
 ties, and Needs, Existing and Potential: 361
 IPqM: Instituto de Pesquisas da Marinha: 599
 IPSFC: International Pacific Salmon Fisheries Commission: 71
 IPU: Inter-Parliamentary Union: 199
 IPU: International Paleontological Union: 191
 IRA: Istituto di Ricerca sulle Acque: 630
 IRC: International Research Council: 100
 IRCCOPR: Inter-Research Council Committee on Pollution
 Research: 662
 IRCM: Institutul Romin de Cercetari Marine: 652
 IRES: IOC Group of Experts on Oceanographic Research as
 it Relates to IGOS: 39
 IRIA: Infrared Information Analysis Center: 437
 IRIS: National Infrared Information System: 437
 IRIS: Interactive Real-time Information System: 322
 IRL: Information Retrieval Limited: 230
 IRLS: Interrogation, Recording, and Location System
 IRPTC: International Register of Potentially Toxic
 Chemicals: 272
 IRS: International Referral System: See INFOTERRA
 IRT: Infrared Radiation Thermometer
 IRVSS: Infrared Vertical Sounding System
 ISA: Instrument Society of America: 540
 ISAR: Inter-Seamount Acoustic Range: 382
 ISB: International Society of Biometeorology: 189

ISBA: International Seabed Area: 669

ISC: International Seismological Centre: 235

ISDP: Ice Shelf Drilling Project: 121, 279

ISMEX: Indo-Soviet Monsoon Experiment: 348

ISMG: International Scientific and Management Group: 343, 347

ISNT: Informal Single Negotiating Text: 2

ISO: International Organization for Standardization: 190

ISOS: International Southern Ocean Studies: 105, 313

ISRA: International Seabed Resource Authority: 2

ISS: International Seaweed Symposia: 193

ISSC: International Ship Structure Congress: 194, 212

ISSMFE: International Society for Soil Mechanics and Foundation Engineering: 212, 215

ISTPM: Institut Scientifique et Technique des Peches Maritimes: 617

ITCZ: Intertropical Convergence Zone: 347

ITECH: Joint IOC/WMO Group of Experts on IGOSS Technical Systems Design and Development and Service Requirements: 3

ITEL: Joint WMO/IOC Group of Experts on Telecommunications: 39

ITESM: Instituto Tecnológico y de Estudios Superiores de Monterrey: 637

ITEX: Internal Tide Experiment

ITIC: International Tsunami Information Center: 22, 236

ITPR: Infrared Temperature Profile Radiometer

ITS: Institute of Telecommunications Services: 398

ITSU: Tsunami Warning System in the Pacific: 22

ITU: International Telecommunications Union: 32, 186

IUB: International Union of Biochemistry: 100

IUBS: International Union of Biological Sciences: 100, 103, 104, 105, 106, 107, 249

IUC: International Union of Crystallography: 100

IUCN: International Union for Conservation of Nature
and Natural Resources: 8, 106, 325

IUCRG: Inter-Union Committee on Radio Geophysics: 126

IUCRM: Inter-Union Committee on Radio Meteorology: 126

IUCRO: Inter-Union Committee on Radio Oceanography: 126

IUCSTP: Inter-Union Commission on Solar Terrestrial Physics:
126

IUGG: International Union of Geodesy and Geophysics: 100,
108, 109, 110, 111, 112, 113, 114, 115, 116, 235,
288, 482

IUGS: International Union of Geological Sciences: 100,
116, 249, 288, 301

IUHPS: International Union of History and Philosophy of
Science: 100, 117

IUIS: International Union of Immunological Societies: 100

IUMP: International Upper Mantle Program: See UMP

IUMS: International Union of Marine Sciences: 100

IUNS: International Union of Nutritional Sciences: 100

IUPAB: International Union of Pure and Applied Biophysics:
100

IUPAC: International Union of Pure and Applied Chemistry:
100, 249

IUPAP: International Union of Pure and Applied Physics: 100

IUPHAR: International Union of Pharmacology: 100

IUPS: International Union of Physiological Sciences: 100,
249

IURS: International Union of Radio Science: 100, 249

IUTAM: International Union of Theoretical and Applied
Mechanics: 100

IVP: Instituut voor Visserijprodukten: 640

IWC: International Whaling Commission: 72, 667

IWD: Inland Waterways Directorate: 602

IWEX: Internal Wave Experiment: 436

IWGMP: Intergovernmental Working Group on Marine Pollution:
8

IWGMS:	Intergovernmental Working Group on Monitoring or Surveillance: 8
IWP:	Indicative World Plan for Agriculture: 331
IWR:	Institute for Water Resources: 381
IWR:	Institute of Water Resources: 421
IWRA:	International Water Resources Association: 198
IWSOE:	International Weddell Sea Oceanographic Expedition: 296
JAERI:	Japan Atomic Energy Research Institute: 632
JAMARC:	Japan Marine Fishery Resource Center: 632
JAMSTEC:	Japan Marine Science and Technology Center: 632
JARE:	Japanese Antarctic Research Expedition: 632
JASIN:	Joint Air/Sea Interaction Project: 281
JCFC:	Japan-China Joint Fisheries Commission: 73
JEL:	Jackson Estuarine Laboratory: 440
JFA:	Japan Fishery Agency: 632
JGE:	Joint Group of Experts
JHU:	Johns Hopkins University: 435
JIC:	Joint Ice Center: 367
JICG:	Joint International Coordination Group
JIMAR:	Joint Institute for Marine and Atmospheric Research: 371
JISA0:	Joint Institute for the Study of the Atmosphere and the Ocean: 371
JISETA:	Joint Investigation of the Southeastern Tropical Atlantic: 2
JKFC:	Japan-Korea Joint Fisheries Commission: 74
JMA:	Japan Meteorological Agency: 632
JMS:	Japanese Meteorological Society: 632
JMSA:	Japanese Maritime Safety Agency: 632
JMSDF:	Japan Maritime Self Defense Force: 632
JOC:	Joint Organizing Committee for GARP: 30, 343, 352

JODC: Japan Oceanographic Data Center: 237, 267, 632

JOIDES: Joint Oceanographic Institutions for Deep Earth Sampling: 295, 424

JOINT: (Joint CUEA Programs): 322

JONSDAP: Joint Oceanographic North Sea Data Acquisition Program: 298

JONSIS: Joint North Sea Information System: 298

JONSMOD: Joint North Sea Modeling Group: 298

JONSWAP: Joint North Sea Wave Analysis Project: 299

JPMOC: Joint Polymode Organizing Committee: 314

JSFC: Japanese-Soviet Fish Commission: 75

JTRE: Joint Tsunami Research Effort: 371

JWIC: Japanese Whaling Information Center: 632

KAE: Krupp Atlas - Elektronik: 620

KASPNIIRKH: Kaspiyskiy Nauchno-Isseldovatel'skiy Institut Rybnogo Khozyaystva: 661

KDC: Kuroshio Data Centre: 237, 267, 632

KMDH: Dienst Hydrografie der Koninklijke Marine: 640

KMIDC: Korea Marine Industry Development Corporation: 633

KMOJMA: Kobe Marine Observatory/Japan Meteorological Agency: 632

KNAW: Konenkelijke Nederlandse Adademie van Wetenschappen: 640

KNMI: Koninklijk Nederlands Meteorogisch Instituut: 640

KU: Kagoshima University: 632

KUIMB: Karachi University Institute of Marine Biology: 646

LACCMR: Louisiana Advisory Commission on Coastal and Marine Resources: 433

LACIMAR: Laboratorio de Ciencias do Mar: 599

LAGEMAR: Laboratorio de Geologia Marinha: 599

LAGEOS: Laser Geodynamics Satellite: 415

LAN: Laboratorio di Automozione Navale: 630

LANBY: Large Automatic Navigation Buoy
 LANDSAT: Land Monitoring Satellite: 415
 LAS: League of Arab States: 77
 LASCO: Latin America Science Cooperation Office: 21
 LBJSC: Lyndon B. Johnson Space Center: 415
 LBL: Lawrence Berkeley Laboratory: 424
 LC: Library of Congress: 355
 LCB: Limited Capability Buoy
 LDE: Local Dynamics Experiment: 314
 LDGO: Lamont-Doherty Geological Observatory: 397, 442
 LEAC: Lake Erie Advisory Committee: 442
 LEG: Legal Questions Relating to Scientific Investigations
 in the Ocean: 22
 LEPOR: Long-term and Expanded Program of Oceanic Explora-
 tion and Research: 22, 212, 302, 303, 304, 305,
 306, 307, 308, 309, 310, 311, 312, 313, 314, 315,
 316, 317, 318, 319, 320, 321, 322, 323, 324
 LGAO: Laboratoire de Geophysique Appliquee a l'Oceano-
 graphie: 617
 LGM: Laboratorio per la Geologia Marina: 630
 LGO: Lamont Geological Observatory: 442
 LIBEC: Light Behind Camera System: 398
 LLL: Lawrence Livermore Laboratory: 424
 LLOE: Look Laboratory of Ocean Engineering: 430
 LNB: Large Navigation Buoy
 LOCO: Long Cores Drilling Program
 LON: Lembaga Oseanologi Nasional: 336, 626
 LOOP: Louisiana Offshore Oil Port: 433
 LOP: Laboratoire D'Océanographie Physique: 617
 LORAN: Long Range Aid to Navigation
 LOS: Law-of-the-Sea: 2
 LOSC: Law-of-the-Sea Conference: See UNCLOS

