

National Oceanic and Atmospheric Administration

Statutes Which Authorize NOAA Research Efforts

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Introduction

The purpose of this Digest is to provide brief descriptions of those federal statutory provisions which authorize NOAA to undertake and maintain ongoing research activities in connection with both its overall mission and any of its authorized programs. These include all activities within the broad categories of both oceanic and atmospheric endeavor. It is worth stressing, at the outset, that the subject is research – and, because NOAA is a science agency, it refers largely to scientific research. In the strictest sense, research involves performance of a methodical study for the purpose of proving a hypothesis or answering a specific question. Research is typically systematic, following a sequence of steps or adhering to a rigid protocol. The rules, of course will vary depending on the particular discipline. It is organized and planned. It calls for some type of interpretation or opinion from the researcher or research team. While it may involve a survey, or data gathering, or a literature review, or data dissemination, none of these efforts by itself qualifies as research, as the term is understood in the statutes described in this compendium. While research may include such steps, the research contemplated in the following pages involves a more complete and far-reaching study and analysis.

It should also be noted that the Digest summarizes research authorities that are current or ongoing. In many instances, federal statutes direct NOAA to perform an investigation of a specific topic or phenomenon, with a time limit for completing the study and/or reporting to Congress or to other agencies. If such a study is still currently under way, it will be included in the Digest. If it has been completed and reported, it will not be included, unless part of the congressional charge was to design or create a permanent study capability or program office which is still functioning. In that regard, it should also be noted that research, as it is understood in this compendium, not only refers to a direction to undertake a particular type of investigation or to seek answers to a particular inquiry, it also refers to the establishment of a program or a capability or an office that may have some degree of discretion in pursuing particular projects within the parameters given by the statute. Thus, the Digest focuses on arrangements for research as well as on the actual conduct of research.

Research is critical to effective decision-making and to any productive endeavor involving natural elements and processes. It enables NOAA to protect and conserve precious natural resources and to provide for their sustainable use. It enables NOAA to provide better forecasts, earlier warnings of natural events and potential disasters, and a better understanding of the Earth, its environment, and the forces that it. The benefit can often be measured in the saving of lives and livelihoods.

This digest will always be a work-in-progress. New legislative initiatives and revisions to existing statutes will continue to emerge in this area of critically important endeavor.

Disclaimer: *This digest is not intended to represent or reflect an interpretation by the NOAA Office of General Counsel or the National Oceanic and Atmospheric Administration of any of the legal authorities identified herein. This digest is offered for informational purposes only and is without prejudice to any position the NOAA Office of General Counsel may take regarding any matter or issue.*

National Oceanographic Partnership Act, 10 U.S.C. §§ 7901-7903

The National Oceanographic Partnership Act was enacted as part of the National Defense Authorization Act for Fiscal Year 1997 (Pub. L. 104-201). It directed the Secretary of the Navy to create a National Oceanographic Partnership Program. The purposes of the Program are to (a) promote the national goals of assuring national security, advancing economic development, protecting quality of life, and strengthening science, education and communication through improved knowledge of the ocean, and (b) to coordinate and strengthen oceanographic efforts in support of those goals by identifying and carrying out partnerships among federal agencies, academia, industry, and other members of the oceanographic scientific community in the areas of data, resources, education, and communication. 10 U.S.C. § 7901.

In its findings, Congress states that oceans drive global and regional climate. Hence, they contain information affecting agriculture, fishing, and the prediction of severe weather. Understanding of the oceans through basic and applied research is essential for using the oceans wisely and protecting their limited resources. Ocean research and education activities take place within federal agencies, academic institutions, and industry. These entities often have similar requirements for research facilities, data, and other resources (such as oceanographic research vessels). The need exists for a formal mechanism to coordinate existing partnerships and establish new partnerships for the sharing of resources, intellectual talent, and facilities in the ocean sciences and education. 10 U.S.C. § 7901 note.

The governing body of the Program is the National Ocean Research Leadership Council of which NOAA is a permanent member. The chairman and vice chairman of the Council are appointed by a committee that includes the NOAA Administrator. 10 U.S.C. § 7902.

Additional information is available at www.nopp.org.