LOSI: Law of the Sea Institute: 430, 448
 LOTA: Louisiana Offshore Terminal Authority: 433
 LPL: Lembaga Penjelidikan Laut: 626
 LPFL: Lembaga Penjelidikan (Fishenes) Laut: 626
 LRAPP: Long Range Acooustic Propagation Project: 398
 LSBSC: Lake Superior Basin Studies Center: 438
 LSC: Lake Survey Center: 371, 377
 LSDGM: Laboratorio per lo Studio della Dinamica delle
 Grandi Masse: 630
 LSI: Law of the Sea Institute: See LOSI
 LSU: Louisiana State University: 433
 LTP: Laboratorio di Tecnologia della Pesca: 630
 LU: Lehigh University: 446
 LWFC: Louisiana Wildlife and Fisheries Commission: 433
 M&GA: Meteorological and Geoastrophysical Abstracts: 491
 MA: Maritime Administration: See MARAD
 MAA: Marine Association of America: 542
 MAB: Man and the Biosphere: 286, 325
 MABNET: Global Network for Monitoring the Biosphere: 278
 MABS: Moored Acooustic Buoy System: 397
 MAC: Marine Affairs Council: 359
 MAC/FD: Ministry of Agriculture and Cooperation/Fishery
 Department: 659
 MACFC: Middle Atlantic Coastal Fisheries Center: 369
 MACTECH: Marine and Coastal Technology Program: 339
 MACTIS: Marine and Coastal Technology Information Service:
 1, 339
 MAF: Ministry of Agriculture and Fisheries: 642
 MAFAC: Marine Fisheries Advisory Committee: 364
 MAFF: Ministry of Agriculture, Fisheries, and Food: 662
 MAFLA: Mississippi/Alabama/Florida Area: 428

MAFMC: Mid-Atlantic Fishery Management Council: 369
 MAFOR: Marine Forecast
 MAINLOBE: Major Investigation for Low-Frequency Ocean Bottom
 Loss Experiments: 397
 MAM: Joint II March-May Study: 322
 MAMBO: Mediterranean Association of Marine Biology and
 Oceanography: 200, 262
 MAMOS: Marine Automatic Meteorological Observing Station
 MAMS: Marine Meteorological Services
 MANOP: Manganese Nodule Program: 317
 MAOA: Meteorological Aspects of Ocean Affairs: 28,
 225, 668
 MAP: Marine Advisory Program: 373
 MAP: Mediterranean Action Plan: 8
 MAPMOPP: Marine Pollution (Petroleum) Monitoring Pilot
 Project: 280
 MA: Marineamt, Abteilung Geophysik: 620
 MARAD: Maritime Administration: 364, 365
 MARC: Monitoring and Assessment Research Centre: 241
 MARCHILE: Chilean Oceanographic Expedition: 605
 MAREP: Marine Environmental Prediction: 361
 MARIC: Marine Resources Information Center: 436
 MARISAT: Maritime Satellite System
 MARLAGS: Marine Life and Geochemical Studies: 371
 MARMAP: Marine Resources Monitoring, Assessment, and
 Prediction: 369
 MARPDIC: Marine Pollution Documentation and Information
 Center: 662
 MARPEP: Marine Environmental Prediction Service: 361
 MARPOLMON: Sub-Group of Experts on Marine Pollution Monitoring:
 39
 MARS: Marine Reporting Station Program: 412
 MAS: Marine Advisory Service: 373

MASGP: Mississippi-Alabama Sea Grant Program: 439, 464

MASID: Marine Science Division: 540

MATWAS: Marine Automatic Telephone Weather Answering Service

MAW: Ministry of Agriculture and Works: 646

MAWPCC: Mississippi Air and Water Pollution Control
Commission: 439

MBA: Marine Biological Association: 662

MBAI: Marine Biological Association of India: 439

MBI: Marine Biomedical Institute: 450

MBL: Marine Biological Laboratory: 543

MBSHC: Mediterranean and Black Sea Hydrographic Commission:
78

MBT: Mechanical Bathythermograph

MCBSF: Mixed Commission for Black Sea Fisheries: 79

MCCF: Mixed Commission for Cooperation in Marine Fishing:
80

MD: Meteorological Department: 646

MDE: Mooring Dynamics Experiment: 372

MDEP: Marine Department of Environmental Protection: 434

MDJMA: Marine Department/Japan Meteorological Agency: 632

MDSSF: Marine Department of Sea and Shore Fisheries: 434

MEA: Marine Environmental Activities

MEB: Moderate Environment Buoy

MECLI: Marine Environmental Council of Long Island: 442

MED I, II,...X: Mediterranean Pollution Study Pilot Projects: 326

MEDPOL: Mediterranean Pollution Monitoring and Research
Program: 8, 326

MEDI: Marine Environmental Data Information Referral
System: 22, 239

MEDIPROD: CNRS Group: 617

MEDOC: Mediterranean Occidental Survey: 327

MEDS: Marine Environmental Data Service: 602

MEMO: Marine Environmental Management Office: 390

MEMS: Marine Education Materials System: 451

MEPC: Marine Environment Protection Committee: 25

MEQ: Marine Environmental Quality

MERRMS: Marine Environment and Resources Research and Management System: 451

MES: Maryland Environmental Services: 435

MESA: Marine Ecosystems Analysis: 371

MESC: Marine Environmental Science Consortium: 420

MESCAL: (Study of Upwelling off Baja California, Mexico, and the coast of Southern California): 286, 322

MESTA: Marine Ecosystem Study in Tropical Areas: 324

METO: Meteorological Office: 662

METOC: Meteorology and Oceanography Centre: 602

MEY: Maximum Economic Yield: 666

MGFC: Mississippi Game and Fish Commission: 439

MGM: Meteoroloji Genel Mudurlugu: 659

MGS: Marine Geophysical Survey

MGU: Moskovskiy Gosudarstvenniy Universitet: 661

MI: Meteorologisk Institut: 645

MIA: Marine Industries Association: 544

MIAS: Marine Information and Advisory Service: 662

MICHU: University of Michigan: 437

MICHUSG: University of Michigan Sea Grant Program: 437

MIDAS: Marine Industry Advisory Service: 436

MIDAS: Meteorological Integrating Data Acquisition System: 311

MILE: Mixed Layer Experiment: 445

MILOC: Military Oceanographic Survey: 81

MIM: Marine Information Management: 22

MIR: Morski Instytut Rybacki: 650

MIT: Massachusetts Institute of Technology: 436

MITSG: Massachusetts Institute of Technology Sea Grant: 436

MIZPAC: Marginal Sea Ice Zone Pacific: 390

MLCB: Moored Limited Capability Buoy:

MLML: Moss Landing Marine Laboratories: 424

MLT: Mean Low Tide

MLW: Mean Low Water

MM&F: Merchant Marine and Fisheries Committee: 354

MMA: Marine Mammal Act of 1972: 360

MMAS: Minnesota Marine Advisory Service: 438

MMC: Marine Mammal Commission: 360

MMCC: Mississippi Marine Conservation Commission: 439

MME: Ministerio de Minas e Energia: 599

MML: Mote Marine Laboratory: 548

MMOJMA: Maizuru Marine Observatory/Japan Meteorological
Agency: 632

MMPA: Marine Mammal Protection Act: 360, 369

MMSC: Mediterranean Marine Sorting Center: 240, 262

MMSP: Multinational Marine Science Project: 88

MMSS: Marine Meteorological Services System: 668

MMTC: Marine Minerals Technology Center: 371

MN: Meteorologie Nationale: 617

MNHM: Museum National d'Histoire Naturelle: 617

MOCS: Multi-Channel Ocean Color Sensor

MODE: Mid-Ocean Dynamics Experiment: 314, 588

MONEX: Monsoon Experiment: 348

MONSOON 77: MONEX Subprogramme: 348

MOOS: Modular Ocean Observation System

MOP: Marine Option Program: 430

MOP: Ministerio de Obras Publicas: 643

MOPS: Marine Oil Pick-up Service
 MOSES: Manned Open Sea Experimentation Station: 430
 MOST: Mobile Sonar Technology: 390
 MOST/TDIS: Mobile Sonar Technology/Technical Document Information System: 390
 MP: Ministerio de Pesqueria: 648
 MPC: Marine Protein Concentrate: See FPC
 MPCC: Malta Pollution Control Center: 238
 MPEDA: Marine Products Export Development Authority: 625
 MPI: Marine Protein Industries: 545
 MPL: Marine Physical Laboratory: 424
 MPMAC: Marine Petroleum and Minerals Advisory Committee: 364
 MPMG: Marine Pollution Management Group: 662
 MPML: Mid-Pacific Marine Laboratory: 399
 MPMRP: Mediterranean Pollution Monitoring and Research Programme: 326
 MPRSA: Marine Protection, Research, and Sanctuaries Act of 1972: 368
 MRC: Marine Research Center: 443, 603
 MRC: Marine Research Committee: 422
 MRC: Marine Resources Council: 361
 MRDF: Marine Resources Development Foundation: 546
 MRECC: Marine Resources and Engineering Coordinating Committee: 95
 MREDA: Marine Resources and Engineering Development Act of 1966: 359, 361
 MRF: Marine Recreational Fishing: 666
 MRI: Marine Research Institute: 624
 MRIS: Maritime Research Information Service: 419
 MRL: Marine Research Laboratory: 428
 MRRI: Marine Resources Research Institute: 448
 MSC: Marine Science Council: 361

MSC: Marine Sciences Center: 441

MSC: Marine Sciences Consortium: 441, 463

MSC: Military Sealift Command: 385

MSCT: Marine Science Contents Tables: 230

MSD: Marine Sciences Directorate: 602

MSES: Marine Scientific Equipment Service: 662

MSI: Marine Sciences Institute: 424, 426, 450

MSIS: Marine Safety Informations System: 412

MSL: Mean Sea Level

MSMA: Meteorological Services to Marine Activities: 668

MSRC: Marine Sciences Research Center: 442

MSRL: Marine Sciences Research Laboratory: 603

MSS: Medium Survey Ship

MSS: Modelling and Simulation Studies: 371

MSS: Moored Surveillance System

MSS: Multispectral Scanner

MSTS: Military Sea Transportation Service: 385

MSU: Mississippi State University: 439

MSY: Maximum Sustainable Yield: 666

MTD V-1: Mirovoy Tsentr Dannykh V-1: 661

MTF: Mississippi Test Facility: 372

MTS: Marine Technology Society: 538, 547

MU: Mie University: 632

MUA: Manned Underwater Activity: 372

MUL: Manned Underwater Laboratories: 372

MUMMERS: Manned-Unmanned Environmental Research Station: 580

MUN: Memorial University of Newfoundland: 603

MUS: Manned Underwater Station: 372

MUS&T: Manned Undersea Science and Technology: 372

MWDI: Master Water Data Index: 409

MYEAC:	Marine Youth Educational Advisory Committee: 442
NACO:	National Advisory Committee on Oceanography: 359
NACOA:	National Advisory Committee on Oceans and Atmosphere: 359, 371
NADC:	Naval Air Development Center: 386
NAE:	National Academy of Engineering: 419
NAECOE:	National Academy of Engineering Committee on Ocean Engineering: 419
NAEMB:	National Academy of Engineering Marine Board: 419
NAFO:	Northwest Atlantic Fisheries Organization: 63
NAGR:	North Atlantic Gyre Studies: 428
NAH:	Nordic Hydrological Association: 76
NAIS:	National Aquaculture Information System: 451
NAMDI:	National Marine Data Inventory: 375
NAMS:	National Association of Marine Surveyors: 549
NAOS:	North Atlantic Ocean Stations: 26
NARDIC:	Navy Research and Development Information Center: 382
NARDIS:	Navy Automated Research and Development Information System: 382
NARL:	Naval Arctic Research Laboratory: 398, 421
NAS:	National Academy of Sciences: 245, 419
NAS/CO:	National Academy of Sciences Committee on Ocean- ography: 419
NAS/COW:	National Academy of Sciences/Committee on Water: 419
NAS/ESB:	National Academy of Sciences/Environmental Studies Board: 419
NAS/GRB:	National Academy of Sciences/Geophysical Research Board: 419
NAS/NAE:	National Academy of Sciences/National Academy of Engineering: 419
NAS/NRC:	National Academy of Sciences/National Research Council: 419
NAS/OAB:	National Academy of Sciences/Ocean Affairs Board: 419

NAS/OSB: National Academy of Sciences/Ocean Sciences Board: 419

NAS/TRB: National Academy of Sciences/Transportation Board: 419

NASA: National Aeronautics and Space Administration: 375, 415

NASA: North American Salmon Association: 604

NASC: North American Salmon Council: 569

NASCO: National Scientific Committee on Oceanography: 419

NASEPA: National Association of State Environmental Programs Agencies: 550

NASOH: North American Society for Oceanic History: 570

NASRC: North Atlantic Salmon Research Center: 171

NASW: North American Slope Water

NAT: Joint ICES/ICNAF/IOC Coordinating Group for the Systematic Studies of the North Atlantic: 226

NATCO: National Coordinator: 670

NATES: National Analysis of Trends in Emergency Systems: 602

NATO: North Atlantic Treaty Organization: 81, 231, 260

NAUI: National Association of Underwater Instructors: 551

NAVDAB: Navy Ocean Experimental Acoustic Data Bank: 390

NAVF: Norges Almenlenskapslige Forskningsrad: 645

NAVOCEANO: Naval Oceanographic Office: 258, 375, 380, 391, 392

NAWDEX: National Water Data Exchange: 409

NBIP: National Biomonitoring Inventory Program: 399

NBL: Naval Bioscience Laboratory: 398

NBS: National Bureau of Standards: 366

NC: Nordic Council: 201

NCA: National Cannery Association: 552

NCAR: National Center for Atmospheric Research: 416

NCC: National Climatic Center: 315, 375

NCEL: Naval Civil Engineering Laboratory: 383

NCET: National Coastal Ecosystems Team: 408

NCIC: National Cartographic Information Center: 409

NCIC: Northwest Coastal Information Center: 373

NCMB: Nordic Council for Marine Biology: 202

NCMC: National Coalition for Marine Conservation: 553

NCMRED: National Council on Marine Resources and Engineer-
ing Development: 359, 361

NCOCM: North Carolina Office of Coastal Management: 443

NCOG: Nederlands Centrum voor Oceanografische Gegevens:
640

NCPRP: National Coastal Pollution Research Program: 413

NCSL: Naval Coastal Systems Laboratory: 387

NCSU: North Carolina State University: 443

NCZO: Nederlands Commissie voor Zee-Onderzoek: 640

NDBDP: National Data Buoy Development Project: 372

NDBO: NOAA Data Buoy Office: 372

NDBP: National Data Buoy Program: 372

NEADS: Northeast Atlantic Dynamics Studies: 122, 328

NEAFC: Northeast Atlantic Fisheries Commission: 65, 82

NEC: North Equatorial Current

NECAP: New England Coastal Area Planning: 436

NECC: North Equatorial Countercurrent

NECCRF: New England Cooperative Coastal Research Facility:
436

NEDIS: National Environmental Data and Information Service:
375

NEELS: National Emergency Equipment Locator System: 602

NEERS: New England Estuarine Research Society: 466, 510

NEFC: Northeast Fisheries Center: 369

NEFDP: New England Fisheries Development Program: 467

NEFMC: New England Fishery Management Council: 369

NEFSC: New England Fisheries Steering Committee: 467

NEGOA: Northeast Gulf of Alaska: 371
 NEIC: National Energy Information Center: 399
 NEIS: National Earthquake Information Service: 409
 NEIWPC: New England Interstate Water Pollution Control
 Commission: 465
 NEL: Naval Electronics Laboratory: 390
 NELC: Naval Electronics Laboratory Center: 390
 NEMAS: New England Marine Advisory Service: 448
 NEMIC: New England Marine Industries Council: 567
 NEMO: Naval Experimental Manned Observatory: 383
 NEMRIP: New England Marine Resources Information Program:
 448
 NEOC: New England Oil Coalition: 568
 NEPA: National Environmental Policy Act: 358
 NEPDB: Navy Environmental Protection Data Base: 38
 NEPS: National Estuarine Pollution Study: 413
 NEPSS: Naval Environmental Protection Support Service: 38
 NERBC: New England River Basin Commission: 362
 NERC: Natural Environment Research Council: 298
 NERCIC: Northeast Regional Coastal Information Center: 373
 NERCOMM: New England Regional Commission: 467
 NERL: National Ecological Research Laboratory: 413
 NERP: National Environmental Research Park: 399
 NESAC: National Environmental Services Administration
 Committee
 NESC: National Environmental Satellite Center: 376
 NESC: Naval Electronics Systems Command: 388
 NESCO: Naval Environmental Support Office: 38
 NESS: National Environmental Satellite Service: 374, 376,
 415
 NFF: National Federation of Fishermen: 554
 NFFR: Norwegian Council for Fisheries: 645

NFI: National Fisheries Institute: 556
 NFMOA: National Fish Meal and Oil Association: 555
 NFNWF: Navy Fleet Numerical Weather Facility: 391
 NGDC: National Geophysical Data Center: 375
 NGIC: National Geodetic Information Center: 377
 NGO: Non-Governmental Organization
 NGSDC: National Geophysical and Solar-Terrestrial Data Center: 375
 NHA: Nordic Hydrological Association: 203
 NHC: National Hurricane Center: 378
 NHD: Naval Hydrographic Depot: 600
 NHEML: National Hurricane and Experimental Meteorology Laboratory: 371
 NHO: Naval Hydrographic Office: 625
 NHRFRL: Nihonkai Regional Fisheries Research Laboratory: 632
 NHRKH: Nauchno-Issledovatel'skiy Institut Rybnogo Khoz-
yaystva: 661
 NICRAD: Navy/Industry Cooperative Research and Development Program: 382
 NIMSCO: NODC Index to Instrument Measured Subsurface Current Observations: 375
 NIO: National Institute of Oceanography: 234
 NIOMR: Nigerian Institute for Oceanography and Marine Research: 644
 NIOZ: Nederlands Instituut voor Onderzoek der Zee: 640
 NIPR: National Institute of Polar Research: 632
 NJDEP: New Jersey Department of Environmental Protection: 441
 NMAS: National Marine Advisory Service: 373
 NMC: Naval Missile Center
 NMC: National Meteorological Center: 378, 668
 NMEA: National Marine Education Association: 557
 NMFS: National Marine Fisheries Service: 276, 287, 297, 369, 412

NMI: National Maritime Institute: 662
 NML: Narragansett Marine Laboratory: 448
 NMNH: National Museum of Natural History: 418
 NMOJMA: Nagasaki Marine Observatory/Japan Meteorological Agency: 632
 NMRC: National Maritime Research Center: 365
 NMU: National Maritime Union: 558
 NMWQL: National Marine Water Quality Laboratory: 413
 NNHO: Nigerian Navy Hydrographic Office: 644
 NOA: National Oceanographic Association: 559
 NOA: National Oceanography Association: 559
 NOAA: National Oceanic and Atmospheric Administration: 236, 359, 361, 364, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 398, 418
 NOC: National Oceanographic Center: 280
 NOD: Norsk Oceanografisk Datasenter: 645
 NODC: National Oceanographic Data Center: 261, 268, 280, 282, 283, 287, 315, 375, 670
 NOIA: National Ocean Industries Association: 559
 NOIC: National Oceanographic Instrumentation Center: 372
 NOK: Norsk Oseanografisk Komite: 645
 NOL: Naval Ordnance Laboratory: 393
 NOMAD: Automatic Oceanographic and Meteorological Observation Buoy
 NOMES: New England Offshore Mining Experiment Study: 371
 NOO: Naval Oceanographic Office: 392
 NOP: National Ocean Program: 361
 NOP: National Oceanographic Program: 670
 NOPS: National Ocean Policy Study: 354
 NORDA: Naval Ocean Research and Development Activity: 398
 NORDCO: Newfoundland Oceans Research and Development Corporation: 604
 NORFISH: North Pacific Fisheries Project: 452