National Oceanic and Atmospheric Administration Authorization Act of 1992, Pub. L. 102-567, Title I, § 108, 15 U.S.C. § 313 note

The Secretary of Commerce, in cooperation with the Federal Coordinating Council for Science, Engineering, and Technology through the Committee on Earth and Environmental Sciences, was directed to establish a United States Weather Research Program (USWRP) to (1) increase benefits to the nation from the substantial investment in modernizing the public weather warning and forecast system in the United States; (2) improve local and regional weather forecasts and warnings; (3) address critical weather-related scientific issues; and (4) coordinate governmental, university, and private-sector efforts. Today, the NOAA USWRP within the Office of Weather and Air Quality (OWAQ), which is part of NOAA's Office of Oceanic and Atmospheric Research, seeks to promote promising and relevant research and to transition that research, for example, into hurricane forecast operations, or to support severe storm research, or research in extreme precipitation, or in the transport of atmospheric aerosols. OWAQ sponsors, plans and facilitates research involving federal and academic partners which is used to observe, understand and predict extreme weather events in ways that will help save lives and reduce property damage.

Weather Service Modernization Act, Pub. L. 102-567, Title VII, 15 U.S.C. § 313 note, §§ 701-709

The Secretary of Commerce was directed to develop a National Implementation Plan for modernization of the National Weather Service which included, among other things, detailed plans and funding requirements for meteorological research to ensure that new techniques in forecasting will be developed to utilize the new technologies being implemented in the modernization; and training and education programs to ensure that employees gain the necessary expertise to utilize the new technologies and to minimize employee displacement as a consequence of modernization. Pub. L. 102-567, section 703(5), (6).

Inland Flood Forecasting and Warning System Act of 2002, Pub. L. 107-253, 15 U.S.C. § 313c

The National Oceanic and Atmospheric Administration, through the United States Weather Research Program, shall improve the capability to accurately forecast inland flooding (including inland flooding influenced by coastal and ocean storms) through research and modeling; and assess, through research and analysis of previous trends, among other activities (a) the long-term trends in frequency and severity of inland flooding; and (b) how shifts in climate, development, and erosion patterns might make certain regions vulnerable to more continual or escalating flood damage in the future. 15 U.S.C. § 313c.

National Integrated Drought Information System Act of 2006, 15 U.S.C. § 313d

The Under Secretary of Commerce for Oceans and Atmosphere, through the National Weather Service and other appropriate weather and climate programs in the NOAA, shall establish a National Integrated Drought Information System (NIDIS) which shall, among other things, coordinate, and integrate as practicable, federal research in support of a drought early warning system; and build upon existing forecasting and assessment programs and partnerships. The Under Secretary shall consult with relevant federal, regional, state, tribal, and local government agencies, research institutions, and the private sector in the development of the NIDIS. 15 U.S.C. § 313d

National Weather Modification Policy Act of 1976, 15 U.S.C. § 330 note, Pub. L. 94-490, §§ 1-6

The purpose of this Act is to develop a comprehensive and coordinated national weather modification policy and a national program of weather modification research and development that will, among other things, conduct research into those scientific areas considered most likely to lead to practical techniques for drought prevention or alleviation and other forms of deliberate weather modification; make weather modification research findings available to interested parties; to assess the economic, social, environmental, and legal impact of an operational weather modification program; develop both national and international mechanisms designed to minimize conflicts which may arise with respect to the peaceful uses of weather modification;

and integrate the results of existing experience and studies in weather modification activities into model codes and agreements for regulation of domestic and international weather modification activities. Pub. L. 94-490, section 2(b).

The Secretary of Commerce shall conduct a comprehensive investigation and study of the state of scientific knowledge concerning weather modification, which shall include a review and analysis of research needs in weather modification to establish areas in which more research could be expected to yield the greatest return in terms of practical weather modification technology. It shall also include, among other things, an assessment of the legal, social, and ecological implications of expanded and effective research and operational weather modification projects; as well as a review of the international importance and implications of weather modification activities by the United States, and an analysis of the necessity and feasibility of negotiating an international agreement concerning the peaceful uses of weather modification. Pub. L. 94-490, section 4(2), (4), (7), (10).

Reorganization Plan No. 4 of 1970, as transmitted by the President to the Senate and House of Representatives, July 9, 1970, pursuant to the provisions of Chapter 9 of Title 5 of the U.S. Code, and as subsequently amended by various Public Laws, 15 U.S.C. § 1511 note

Among the functions transferred to the Secretary of Commerce were those vested in the Secretary of Defense or in any officer, employee, or organizational entity of the Department of Defense by the provisions of Public Law 91-144, 83 Stat. 326, relating to the conception, planning, and conduct of basic research and development in the fields of water motion, water characteristics, water quantity, and ice and snow, and the publication of data and the results of research projects in forms useful to the Corps of Engineers and the public, and the operation of a Regional Data Center for the collection, coordination, analysis, and the furnishing to interested agencies of data relating to water resources of the Great Lakes. Reorganization Plan No. 4, section 1(e).

NOAA Programs Offices, 15 U.S.C. §§ 1511c, 1511d

Estuarine Programs Office

The Administrator of the NOAA shall establish within the NOAA an Estuarine Programs Office. That Office shall, among other things, develop and implement a national estuarine strategy for NOAA that integrates the research, regulatory, and trusteeship responsibilities of NOAA. It shall also coordinate the estuarine activities of the various organizations within NOAA, including activities in estuarine research and assessment, fisheries research, coastal management, and habitat conservation. 15 U.S.C. § 1511c.

Chesapeake Bay Office

The Secretary of Commerce shall establish, within the NOAA, an office to be known as the Chesapeake Bay Office which shall, among other things, develop and implement a strategy for NOAA that integrates the science, research, monitoring, data collection, regulatory, and management responsibilities of the Secretary of Commerce in such a manner as to assist the

cooperative, intergovernmental Chesapeake Bay Program to meet the commitments of the Chesapeake Bay Agreement; coordinate the programs and activities of the various organizations within the NOAA, the Chesapeake Bay Regional Sea Grant Programs, and the Chesapeake Bay units of the National Estuarine Research Reserve System, including programs and activities in coastal and estuarine research, monitoring, and assessment and fisheries research and stock assessments. 15 U.S.C. § 1511d.

Special Studies and Joint Projects, 15 U.S.C. § 1540

The Secretary of Commerce is authorized, upon the request of any person, firm, organization, or others, public or private, to make special studies on matters within the authority of the Department of Commerce; to prepare from its records special compilations, lists, bulletins, or reports; to perform the functions authorized by section 1152 of this title (which directs the Secretary of Commerce to establish a clearinghouse for the collection and dissemination of scientific, technical and engineering information, foreign and domestic); and to furnish transcripts or copies of its studies, compilations, and other records; upon the payment of the actual or estimated cost of such special work. In the case of nonprofit organizations, research organizations, or public organizations or agencies, the Secretary may engage in joint projects, or perform services, on matters of mutual interest, the cost of which shall be apportioned equitably, as determined by the Secretary, who may, however, waive payment of any portion of such costs by others, when authorized to do so under regulations approved by the Office of Management and Budget.

Thus, pursuant to a Memorandum of Understanding, NOAA's Environmental Research Laboratories and the University of Michigan have collaborated for a number of years in limnological and environmental research. The MOU affirms their common interest in these areas and provides a basis for future cooperative research.

Space Weather Authority, 15 U.S.C. § 1532

This provision authorizes the Secretary of Commerce to conduct research on all telecommunications sciences, including wave propagation and reception and conditions which affect electromagnetic wave propagation and reception; preparation and issuance of predictions of electromagnetic wave propagation conditions and warnings of disturbances in such conditions; research and analysis in the general field of telecommunications sciences in support of other Federal agencies; investigation of ionizing electromagnetic radiation and its uses; as well as compilation, evaluation and dissemination of general scientific and technical data when such data are important to science, engineering, industry or the general public and are not available elsewhere. 15 U.S.C. § 1532(1)-(7).

Agreements to Aid and Promote Scientific and Educational Activities, 15 U.S.C. § 1540

The Secretary of Commerce, acting through the Under Secretary of Commerce for Oceans and Atmosphere, may enter into cooperative agreements and other financial agreements with any

nonprofit organization to (1) aid and promote scientific and educational activities and to foster public understanding of the National Oceanic and Atmospheric Administration or its programs; and (2) solicit private donations for the support of such activities.