NOROIS:	Navires Oceanographiques de Recherches, d'Observation, d'Intervention, et de Soutien: 617
NORPAC:	Cooperative Survey of the Northern Pacific: 268
NORPAX:	North Pacific Experiment: 315
NORSWAM:	North Sea Wave Model: 299
NORWESTLANT:	Northwestern Atlantic Environmental Study: 329
NOS:	National Ocean Survey: 372, 374, 377
NOSC:	Naval Ocean Systems Center: 390
NOSTS:	National Ocean Survey Tide Station: 377
NOTS:	Naval Ordnance Test Station: 390
NPA:	Nigerian Port Authority: 644
NPC:	National Petroleum Council: 401
NPC:	National Processing Centre: 347
NPDES:	National Pollutant Discharge Elimination System: 413
NPFMC:	North Pacific Fishery Management Council: 369
NPFSC:	North Pacific Fur Seal Commission: 83
NPGS:	Naval Postgraduate School: 394
NPS:	National Park Service: 406
NPS:	Naval Postgraduate School: 394
NRC:	National Referral Center: 355
NRC:	National Research Council: 419
NRC:	National Response Team: 412
NRC:	Natural Resources Council: 434
NRC:	Nuclear Regulatory Commission: 417
NRCC:	National Research Council of Canada: 602
NRCC:	Northwest Regional Calibration Center: 372, 452
NRFRL:	Nansei Regional Fisheries Research Laboratory: 632
NRI:	Natural Resources Institute: 435
NRIO:	National Research Institute for Oceanography: 654
NRL:	Naval Research Laboratory: 398

NS: Norges Sjøkartneik: 645
 NSA: National Shellfish Association: 562
 NSA: National Shipping Authority: 563
 NSC: National Science Council: 628
 NSF: National Science Foundation: 295, 315, 373, 392,
 416, 428, 435
 NSF: National Strike Force: 412
 NSGD: National Sea Grant Depository: 448
 NSHC: North Sea Hydrographic Commission: 84
 NSIA: National Security Industrial Association: 561
 NSICC: North Sea International Chart Commission: 85
 NSOSG: North Sea Oceanographical Study Group: 662
 NSRDC: Naval Ship Research and Development Center: 396
 NSRPB: Nassau-Suffolk Regional Planning Board: 442
 NSSC: Naval Sea Systems Command: 395
 NSSFC: National Severe Storms Forecast Center: 378
 NSSL: National Severe Storms Laboratory: 371
 NSSP: National Shellfish Sanitation Program: 400
 NSTS: Nearshore Sediment Transport Study: 424
 NTIS: National Technical Information Service: 379, 380, 418
 NTU: National Taiwan University: 606
 NU: Nagasaki University: 632
 NUC: Naval Undersea Center: 390
 NUGPO: Nordic University Group on Physical Oceanography: 204
 NULS: National Underwater Laboratory System: 372
 NURC: Northeast Utilization Research Center: 369
 NURDC: Naval Undersea Research and Development Center: 390
 NUREG: Nuclear Regulatory Agency: 417
 NUSC: Naval Underwater Systems Center: 392, 397
 NUSL: Navy Underwater Sound Laboratory: 397

NUWC:	Naval Undersea Warfare Center: 390
NUWRES:	Naval Underwater Weapons Research and Engineering Station: 397
NWAFIC:	Northwest and Alaska Fisheries Center: 369
NWDC:	National Wildlife Defense Council: 565
NWF:	National Wildlife Federation: 560
NWFC:	Northwest Fisheries Center: 369
NWOFC:	Numerical Weather and Oceanographic Forecasting Center
NWPO:	Northwest Pacific Oceanographers: 572
NWQSS:	National Water Quality Surveillance System: 413
NWRC:	National Weather Records Center: 375
NWRF:	Navy Weather Research Facility: 375
NWS:	National Waterways Study: 381
NWS:	National Weather Service: 374, 378, 412, 469
NWSC:	Naval Weather Service Command: 381
NWTC:	National Wetland Technical Council: 564
NYB:	New York Bight: 371
NYOSL:	New York Ocean Science Laboratory: 442
NYSGI:	New York Sea Grant Institute: 442
NYU:	New York University: 443
NZOI:	New Zealand Oceanographic Institute: 313, 642
OAA:	Organisation de l'Alimentation et de l'Agriculture:
OAAC:	Ocean Affairs Advisory Committee: 410
OAB:	Ocean Affairs Board: See NAS/OAB
OACI:	Organisation de l'Aviation Civile Internationale: See ICAO
OAMEX:	Ocean-Atmosphere Exchange Processes: 122
OARN:	Officine Allestimento e Riparazioni Navi: 630
OARS:	Ocean Atmosphere Response Studies: 322, 371
OAS:	Oceans and Aquatic Sciences: 602

OAS: Office of Oceanic and Atmospheric Services: 374

OAS: Organization of American States: 88

OASIS: Oceanic and Atmospheric Scientific Information System: 375, 418

OAU: Organization of African Unity: 87

OAU/STRC: Scientific and Technical Research Commission of the Organization of African Unity: 87, 283

OBS: Office of Biological Service: 408

OBSS: Ocean Bottom Scanning Sonar

OCAC: Ocean Acre Project: 392

OCC: Ocean Coordinating Committee: 538

OCDE: Organizacion de Cooperacion y Desarrollo Economicos: See OECD

OCDE: Organisation de Cooperation et Development Economiques: See OECD

OCEANAV: Naval Oceanography Command: 391

OCEANAV: Oceanographer of the Navy: 391

OCIMF: Oil Corporation International Marine Forum: 206

OCMI: Organizacion Consultativa Maritima Intergubernamental: See IMCO

OCS: Outer Continental Shelf: 354, 669

OCSAB: Outer Continental Shelf Advisory Board: 359

OSCS: Outer Continental Shelf Committee: 354

OCSEA: Outer Continental Shelf Environmental Assessment: 371

OCSEAC: Outer Continental Shelf Environmental Studies Advisory Commission: 401

OCSEAP: Outer Continental Shelf Environmental Assessment Program: 371, 402, 421

OCSEF: Outer Continental Shelf Events File: 409

OCSEP: Outer Continental Shelf Energy Program

OCW: Oceanographic Commission of Washington: 452

OCZM: Office of Coastal Zone Management: 368, 373

ODAS: Ocean Dynamics Advisory Subcommittee: 415

ODAS: Ocean Data Acquisition System:

ODB: Ocean Data Buoy

ODCA: Ocean Dumping Control Act: 602

ODESSA: Oceanographic Data For the Environmental Science
Services Administration: 377

ODGP: Ocean Data Gathering Program

ODIS: Ocean Dynamics Information System: 415

ODRMP: Ocean Dumpsite Research and Monitoring Program

ODS: Ocean Data Station

ODSS: Ocean Dumping Surveillance System: 412

ODU: Old Dominion University: 451

OEA: Organisation des Etats Americains: See OAS

OEA: Organizacion de los Estados Americanos: See OAS

OEBI: Oficina de Estadisticas Balleneras Internacionales:
See BIWS

OECD: Organization for Economic Cooperation and Develop-
ment: 86

OCED/ENC: Organization for Economic Cooperation and Develop-
ment/Environment Committee: 86

OECE: Organisation Europeenne de Cooperation Economique:
See OEEC

OECON: Offshore Engineering Conference: 576

OEEC: Organization for European Economic Cooperation: 86

OEI: Offshore Ecology Investigation: 462

OEQC: Office of Engineering and Quality Control: 430

OERC: Oregon Estuarine Research Council: 445

OES: Bureau of Oceans and International Environmental and
Scientific Affairs: 410

OES/ENP: Environmental and Population Affairs, Bureau Of
Oceans and International Environmental and
Scientific Affairs: 410

OES/OFA: Ocean and Fishery Affairs, Bureau of Oceans and
International Environmental and Scientific
Affairs: 410

OES/SCI: Scientific and Technological Affairs, Bureau of
Oceans and International Environmental and
Scientific Affairs: 410

OETB: Ocean Economics and Technology Branch: 1

OFTB: Offshore Technology Board: 662

OFC: Oregon Fish Commission: 445

OFINTAC: Offshore Installations Technical Advisory Committee:
662

OFW: Operation Fish Watch: 369

OGI: Oceanic Gamefish Investigation: 369

OGS: Osservatoria Geofisico Sperimentale: 630

OHI: Organisation Hydrographique Internationale: See IHO

OHI: Organization Hidrografica Internacional: See IHO

OHM/TADS: Oil and Hazardous Material/Technical Assistance
Data System: 513

OHP: Operational Hydrology Programme: 29

OIA: Oceanic Industries Association: 573

OIEA: Organismo Internacional de Energia Atomica: See IAEA

OIEO: Ocean Instrumentation Engineering Office: 372

OIT: Organisation Internationale du Travail: See ILO

OIW: Oceanographic Institute of Washington: 372, 452

OLIC: Oceanic Library and Information Center: 574

OMA: Ocean Mining Associates: 572

OMBP: Office of Management, Budget, and Planning: 427

OMCI: Organisation Intergouvernementale Consultative
de la Navigation Maritime: See IMCO

OMM: Organizacion Meteorologica Mundial: See WMO

OMM: Organisation Meteorologique Mondiale: See WMO

OMS: Organizacion Mundial de la Salud: See WHO

OMS: Organisation Mondiale de la Sante: See WHO

ONGC: Oil and Natural Gas Commission: 625

ONP: Office National des Peches: 638

ONP: Office National des Ports: 601

ONP: Oficina Nacional de Pescas: 663

ONR: Office of Naval Research: 315, 371, 372, 398

ONU: Organization des Nations Unies: See UN

OOE: Office of Ocean Engineering: 372

OOM: Office of Ocean Management

OPC: Ocean Policy Committee: 419

OPECO: Operations Coordinator: 670

OPNAV: Office of the Chief of Naval Operations: 382

OPS: Office of Pipeline Safety: 411

OPS: Organisation Panamericaine de la Sante: See PAHO

ORB: Oceanographic Research Buoy: 424

ORCDC: Oregon Coastal Conservation and Development Committee: 445

ORD: Office of Research and Development: 370, 371, 372, 373

ORESG: Oregon Sea Grant Project: 445

ORESU: Oregon State University: 445

ORITU: Ocean Research Institute: 632

ORS: Oceanographic Research Ships

ORSTOM: Office de la Recherche Scientifique et Technique d'Outre-Mer: 259, 617, 631, 635, 641, 653