15 U.S.C. § 1540 note – Pub. L. 108-199, div. B, title II, Jan. 23, 2004, 118 Stat. 71 – provided in part: “That, hereafter, the Secretary of Commerce may enter into cooperative agreements with the Joint and Cooperative Institutes as designated by the Secretary to use the personnel, services, or facilities of such organizations for research, education, training, and outreach. *See NOAA Administrative Order 216-107* (September 2, 2005). An example of cooperative research authorized under this provision is the Cooperative Institute for Marine Resources Studies which is a NOAA-Oregon State University Partnership that is described below.

National Climate Program Act, 15 U.S.C. §§ 2901-2908

The Secretary of Commerce shall establish a National Climate Program Office which shall serve as the lead entity responsible for administering the National Climate Program. The Program shall include, but not be limited to, basic and applied research to improve the understanding of climate processes, natural- and man-induced, and the social, economic, and political implications of climate change. It shall also include measures for increasing international cooperation in climate research, monitoring, analysis and data dissemination. 15 U.S.C. § 2904(c), (d).

Global Change Research Act of 1990, 15 U.S.C. §§ 2921-2961

The purpose of this Act is to provide for development and coordination of a comprehensive and integrated United States research program that will assist the nation as well as the world to understand, assess, predict, and respond to human-induced and natural processes of global change. 15 U.S.C. § 2931(b). The Act establishes the Committee on Earth and Environmental Sciences, of which NOAA is a member. The Committee shall plan and coordinate the United States Global Change Research Program and shall undertake to improve cooperation among federal agencies and departments with respect to global change research activities. It shall also work with academic, state, industry, and other groups conducting global change research and to provide for periodic public and peer review of the Program; cooperate with the Secretary of State in providing representation at international meetings and conferences on global change research; and coordinate the federal activities of the United States with programs of other nations and with international global change research activities such as the International Geosphere-Biosphere Program. 15 U.S.C. § 2932.

The Committee shall develop a National Global Change Research Plan for implementation of the Program. The Plan shall contain recommendations for national global change research and shall be revised and submitted to Congress at least once every three years. Successive Plans shall establish for 10-year periods the goals and priorities of federal global change research, describe specific activities, and make recommendations for the coordination of the global change research activities of the United States with such activities of other nations and international organizations. 15 U.S.C. § 2934(b). Plan elements shall include, among other things, focused research initiatives to understand the nature of and interaction among physical, chemical, biological, and social processes related to global change. 15 U.S.C. § 2934(c). The President

and the Secretary of Commerce shall ensure that relevant research activities of the National Climate Program, established by the National Climate Program Act, are considered in developing national global change research efforts. 15 U.S.C. § 2928(a).

International Cooperation in Global Change Research Act of 1990, 15 U.S.C. §§ 2951-2953

This statute seeks to promote international and intergovernmental cooperation on global change research and to involve scientists and policymakers from developing nations in such cooperative global change research programs; and promote international efforts to provide technical and other assistance to developing nations. 15 U.S.C. § 2951(b).

The President shall direct the Secretary of State, in cooperation with the Committee on Earth and Environmental Sciences, of which NOAA is a member, to initiate discussions with other nations leading toward international protocols and other agreements to coordinate global change research activities. 15 U.S.C. § 2952(a). The President shall direct the Secretary of State (in cooperation with the Secretary of Energy, the Secretary of Commerce, the United States Trade Representative, and other appropriate members of the Committee) to initiate discussions with other nations leading toward an international research protocol for cooperation on the development of energy technologies which have minimally adverse effects on the environment. 15 U.S.C. § 2952(b).