OS: Oceanic Society: 575

OS: Observing Station

OS: Ocean Station

OSAP: Ocean Survey Advisory Panel

OSAT: Oil Spill Assessment Team: 449

OSB: Ocean Sciences Board: See NAS/OSB

OSC: Ocean Science Committee, Ocean Affairs Board: 419

OSCAA: Oil Spill Control Association of America: 577

OSCP: Ocean Sediment Coring Program: 416

OSCR: Office of Secretary of Commerce and Resources: 451

OSDC: Oceanographic Subprogramme Data Centre: 347, 617

OSG: Office of Sea Grant: 370, 372, 373

OGSD: Office of Sea Grant Development: 433

OSIC: Ocean Science Information Center: 430

OSMIC: Ocean Shores Marine Information Center: 452

OSP: Optimum Sustainable Population: 667

OSS: Oceanic Space Subcommittee: 354

OSSE: Observing Systems Simulation Experiment: 349

OSTAC: Ocean Science Technology Advisory Committee: 561

OSU: Ohio State University: 444

OSU: Oregon State University: 445

OSV: Ocean Station Vessel

OSW: Office of Saline Water: 407

OTA: Office of Technology Assessment: 356

OTAN: Organisation du Traite de l'Atlantique Nord: See NATO

OTASE: Organisation du Traite de Defense Collective pour l'Asie du Sud-Est: See SEATO

OTBA: Ocean Thermal Boundary Analysis Charts: 378

OTC: Offshore Technology Conference: 205

OTEC: Ocean Thermal Energy Conversion: 372, 399, 447

OTH: Over The Horizon Radar: 398

OTP: Ocean Test Platform: 37

OUA: Organizacion de la Unidad Africana: See OAU

OWDC: Office of Water Data Coordination: 409

OWRC: Ontario Water Resources Commission: 604

OWRR: Office of Water Resources Research: 407

OWRT: Office of Water Research and Technology: 407

OWS: Ocean Weather Ship

OY: Optimum Yield: 666

PACE: Petroleum Association for Conservation of the Environment: 604

PACES: Pacific Area Cooperative Enforcement System: 422

PACRIM: Pacific Rim Alliances of Marine Technology Sections: 547

PAHO: Pan American Health Organization: 88

PAIGH: Pan American Institute of Geography and History: 88

PAN: Polska Akademia Nauk: 650

PAN PAC: Pan Pacific Institute of Oceans and Sciences: 579

PARKA: Pacific Acoustic Research Kaneohe-Alaska: 392, 430

PASGAP: Pacific Sea Grant Advisory Program

PAU: Pan American Union: 88

PAWE: Programme for the Analysis of World Ecosystems: 332

PBI: Programme Biologique Internationale: See IBP

PBRC: Pacific Biomedical Research Center: 430

PCA: Pollution Control Agency: 438

PCM: Profiling Current Meter

PCSP: Permanent Commission of the South Pacific: 89

PEB: Prototype Environmental Buoy: 372

PECC: Panel of Experts on Climatic Change: 28

PEEP: Panel of Experts on Environmental Pollution: 28

PEG: Pacific Environmental Group: 369

PEMEX: Petroleos Mexicanos: 637

PESCOM: Empresa Nacional de Comercializacao de Produtos Presquieiros: 639

PETROBRAS: Petroleo Brasileiro

PFC: Pennsylvania Fish Commission: 446

PFMC: Pacific Fishery Management Council: 369

PFZ: Polar Front Zone

PHI: Programme Hydrologique International: See IHP
 PHOTO: Bottom Photograph Camera Station File: 375
 PHS: Public Health Service: 400
 PIANC: Permanent International Association of Navigational
 Congresses: 163, 212, 216
 PICG: Programme Internationale de Correlation Geologique:
 See IGCP
 PICO: Polar Ice Core Drilling Office: 416
 PIM: Pacem in Maribus: 187
 PIMA: Petroleum Industries Marine Association: 632
 PINRO: Polyarnyy Nauchno-Issledovatel'skiy Institut
 Morskogo Rybnogo Khozyaystva i Okeanografii: 661
 PIOSA: Pan Indian Ocean Scientific Association: 208
 PIPICO: Panel on International Programs and International
 Cooperation in Ocean Affairs: 361
 PIRS: Pollution Incident Reporting System: 412
 PMBC: Phuket Marine Biological Center: 242
 PMC: Pacific Marine Center: 377
 PMC: Pacific Missile Center: 382
 PMEL: Pacific Marine Environmental Laboratory: 371
 PMFC: Pacific Marine Fisheries Commission: 468
 PMO: Port Meteorological Office: 377
 PMRF: Pacific Missile Range Facility: 372
 PMS: Pacific Marine Station: 425
 PMSL: Pell Marine Science Library: 448
 PMTC: Pacific Missile Test Center: 382
 PNERL: Pacific Northwest Environmental Research Laboratory:
 413
 PNUD: Programa de las Naciones Unidas para el Desarrollo:
 See UNDP
 PNUD: Programme des Nations Unies pour le Developpement:
 See UNDP
 PNUE: Programme des Nations Unies pour l'Environnement:
 See UNEP

PNUM: Programa de las Naciones Unidas para el Medio:
See UNEP

PNWL: Pacific Northwest Laboratories: 513

PNWRBC: Pacific Northwest River Basin Commission: 362

POBSP: Pacific Ocean Biological Survey Program: 418

PODC: Philippine Oceanographic Data Center: 649

POGSI: Policy Group on Scientific Information: 128

POL: Pacific Oceanographic Laboratory: 371

POLE: (NORPAX sub-program): 355

POLEX: Polar Experiment: 350

POLEX-NORTH: Polar Experiment in the Northern Hemisphere: 350

POLEX-SOUTH: Polar Experiment in the Southern Hemisphere: 313, 350

POLMAR: Plan de la Lutte contre les Pollutions Marines
Accidentelles: 617

POLYGON: USSR Mesocale Project in the North Atlantic: 314

POLYMODE: POLYGON Mid-Ocean Dynamics Experiment: 314, 328,
378, 436, 588

POO: Panel On Oceanography: 357

POO: Platforms of Opportunity: 369

POOL: Working Group of Experts on Pollution of the Ocean
Originating on Land: 22

POOP: Process Oriented Observation Program: 315

POP: Perpendicular Ocean Platform

POP: Planning for Offshore Ports: 436

PORMIP: Portable Ocean Platform Motion Instrumentation
Package

POPS: Free-Fall Pop-Up Ocean Bottom Seismometer

PREMODE: Preliminary Mid-Ocean Dynamics Experiment: 314

PRIMA: Pollutant Response in Marine Animals: 309

PRIME: Processing, Research, Inspection, and Marine
Extension: 369

PRINUL: Puerto-Rico International Undersea Laboratory: 447

PRL: Polar Research Laboratories: 580

PRNC: Puerto Rico Nuclear Center: 447

PROBES: Processes and Resources of the Bering Sea Shelf: 421

PRURDCO: Puerto Rico Undersea R & D Corp.: 447

PRWRA: Puerto Rico Water Resources Authority: 447

PSA: Pacific Science Association: 207, 237

PSAC: Presidents Science Advisory Committee: 357

PSACPOO: Presidents Scientific Advisory Committee Panel
On Oceanography: 357

PSG: Pacific Sea Bird Group: 578

PSIC: Pacific Science Information Center: 514

PSMSL: Permanent Service for Mean Sea Level: 113, 131, 315

PSWAD: Perspective Study of World Agricultural
Development: 17, 331

PTP: Pollution Transfer Program: 310

PTWC: Pacific Tsunami Warning Center: 378

PUBS: Pop-Up Bottom Seismograph

PURC: Pacific Utilization Research Center: 369

PURC: Princeton University Research Center: 371

PWD: Park and Wildlife Department: 450

PWDC: Panel on World Data Centers: 127, 245

R/V: Research Vessel

RA: Regional Associations: 30

RAMOGE: Regional Pollution Studies in the Ligurian Sea: 334

RAN: Royal Australian Navy: 596

RANEL: Royal Australian Navy Experimental Laboratory: 596

RANN: Research Applied to National Needs: 416

RANOSP: Radiological North Sea Project: 662

RANRL: Royal Australian Naval Research Laboratory: 596

RASGAP: Resources Agency Sea Grant Advisory Panel: 422

RASSAN: Radar Sea State Analyzer: 428

RBI: Ruder Boskovic Institut: 665

RCIC: Regional Coastal Information Center: 373
 RCV: Remote Controlled Vehicle
 RDC: Regional Data Center: 65, 237, 244, 245, 261,
 262, 265, 267, 670
 REMAC: Reconhecimento da Margem Continental Brasileira:
 321, 599
 RFCWA: Regional Fisheries Commission for Western Africa: 20
 RFMC: Regional Fishery Management Council: 369
 RGD: Rijks Geologische Dienst: 640
 RHENO: Rhodamine Experiment in the North Sea: 335
 RICAT: Recherches Internationales Concertees dans
 l'Atlantique Tropical: See ICIT
 RICRMC: Rhode Island Coastal Resources Management Council:
 448
 RIDGE: Ridge Interaction and Downstream Gradient Experiment:
 313
 RIOS: Joint Working Group on River Inputs to Ocean
 Systems: 227
 RISP: Ross Ice Shelf Project: 279
 RIST: Radioisotopic Sand Tracer
 RITA: Rivera and Tamayo Fault Exploration: 271
 RIVO: Rijks Instituut voor Visserijonderzoek: 640
 RMBC: Regional Marine Biological Centre: 21, 243, 267
 RMC: Regional Meteorological Centre: 668
 RMPLWRH: Ralph M. Parsons Laboratory for Water Resources and
 Hydraulics: 436
 RNO: Réseau National d'Observation de la Qualité du
 Milieu Marin: 617
 RNODC: Responsible National Oceanographic Data Center:
 280, 670
 ROCC: Regional Oil Combating Center: 8
 ROMBI: Results of Marine Biological Investigations: 671
 ROSCOP: Report of Observations/Samples Collected by
 Oceanographic Programs: 375, 671
 ROSE: Rivera Ocean Seismic Experiment: 452

ROST: Regional Office of Science and Technology: 21
 ROSTA: Regional Office of Science and Technology for
 Africa: 21
 ROSTAS: Regional Office of Science and Technology for the
 Arab States: 21
 ROSTLA: Regional Office of Science and Technology for Latin
 America: 21
 ROSTLAC: Regional Office of Science and Technology for Latin
 American and the Caribbean: 21
 ROSTSCA: Regional Office of Science and Technology for South
 and Central Asia: 21
 ROSTSEA: Regional Office of Science and Technology for South-
 east Asia: 21
 RRDO: Register of Rivers Discharging into the Oceans: 8
 RSDC: Radiation Subprogramme Date Center: 347
 RSDW: Ross Sea Deep Water
 RSMAS: Rosentiel School of Marine and Atmospheric Sciences:
 371, 428
 RSNT: Revised Single Negotiating Text: 2
 RSO: Research Ship of Opportunity
 RSPB: Royal Society for the Protection of Birds: 662
 RSSW: Ross Sea Winter Water
 RTN/HD: Royal Thai Navy/Hydrographic Department: 659
 RUFAS: Remote Underwater Fishery Assessment System: 369
 RUM: Remote Underwater Manipulator
 RUSEF: Rational Use of the Sea Floor: 371
 RUWS: Remote Unmanned Work System: 390
 RW: Rijkswaterstaat: 640
 S DRAKE: Second Dynamic Response and Kinematics Experiment:
 313
 SAASW: Sub-Antarctic Surface Water
 SAB: Scientific Advisory Board: 22
 SAC: Shellfish Advisory Committee: 442
 SACI: South Atlantic Cooperative Investigation: 144, 337

SACLANT:	Supreme Allied Command, Atlantic: 81
SACLANTCEN:	SACLANT ASW Research Centre: 81
SADEMS:	Salt Dome Environmental Monitoring System: 375
SADO:	Système d'Aquisition de Données Oceaniques: See ODAS
SAFCO:	Standing Advisory Committee on Fisheries of the Caribbean Organization: 44
SAFE:	Stock Assessment and Fishery Investigations: 369
SAFMC:	South Atlantic Fishery Management Council: 369
SAG:	Secretaria de Agricultura y Ganadeira: 637
SAIC:	Signalement et Archivages des Information Courantométriques: 617
SAIL:	Sea-Air Interaction Laboratory: 371
SAIOR:	South African Institute of Oceanographic Research: 654
SAIOR:	Scientific Aspects of International Ocean Research Working Party: 229
SAM:	Institut fuer Meeresgeologie und Meeresbiologie 'Senckenberg': 620
SANAE:	South African National Antarctic Expedition: 654
SANCOR:	South African National Commission for Oceanographic Research: 654
SAPHYDATA:	Panel on the Acquisition, Transmission, and Processing of Hydrological Data: 290
SAR:	Search and Rescue: 412
SAR:	Synthetic Aperture Radar: 398
SASCAR:	South African Scientific Committee For Antarctic Research: 654
SASS:	SEASAT-A Scatterometer System: 376
SBKR:	Safeman Banader va Keshti Rani: 627
SBMF:	Santa Barbara Mariculture Foundation: 423
SC&FE	Sierra Club and Friends of the Earth: 584
SCA:	Shipbuilding Council of America: 583
SCAR:	Scientific Committee on Antarctic Research: 121, 122, 249, 256, 279

SCARF: Santa Cruz Acoustic Range Facility: 382
 SCBS: Southern California Bight Studies: 424
 SCCC: South Carolina Coastal Council: 448
 SCCWRP: Southern California Coastal Water Research Project:
 423
 SCENE: Studies of Coastal and Estuarine Environments: 371
 SCEP: Study of Critical Environmental Problems: 436
 SCIBP: Special Committee for the International Biological
 Programme: 124, 286
 SCMS: Somali Current Monitoring System: 348
 SCODS: Study Commission on Ocean Data Stations: 298, 361
 SCOPE: Southern Coastal Plains Expedition: 377
 SCOPE: Scientific Committee on Problems of the Environment:
 125, 241, 325
 SCOR: . Scientific Committee on Oceanic Research: 21, 122,
 225, 227, 229, 234, 237, 254, 256, 293, 352, 671
 SCORE: Scientific Cooperative Operational Research
 Expedition: 372
 SCOSC: Southern California Ocean Studies Consortium: 424
 SCOSTEP: Special Committee on Solar-Terrestrial Physics: 126
 SCSHC: South China Sea Hydrographic Commission: 92
 SCUBA: Self-Contained Underwater Breathing Apparatus
 SCWMRD: South Carolina Wildlife and Marine Resources
 Department: 449
 SDC: Sub-Programme Data Centre: 347
 SDP: Shelf Dynamics Program: 322
 SEA: Sea Education Association: 443, 581
 SEA ECHO: North Pacific Sea Condition Monitoring Program: 398
 SEA USE: Cobb Seamount Habitat Study: 452
 SEADOCK: Texas Deepwater Port Consortium: 450
 SEADROP: Small Expendable Air-Dropped Remote Ocean Platform
 SEAMAP: Systematic Exploration and Mapping Program: 377
 SEAN: Scientific Events Alert Network: 418

SEAREX: Sea/Air Chemical Exchange: 311

SEAS: Shipboard Environmental Data Acquisition System: 378

SEASAT: NOAA Ocean Satellite: 376, 415

SEASCO: Southeast Asia Science Cooperation Office: 21

SEATAR: CCOP/TOC Joint Working Group on IDOE Studies on East Asia Tectonics and Resources: 22

SEATO: Southeast Asia Treaty Organization: 91

SEC: South Equatorial Current

SECC: South Equatorial Counter Current

SECC: State Emergency Communications Committee: 378

SECNAV: Secretary of the Navy: 382

SECS: Seagrass Ecosystems Component Study: 323

SEED: School of Engineering and Environmental Design: 428

SEEP: Shelf Edge Exchange Processes: 516

SEFC: Southeast Fisheries Center: 369

SEG: Society of Exploration Geophysicists: 586

SEPB: Swedish Environmental Protection Board: 657

SEPM: Society of Economic Paleontologists and Mineralogists: 585

SES: Seagrass Ecosystem Study: 323

SESAME: Severe Environmental Storms and Mesocale Experiment: 378

SEVPINRO: Severnyy Polyarnyy Nauchno-Issledovatel'skiy Institut Morskogo Rybnogo Khozyaystva i Okeanografii: 661