Arctic Research and Policy Act of 1984, as amended, 15 U.S.C. §§ 4101-4111

One of the purposes of this Act is to establish national policy, priorities, and goals and to provide a federal program plan for basic and applied scientific research with respect to the Arctic, including research related to natural resources and materials, physical, biological and health sciences, and social and behavioral sciences. The statute also establishes an Interagency Arctic Research Policy Committee (the Committee), which includes representation from the Department of Commerce, to develop a national Arctic research policy. 15 U.S.C. § 4101(b). The Committee will help develop and establish an integrated national Arctic research policy that will guide federal agencies in developing and implementing their research programs in the Arctic. It will make recommendations on future Arctic research and help set priorities. It will facilitate cooperation between the federal government and state and local governments in Arctic research, and it will coordinate and promote cooperative Arctic scientific research programs with other nations, subject to the foreign policy guidance of the Secretary of State. 15 U.S.C. § 4107(a).

R.M.S Titanic Maritime Memorial Act of 1986, 16 U.S.C. §§ 450rr-450rr-6

The R.M.S. Titanic represents a special opportunity for deep ocean scientific research and exploration. 16 U.S.C. § 450rr(a)(4). The purposes of this Act are to encourage international efforts to designate the R.M.S. Titanic as an international maritime memorial; to direct the United States to enter into negotiations with other interested nations to establish an international

agreement which will provide for the designation of the R.M.S. Titanic as an international maritime memorial and protect the scientific, cultural, and historical significance of the R.M.S. Titanic. The Act also seeks to encourage, whether in those negotiations or in other fora, the development and implementation of international guidelines for conducting research on, exploration of, and if appropriate, salvage of the R.M.S. Titanic; and to express the sense of the United States Congress that, pending such international agreement or guidelines, no person should physically alter, disturb, or salvage the R.M.S. Titanic in any research or exploratory activities which are conducted. 16 U.S.C. § 450rr(b).

The NOAA Administrator is specifically directed to enter into consultations with the United Kingdom, France, Canada, and other interested nations to develop international guidelines for research on, exploration of, and if appropriate, salvage of the R.M.S. Titanic, which (1) are consistent with its national and international scientific, cultural, and historical significance and the purposes of this act; and (2) promote the safety of individuals involved in such operations. In carrying out this subsection, the Administrator shall consult with the Secretary of State and with academic and research institutions. 16 U.S.C. § 450rr-3. The Secretary of State, in consultation with the NOAA Administrator, is directed to enter into negotiations with the United Kingdom, France, Canada, and other interested nations to develop an international agreement which provides for (1) the designation of the R.M.S. Titanic as an international maritime memorial; and (2) research on, exploration of, and if appropriate, salvage of the R.M.S. Titanic consistent with the international guidelines developed by NOAA. The Secretary of State shall consult with the Administrator, who shall provide research and technical assistance to the Secretary. 16 U.S.C. § 450rr-4.

Preservation of Fishery Resources, 16 U.S.C. §§ 755-760I

The Secretary of Commerce is authorized and directed to conduct such investigations, and such engineering and biological surveys and experiments, as may be necessary to direct and facilitate conservation of the fishery resources of the Columbia River and its tributaries. 16 U.S.C. § 756. The Secretary shall conduct, promote, and encourage research in preparation for the implementation of the use of ecosystems and interspecies approaches to the conservation and management of anadromous and Great Lakes fishery resources. 16 U.S.C § 757a(b).

The Secretary is also authorized to enter cooperative agreements with one or more states and, in accordance with such agreements, to conduct such investigations, engineering and biological surveys, and research as may be desirable for the conservation and enhancement of anadromous fishery resources and the fish in the Great Lakes and Lake Champlain. 16 U.S.C § 757b.

The Secretary of Commerce is authorized and directed to conduct such fishing explorations and such necessary related work as oceanographic, biological, technological, statistical, and economic studies to insure maximum development and utilization of the high seas fishery resources of the United States and its island possessions in the tropical and subtropical Pacific Ocean and intervening areas as may be consistent with developing and sustaining such fishery resources at maximum levels of production in perpetuity and to provide for the best possible utilization thereof. 16 U.S.C § 758a.

The Secretary of Commerce is authorized to carry out, directly or by contract, with the Pacific Fisheries Development Foundation or other agency or organization, a program for the development of the tuna and other latent fisheries resources of the Central, Western, and South Pacific Ocean. The program shall include, but not be limited to, exploration for, and stock assessment of, tuna and other fish; improvement of harvesting techniques; gear development; biological resource monitoring; and an economic evaluation of the potential for tuna and other fisheries in such area. 16 U.S.C § 758e.

The Secretary of Commerce is directed to undertake a comprehensive continuing study of the migratory marine fish of interest to recreational fishermen of the United States, including species inhabiting the offshore waters of the United States and species that migrate through or spend a part of their lives in the inshore waters of the United States. The study shall include, but not be limited to, research on migrations, identity of stocks, growth rates, mortality rates, variations in survival, environmental influences, both natural and artificial, including pollution, and effects of fishing on the species, for the purpose of developing wise conservation policies and constructive management. 16 U.S.C § 760e.

Great Lakes Fishery Act of 1956, 16 U.S.C. §§ 931-939c

Any agency of the United States Government is authorized to cooperate with the United States Commissioners on the Great Lakes Fishery Commission in the conduct of research programs and related activities and, on a reimbursable or other basis, to enter into agreements with the U.S. Commissioners for the purpose of assisting it in carrying out the program for the control of lamprey populations. 16 U.S.C. § 939a

The Whaling Convention Act of 1949, 16 U.S.C. §§ 916-916l

Article IV of the International Convention for the Regulation of Whaling provides that the International Whaling Commission (Commission) may, in collaboration with or through agencies of the Contracting Parties, encourage, recommend, or organize studies and investigations relating to whales and whaling; collect and analyze statistical information concerning the current condition and trend of the whale stocks; and study, appraise, and disseminate information concerning methods of maintaining and increasing the populations of whale stocks. Section 10 of the Whaling Convention Act authorizes all agencies of the federal government, on request of the Commission, to cooperate in the conduct of scientific and other programs, or to furnish facilities and personnel for the purpose of assisting the Commission in the performance of its duties as prescribed by the convention. 16 U.S.C. § 916h.

Tuna Conventions Act of 1950, 16 U.S.C §§ 951-962

Under Section 9 of this Act, all agencies of the federal government are authorized on request of the Inter-American Tropical Tuna Commission (Commission) to cooperate in the conduct of scientific and other programs, or to furnish facilities and personnel for the purpose of assisting the Commission in the performance of its duties. 16 U.S.C. § 958. At least one of the U.S. representatives on the Commission is to be an officer of NOAA Fisheries. 16 U.S.C. § 952.

Atlantic Tunas Convention Act of 1975, 16 U.S.C. §§ 971-971k

Under Section 9 of this Act, all agencies of the federal government are authorized on request of the International Commission for the Conservation of Atlantic Tunas to cooperate in the conduct of scientific and other programs, or to furnish facilities and personnel for the purpose of assisting the Commission in the performance of its duties under the International Convention for the Conservation of Atlantic Tunas. 16 U.S.C. § 971g(b).

The Act also calls upon the Secretary of Commerce, in consultation with the Commissioners and the Secretary of State, to develop and implement a comprehensive research and monitoring program to support the conservation and management of Atlantic bluefin tuna and other highly migratory species. The program shall also include a cooperative research program on Atlantic billfish based on the Southeast Fisheries Science Center Atlantic Billfish Research Plan of 2002, as well as other research as necessary. In developing a program, the Secretary of Commerce shall ensure that personnel and resources of each regional research center shall have substantial participation in the stock assessments and monitoring of highly migratory species that occur in the region. The program shall also encourage other member nations to adopt a similar program. 16 U.S.C. § 971i(b).

Fur Seal Act of 1975, 16 U.S.C. §§ 1151-1175

The Secretary of Commerce shall (1) conduct such scientific research and investigations on the fur seal resources of the North Pacific Ocean as he deems necessary to carry out the obligations of the United States under the Interim Convention on the Conservation of North Pacific Fur Seals, as amended, and (2) permit, subject to such terms and conditions as he deems desirable, the taking, transportation, importation, exportation, or possession of fur seals or their parts for educational, scientific, or exhibition purposes. 16 U.S.C. § 1154.