SFB: Sea Fisheries Branch: 654

SFBCDC: San Francisco Bay Conservation and Development Commission: 423

SFG: Sonderforschungsberichte: 620

SFI: Sport Fishing Institute: 587

SFRF: Sport Fishing Research Foundation: 587

SFRS: Sea Fisheries Research Station: 629

SG: Sea Grant: 373

SHC: Service Hydrographique de la Cote: 598

SHODB: Seyir Hidrografi ve Osinografi Dairesi Baskanligi: 660

SHML: Sandy Hook Marine Laboratory: 442

SHN: Servicio de Hidrografia Naval: 595

SHOM: Service Hydrographique et Oceanographique de la Marine: 617

SHORAN: Short Range Navigation

SHU: Scandinavian Hydrographic Union: 84, 90

SI: Smithsonian Institution: 240, 392, 418

SIBEX: Second International BIOMASS Experiment: 256

SIC: Secretaria de Industria y Comercio: 637

SIMAS: Sonar In-Situ Mode Assessment System: 397

SINA: Shellfish Institute of North America: 582

SIO: Scripps Institution of Oceanography: 295, 422, 424

SIO: Skidaway Institute of Oceanography: 429

SIPRI: International Institute for Peace and Conflict Research: 182

SITS: Scientists in the Sea: 372

SKAMP: Station Keeping and Mobile Platform

SKIO: Skidway Institute of Oceanography: 429

SKYLAB: Oceanic Gamefish Investigation: 369

SLP: Sea Level Pressure

SLPA: Selected Legally Protected Animals: 381

SLRAC: St. Lawrence River Advisory Committee: 442

SLURP: Self Leveling Unit for Removing Pollution

SMA: Servicio Meteorologico de la Armada: 605

SMAM: Servizio Meteorologico dell'Aeronautica Militaire: 630

SMBA: Scottish Marine Biological Association: 662

SMF: Service Maritime Fluvial: 618

SMHI: Sveriges Meteorologiska och Hydrologiska Institut: 657

SMILE: Surface Mixed Layer Experiment: 516

SMISO: Systeme Mondial Integre de Station Oceaniques: See IGOSS

SML: Shoals Marine Laboratory: 443

SMMVTI: Southern Maine Marine Vocational Training Institute: 434

SMN: Servicio de Meteorologia Nacional: 637

SMN: Servicio Meteorologico Nacional: 611, 651, 655

SMS: Synchronous Meteorological Satellite: 346

SMTRB: Ship and Marine Technology Requirements Board: 662

SNAME: Society of Naval Architects and Marine Engineers: 209

SNEMTS: Southern New England Marine Technical Society: 547

SNIO: Servicio Nacional de Instrumentacion Oceanografica: 637

SNP: Servicio Nacional de Pesca: 595

SNPA: Societe National des Petroles d'Aquataine: 617

SNRDO: Servizio Nazionale Raccolta Dati Oceanografici: 630

SOC: Scottish Ornithologist Club: 662

SOC: Specialized Oceanographic Center: 280, 378

SOC: Southern Oceans Study: 22, 333

SODAB: Societe pour le Development de l'Aquaculture En Bretagne: 617

SODAS: Synoptic Oceanographic Data Acquisition System: 392

SOEKOR: Southern Oil Exploration Company: 654

SOFEX: Southern Ocean Float Experiment: 346

SOH: Servicio de Oceanografia e Hidrografia: 663

SOLAS: Safety of Life at Sea Conference: 25

SOOP: Ship of Opportunity Program: 369

SOPAC: Joint CCOP/IOC Program of Research on the South Pacific: 37

SOPDOSS: Submersible Oriented Platform for Deep Ocean
Sediment Studies

SOR: Spilled Oil Research: 371

SORT: Spilled Oil Response Team: 371, 375

SOSC: Smithsonian Oceanographic Sorting Center: 418

SOSS: Shipboard Oceanographic Survey System: 392

SOSU: Seattle Ocean Services Unit: 378

SOUL: Studies of Ocean Upper Layers: 371

SOUQAR: Section d'Océanographie d'Université de Québec à
Rimouski: 603

SPAR: Seagoing Platform for Acoustic Research

SPB: Service des Phares et Balises: 638

SPC: South Pacific Commission: 93

SPCC: Spill Prevention Control and Countermeasures

SPIFDA: South Pacific Island Fishery Development Agency: 93

SPMT: Service Permanent des Marees Terrestres: 132

SPOC: Spacecraft Oceanography Project: 376

SPRI: Scott Polar Research Institute: 662

SRC: Ship Research Committee: 419

SRFRL: Seikai Regional Fisheries Research Laboratory: 632

SRFU: Seal Research and Fisheries Unit: 662

SRH: Secretaria de Recursos Hidraulicos: 637

SRI: Stanford Research Institute: 588

SRP: Seismic Reflection Profile

SSC: Ship Structure Committee: 419

SSDC: Synoptic-Scale Subprogramme Data Centre: 347

SSFA: Sound and Sea Fisherman's Association, Inc: 443

SSIE: Smithsonian Science Information Exchange: 418

SSMO: Summary of Synoptic Meteorological Observations: 375

SSRS: Submarine Sand Recovery System

SSS: Standard Seawater Service: 662

SST: Sea Surface Temperature

SSWWS: Seismic Sea Wave Warning System: 378

STACRES: Standing Committee for Research and Statistics: 63

STAEP: Scientific and Technical Assessment of Environmental Pollutants: 419

STAX: Sludge Tracking Acoustical Experiment: 371

STD: Salinity/Temperature/Depth

SSXBT: Submarine Expendable Bathythermograph:

STEP: Service Technique des Equipments Profonds: 617

STOR: Scripps Tuna Oceanography Research Program: 424

STORET: Storage and Retrieval For Water Quality Data: 413

STORMFURY: Hurricane Modification Program: 371

STRC: Scientific and Technical Research Commission: See OAU/STRC

STRI: Smithsonian Tropical Research Institute: 418

SU: Stanford University: 425

SUBTRAP: Submersible Training Platform

SUC: Sea Use Council: 469

SUE: Sahara Upwelling Experiment: 96, 265

SUE: Skylab Upwelling Experiment: 265

SURF: Compagnie des Moyens de Surface Adaptes a l'Ocean: 617

SUF: Shimonoseki University of Fisheries: 632

SUNY: State University of New York: 442

SURGE: SEASAT Users Group of Europe: 57

SURSAT: Satellite Surveillance Program: 602

SUSF: State University System of Florida: 428

SUSIO: State University System (of Florida) Institute of Oceanography: 372, 428

SWACM: Southwest Atlantic Continental Margin Studies: 321

SWAFAC: South West Atlantic Fisheries Advisory Commission: 20

SWFC:	Southwest Fisheries Center: 369, 422
SWIRS:	Solid Waste Information Retrieval System: 413
SWIS	Sensitive Wildlife Information System: 381
SWORD:	Shallow Water Oceanographic Research Data: 377
SXBT:	Surface Expendable Bathythermograph
SYNAPSE:	CUEA Synthesis and Publication Segment: 322
SYNBAPS:	Synthetic Bathymetric Profiling System: 398
SYNDARC:	Standard format for exchange of MAPMOPP data among Data Centers: 671
SYNOPS:	Synoptic Observations of Profiles in the Straits (of Florida): 428
TAAF:	Terres Australes et Antarctiques Francaises: 617
TABL:	Tropical Atlantic Biological Laboratory: 369
TAC:	Total Allowable Catch: 666
TAG:	Technical Advisory Group: 12, 263
TAG:	Transatlantic Geotraverse: 319
TAMU:	Texas A&M University: 450
TARAV:	Tidewater Artificial Reef Association of Virginia: 451
TASS:	Towed Acoustic Surveillance System
TAWS:	Tactical Automatic Weather Station (Buoy)
TC:	Tidal Constants Data Base: 377
TCB:	Technical Cooperation Bureau: 633
TCD:	Trinity College, Dublin: 628
TCMC:	Texas Coastal and Marine Council: 450
TCS:	The Coastal Society: 589
TDPA:	Texas Deepwater Ports Authority: 450
TEB:	Tropical Experiment Board for GATE: 30, 347
TEC:	Tropical Experiment Council for GATE: 30, 347
TEMA:	Training, Education, and Mutual Assistance in the marine sciences (IOC Working Committee): 22
TENOC:	Ten Year Oceanographic Plan (U.S. Navy): 382

TESAC: Temperature, Salinity, and Currents (radio message): 280, 671
 THD: Transport and Harbors Department: 622
 THRFR: Tohoku Regional Fisheries Research Laboratory: 632
 THUMS: Texaco, Humble, Union, Mobile, and Shell Four-Island Man-Made Complex
 TIC: Technical Information Center: 520
 TICUS: Tidal Current Survey System: 377
 TIDES: Tides Data Base: 377
 TINRO: Tikhookeanskiy Nauchno-Issledovatel'skiy Institut Rybnogo Khozyaystva i Okeanografii: 661
 TIPS: Transportation Induced Pollution Surveillance
 TIRKH: Tikhookeanskiy Institut Rybnogo Khozyaystva: 661
 TIROS: Television Induced Observation Satellite
 TNDC: Thai National Documentation Centre: 659
 TOAD: Towed Optical Assessment Device: 369
 TOBS: Telemetering Ocean Bottom Seismometer
 TOC: Total Organic Carbon
 TODAS: Towed Oceanographic Data Acquisition System: 381
 TOGI: Trans-Oceanic Geophysical Investigations
 TONS: Tikhookeanskaya Okeanograficheskaya Nauchnaya Stantsiya: 661
 TOTO: Tongue of the Ocean: 382
 TRANSPAC: Thermal Structure Monitoring Program in the Pacific: 315
 TRANSPAC-MAG: PMEL/NOAA Project--Magnetic Anomalies: 371
 TRF: Tuna Research Foundation: 590
 TRIDENT: South Atlantic Cooperative Investigation Phase: 144, 337
 TRIGOM: The Research Institute of the Gulf of Maine: 434
 TROMEX: Tropical Oceanographical and Meteorological Experiment: 345
 TROPEX: Tropical Experiment: 351

TROV: Tethered Remotely Operational Vehicle

TSNIITEIRKH: Tsentral'nyy Nauchno-Issledovatel'skiy Institut
Informatskiy i Tekhniko Ekonomicheskikh
Issledovaniy Rybnogo Khozyaystva: 660

TUF: Tokyo University of Fisheries: 632

TWERLE: Tropical Wind Energy Conversions and Reference
Level Experiments (U.K.): 662

TWOS: Tropical Wind Observing Ships: 346

TWQB: Texas Water Quality Board: 450

TWS: Tsunami Warning System

TWZO: Trade Wind Zone Oceanography

TYPOE: Ten Year Plan for Ocean Exploration: 361

UABC: Universidad Autonoma de Baja California: 637

UAI: Union des Associations Internationales: See UIA

UAL: University of Alaska: 398, 421

UAN: Ukrainskaya Akademiya Nauk: 661

UATI: Union de Asociaciones Tecnicas Internacionales:
See UIEO

UATI: Union des Associations Techniques Internationales:
See UIEO

UBCIO: University of British Columbia Institute of Ocean-
ography: 603

UC: University of California: 424

UCAR: University Corporation for Atmospheric Research:
416

UCC: University College, Cork: 628

UCD: University of California at Davis: 424

UCG: University College, Galway: 628

UCSB: University of California at Santa Barbara: 424

UCSC: University of California at Santa Cruz: 424

UCSD: University of California at San Diego: 424

UCT: University of Connecticut: 426

UCTIO: University of Cape Town Institute of Oceanography:
654

UDE: University of Delaware: 427

UEG: Underwater Engineering Group: 662

UEM: Union Europeenne de Malacologie: See EMU

UF: University of Florida: 428

UFC: Universidade Federal do Ceara: 599

UFP: Universidad Federal de Pernambuco: 599

UFRGS: Universidade Federal do Rio Grande do Sul: 599

UFRJ: Universidade Federal do Rio de Janeiro: 599

UGA: University of Georgia: 429

UGI: Union Geografica Internacional: See IGU

UGI: Union Geographique Internationale: See IGU

UIA: Union of International Associations: 210

UIB: Union Internacional de Bioquimica: See IUB

UIB: Union Internationale de Biochimie: See IUB

UIB: Universitetet i Bergen: 645

UIBPA: Union Internacional de Biofisica Pura y Aplicada:
See IUPAB

UIBPA: Union Internationale de Biophysique Pure et
Appliquee: See IUPAB

UICB: Union Internacional de Ciencias Biologicas: See IUBS

UICF: Union Internacional de Ciencias Fisiologicas:
See IUPS

UICG: Union Internacional de Ciencias Geologicas: See IUGS

UICN: Union Internacional para la Conservacion de la
Naturaleza y sus Recursos: See IUCN

UICN: Union Internationale pour la Conservation de la
Nature et de ses Resources: See IUCN

UICPA: Union Internationale de Chimie Pure et Appliquee:

UIEO: Union of International Engineering Organizations:
211, 212, 213, 214, 215, 216