Jellyfish or Sea Nettles, Other Such Pests, and Sea Weed in Coastal Waters; Control or Elimination, 16 U.S.C. §§ 1201-1205

The Secretary of Commerce, in cooperation with the States and the Commonwealth of Puerto Rico, is authorized (1) to conduct, directly or by contract, such studies, research, and investigations, as he deems desirable, to determine the abundance and distribution of jellyfish and other such pests and their effects on fish and shellfish and water-based recreation, (2) to conduct studies of control measures of such pests and of floating seaweed, (3) to carry out, based on studies made pursuant to this chapter, a program of controlling or eliminating such pests and such seaweed, and (4) to take such other actions as the Secretary deems desirable. 16 U.S.C. §§ 1201, 1202.

Crown of Thorns Starfish, 16 U.S.C. §§ 1211-1213

The Secretary of Commerce and the Secretary of the Smithsonian Institution are authorized to conduct such studies, research, and investigations, as they deem desirable to determine the causes of the population increase of the "Crown of Thorns" starfish, their effects on corals and coral reefs, and the stability and regeneration of reefs following predation. The Secretaries are

further authorized to monitor areas where the "Crown of Thorns" may be increasing in numbers and to determine future needs for control; to develop improved methods of control and to carry out programs of control in areas where these are deemed necessary; and to take such other actions as deemed desirable to gain an understanding of the ecology and control of the seastar "Crown of Thorns." 16 U.S.C. § 1212

Marine Mammal Protection Act of 1972, 16 U.S.C. §§ 1361-1423h

Permits

The Secretary of Commerce may issue a permit that authorizes the taking or importation of any marine mammal for purposes of scientific research if the applicant submits, with the application, information indicating that the taking is required to further a *bona fide* scientific purpose. 16 U.S.C. §§ 1374(a), (c)(1), (c)(3)(A).

Yellowfin Catch Methods

The Secretary of Commerce, through the Secretary of State shall initiate discussions with foreign governments whose vessels harvest yellowfin tuna with purse seines in the eastern tropical Pacific Ocean, for the purpose of concluding, through the Inter-American Tropical Tuna Commission or such other bilateral or multilateral institutions as may be appropriate, international arrangements for the conservation of marine mammals taken incidentally in the course of harvesting such tuna, which should include provisions for (i) cooperative research into alternative methods of locating and catching yellowfin tuna which do not involve the taking of marine mammals, and (ii) cooperative research on the status of affected marine mammal population stocks. 16 U.S.C. § 1378(a)(2)(B).

Research Grants

The Secretary of Commerce is authorized to make grants, or to provide financial assistance in such other form as he deems appropriate, to any Federal or State agency, public or private institution, or other person for the purpose of assisting such agency, institution, or person to undertake research in subjects which are relevant to the protection and conservation of marine mammals. In carrying out this subsection, the Secretary shall undertake a program of, and shall provide financial assistance for, research into new methods of locating and catching yellowfin tuna without the incidental taking of marine mammals. 16 U.S.C. § 1380.

Agreements with Alaska Natives

The Secretary of Commerce may enter into cooperative agreements with Alaska Native organizations to conserve marine mammals and provide co-management of subsistence use by Alaska Natives. Agreements may include grants to Alaska Native organizations for, among other purposes: (1) collecting and analyzing data on marine mammal populations; (2) monitoring the harvest of marine mammals for subsistence use; (3) participating in marine mammal research conducted by the federal government, states, academic institutions, and private organizations; and; (4) developing marine mammal co-management structures with Federal and State agencies. 16 U.S.C. § 1388(b).

The Commission

The Marine Mammal Commission established under Section 201 of the Act shall (1) undertake a review and study of the activities of the United States pursuant to existing laws and international conventions relating to marine mammals; (2) conduct a continuing review of the condition of the stocks of marine mammals, of methods for their protection and conservation, of humane means of taking marine mammals, of research programs conducted or proposed to be conducted under the authority of this Act, and of all applications for permits for scientific research, public display, or enhancing the survival or recovery of a species or stock; (3) undertake or cause to be undertaken such other studies as it deems necessary or desirable in connection with its assigned duties as to the protection and conservation of marine mammals. 16 U.S.C. § 1402(a).

Scientific Advisors

The Act directs the Commission to establish a Committee of Scientific Advisors on Marine Mammals. The Commission shall consult with the Committee on all studies and recommendations which it may propose to make or have made, on research programs conducted or proposed to be conducted under the authority of this chapter, and on all applications for permits for scientific research. 16 U.S.C. § 1403(c). The Committee was not terminated, as others were, by Pub. L. 92-463.