UIFPA: Union Internacional de Fisica Pura y Aplicada:
See IUPAP

UIGG: Union Internacional de Geodesia y Geofisica:
See IUGG

UIO: Universitetet i Oslo: 645
 UIPPA: Union Internationale de Physique Pure et Appliquee:
 See IUPAP
 UIQPA: Union Internacional de Quimica Pura y Aplicada:
 See IUPAC
 UISB: Union Internationale des Sciences Biologiques:
 See IUBS
 UISG: Union Internationale des Sciences Geologiques:
 See IUGS
 UISP: Union Internationale des Sciences Physiologiques:
 See IUPS
 UIT: Universitetet i Tromso: 645
 UIT: Union Internationale des Telecommunications:
 See ITU
 UITAM: Union Internationale de Mecanique Theorique et
 Appliquee: See IUTAM
 UJNR: US-Japan Cooperative Program in Natural Resources:
 95
 UJSP: United States-Japan Science Program: 95
 UKOOA: United Kingdom Offshore Operators Association: 662
 UM: University of Maine: 434
 UM: University of Miami: 428
 UM: University of Mississippi: 439
 UMA: University of Massachusetts: 436
 UMC: University Marine Center: 464
 UMC: Upper Mantle Committee: 126, 340
 UMD: University of Maryland: 435, 455
 UME: Union Malacologica Europaea: See EMU
 UMN: University of Minnesota: 458
 UMP: Upper Mantle Project: 126, 288, 340
 UMS: Undersea Medical Society: 592
 UN: United Nations: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11,
 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24,
 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37,
 38, 39, 88, 230

UNAM: Universidad Nacional Autonoma de Mexico: 637

UNC: University of North Carolina: 443

UNCHE: United Nations Conference on the Human Environment: 8, 11, 199, 230, 332

UNCLOS: United Nations Conference on the Law of the Sea: 2, 10, 40, 87, 361, 410, 499

UNCTAD: United Nations Conference on Trade and Development: 6

UNDP: United Nations Development Program: 3, 7, 77, 188, 294, 338

UNEP: United Nations Environment Program: 4, 8, 38, 125, 192, 230, 238, 239, 241, 272, 277, 326, 418

UNESCO: United Nations Educational, Scientific and Cultural Organization: 21, 22, 36, 38, 196, 234, 235, 240, 243, 262, 270, 283, 290, 293, 300, 301, 325, 336

UNF: University of North Florida: 428

UNFV: Universidad Nacional "Federico Villarreal": 648

UNGA: United Nations General Assembly: 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15

UNH: University of New Hampshire: 440, 442

UNICEF: United Nations Children's Fund: 3, 13

UNIDO: United Nations Industrial Development Organization: 14

UNIH: University of Hawaii: 371, 430

UNIHISG: University of Hawaii Sea Grant Program: 430

UNINAY: Universidad de Nayarit: 637

UNISIST: World Science Information System: 228

UNITAR: United Nations Institute for Training and Research: 3, 11

UNOLS: University National Oceanographic Laboratory System: 416, 436

UNSCEAR: United Nations Scientific Committee on the Effects of Atomic Radiation: 15

UP: University of the Pacific: 425

UP: Upwelling Study Oregon Coast: 445

UPR: University of Puerto Rico: 261, 447
 URDA: Unite Regionale de Development de l'Aquaculture:
 URI: University of Rhode Island: 392, 430, 448
 URSI: Union Radioscientifique Internationale: See IURS
 URV: Undersea Research Vehicle
 USARP: United States Antarctic Research Program: 416,
 428, 442
 USC: University of South Carolina: 448
 USC: University of Southern California: 425
 USC&GS: United States Coast and Geodetic Survey: 377
 USCG: United States Coast Guard: 67, 369, 372, 411, 412
 USCGAUX: United States Coast Guard Auxiliary: 412
 USCMH: U.S. Commission of Maritime History: 418
 USEMA: Under Seas Equipment Manufacturers Association: 591
 USF: University of South Florida: 428
 USF&WS: United States Fish and Wildlife Service: 408
 USGS: United States Geological Survey: 409
 USIC: Undersea Instrument Chamber
 USLS: United States Lake Survey: 377
 USMMA: U.S. Merchant Marine Academy: 365
 USN: United States Navy: See DON
 USNOO: United States Naval Oceanographic Office: 392
 USNUSL: Naval Underwater Sound Laboratory: 397
 USREC: U.S. Environment and Resources Council: 219
 UT: University of Texas: 450
 UTI: Union Telegraphique Internationale: 32
 UTMB: University of Texas Medical Branch: 450
 UVA: University of Virginia: 451
 UW: University of Washington: 250, 371, 372, 452
 UW/APL: University of Washington Applied Physics
 Laboratory: See APL/UW

UWF: University of West Florida: 428
 UWIS: University of Wisconsin: 453
 VACM: Vector Averaging Current Meter
 VAP: Voluntary Assistance Programme: 22, 27
 VCM: Vertical Current Meter
 VFL: Virginia Fisheries Laboratory: 451
 VIMS: Virginia Institute of Marine Science: 451, 455
 VISKOR: Fisheries Development Corporation: 654
 VLCC: Very Large Crude Carrier
 VML: Vening Meinesz Laboratorium: 640
 VMM: Vigilancia Meteorologica Mundial: See WWW
 VMM: Veille Meteorologique Mondiale: See WWW
 VMRC: Virginia Marine Resources Commission: 451
 VNIRO: Vsesoyuznyy Nauchno-Issledovatel'skiy Institut
 Morskogo Rybnogo Khozyaystva i Okeanografii: 661
 VOLNA: Study of Surface and Internal Waves: 661
 VOS: Voluntary Observing Ships: 346
 VPISU: Virginia Polytechnic Institute and State
 University: 451
 VSWCM: Virginia Sea Wave Climate Model: 451
 WACAS: Wave and Current Advisory Service: 662
 WAFR: World Appraisal of Fishery Resources: 331
 WARC: World Administrative Radio Conference: 280
 WAMEX: West African Monsoon Experiment: 348
 WATDOC: Water Resources Document Reference Centre: 602
 WATSTORE: National Water Data Storage and Retrieval System:
 409
 WB: Weather Bureau: 375, 378, 649, 654
 WBC: Western Boundary Current
 WBTF: Wrightsville Beach Test Facility: 407
 WCS: Wave Climate Study: 602

WCS: World Conservation Strategy: 190

WDA: Wave Data Analyzer: 372

WDA: World Dredging Association: See WODA

WDC: World Data Center: 65, 66, 127, 233, 245, 289, 419, 670, 671

WDC-A: World Data Center-A for Solid Earth Geophysics and Solar Terrestrial Physics: 375

WDC-A: World Data Center A for Oceanography: 245, 280, 347, 671

WDC-B: World Data Center B for Oceanography: 212, 226, 285

WDR: World Data Referral Center: 119

WDS: Water Data Sources Directory: 409

WEARSCHFAC: Naval Weather Research Facility: 391

WEBSEC: Western Beaufort Sea Ecological Cruise: 412

WECAFC: Western Central Atlantic Fishery Commission: 20

WECS: Wind Energy Conversion System: 399

WEI: World Environmental Institute: See WERC

WERC: World Environment and Resources Council: 219

WES: Waterways Experiment Station: 381

WESTPAC: IOC Working Group for the Western Pacific: 22, 267

WFC: Wallops Flight Center: 415

WFO: World Federation of Engineering Organizations: 331

WFOA: World Federation for the Protection of Animals: 220

WFT: Wildfowl Trust: 662

WFTS: Western Fish Toxicology Station: 413

WFUNA: World Federation of United Nations Associations: 222

WHO: World Health Organization: 23, 38, 88, 272, 290, 293, 325

WHOI: Woods Hole Oceanographic Institution: 316, 426, 436

WI: Wetlands Institute: 446

WIM: German Marine Technical Trade Association: 620

WISE: Workshop on Impact Studies in the Environment: 125
 WISP: Winter-Spring Study of Oceanographic Conditions off
 the Oregon Coast: 445
 WMARC: World Maritime Administrative Radio Conference: 280
 WMO: World Meteorological Organization: 21, 26, 27, 33,
 36, 38, 112, 189, 229, 237, 239, 249, 261, 272,
 280, 284, 290, 325, 342, 343, 344, 345, 346,
 347, 348, 349, 350, 351, 352, 353, 375, 378,
 632, 640, 668
 WMPO: Weather Modification Program Office: 371
 WMRD: Wildlife and Marine Resources Department: 449
 WMS: World Magnetic Survey: 110
 WMSQ: World Magnetic Survey Board: 110
 WOC: World Oceanographic Centre: 280
 WODA: World Dredging Association: 212, 218
 WODCON: World Dredging Conference: 218
 WOO: World Oceanographic Organization: 21
 WPCF: Water Pollution Control Federation: 593
 WPFMC: Western Pacific Fishery Management Council: 369
 WPL: Wave Propagation Laboratory: 371
 WQUIS: Water Quality Indicator System: 372
 WRC: Water Resources Council: 362
 WRNWS: World-Wide Radio Navigation Warning System: 25
 WRRC: Water Resources Research Center: 430
 WRRI: Water Resources Research Institute: 407
 WRSIC: Water Resources Scientific Information Center: 407
 WSFO: Weather Service Forecast Office: 378
 WSG: Washington Sea Grant Program: 451
 WSMRC: WAMEX Scientific and Management Regional
 Commission: 348
 WWF: World Wildlife Fund: 224, 446
 WWW: World Weather Watch: 272, 280, 353, 361
 XBT: Expendable Bathythermograph: 391

XERB: Experimental Environmental Research Buoy: 372
XSTD: Expendable Salinity/Temperature/Depth Probe:
XSV: Expendable Sound Velocimeter
XWCC: Expanded Water Column Characterization: 371
YU: Yale University: 426
ZBM: Zavodza Biologiju Mora: 665
ZOIG: Zaklad Oceanologii Instytut Geofizy: 650

★U.S. GOVERNMENT PRINTING OFFICE: 1981-340-997/1707

AUG 14 1981