Other Federal Agencies

The Commission shall have access to all studies and data compiled by federal agencies regarding marine mammals. With the consent of the appropriate Secretary or Agency head, the Commission may also utilize the facilities or services of any federal agency and shall take every feasible step to avoid duplication of research and to carry out the purposes of this chapter. 16 U.S.C. § 1405.

International Dolphin Conservation

In addition to conducting the initial, time-limited research described in subsection 1414a(a) of this Act, the Secretary, in consultation with the Marine Mammal Commission and in cooperation with the nations participating in the International Dolphin Conservation Program and the Inter-American Tropical Tuna Commission, shall undertake or support appropriate scientific research to further the goals of the International Dolphin Conservation Program. This may include: (a) projects to devise cost-effective fishing methods and gear so as to reduce, with the goal of eliminating, the incidental mortality and serious injury of marine mammals in connection with commercial purse seine fishing in the eastern tropical Pacific Ocean; (b) projects to develop cost-effective methods of fishing for mature yellowfin tuna without setting nets on dolphins or other marine mammals; (c) projects to carry out stock assessments for those marine mammal species and marine mammal stocks taken in the purse seine fishery for yellowfin tuna in the eastern tropical Pacific Ocean, including species or stocks not within waters under the jurisdiction of the United States; and (d) projects to determine the extent to which the incidental take of non-target species, including juvenile tuna, occurs in the course of purse seine fishing for yellowfin tuna in the eastern tropical Pacific Ocean, the geographic location of the incidental take, and the impact of that incidental take on tuna stocks and non-target species. 16 U.S.C. § 1414a(b).

Strandings

The Secretary of Commerce is directed to establish a “Marine Mammal Health and Stranding Response Program.” The purpose of the program is to facilitate the collection and dissemination of reference data on the health of marine mammals and health trends of marine mammal populations in the wild; to correlate the health of marine mammals and marine mammal populations in the wild with available data on physical, chemical, and biological environmental parameters; and to coordinate effective responses to unusual mortality events by establishing a process within the Department of Commerce as detailed in section 1421c of this title. 16 U.S.C. § 1421. The Secretary shall collect and periodically update existing information on procedures and practices for rescuing and rehabilitating stranded marine mammals and for collecting, preserving, labeling, and transporting marine mammal tissues for analyses. The Secretary shall collect and periodically update appropriate scientific literature on marine mammal health, disease, and rehabilitation; information on strandings, which the Secretary shall compile and analyze; and other life history and reference level data. 16 U.S.C § 1421a(b).

National Marine Sanctuaries Act, 16 U.S.C. § 1431-1445c-1

Among other purposes, the Act calls upon the Secretary of Commerce to identify and designate as national marine sanctuaries areas of the marine environment which are of special national significance and to manage these areas as part of the National Marine Sanctuary System. The Secretary is also directed to support, promote, and coordinate scientific research on, and long-term monitoring of, the resources and natural processes of these marine areas. 16 U.S.C. § 1431(b). These may include exploration, mapping, and environmental and socioeconomic assessment. The Secretary may also develop and test methods to enhance degraded habitats or restore damaged, injured, or lost sanctuary resources; and the Secretary may support, promote, and coordinate research on, and the conservation, curation, and public display of, the cultural, archeological, and historical resources of national marine sanctuaries. 16 U.S.C. § 1440(b). The Secretary may support, promote, and coordinate efforts to enhance public awareness, understanding, and appreciation of national marine sanctuaries. Such activities may include education of the general public, teachers, students, national marine sanctuary users, and ocean and coastal resource managers. 16 U.S.C. § 1440(c).

Regional Marine Research Programs, 16 U.S.C. §§ 1447-1447f

This statute established Regional Marine Research Boards for nine regions in the United States, each Board consisting of eleven members, three of which are appointed by the NOAA Administrator. Each Board shall develop and submit to the NOAA and EPA Administrators a comprehensive 4-year marine research plan for the region for which the Board is responsible, and shall amend the plan as necessary, but no less frequently than once every 4 years. Among other powers, each Board is authorized to cooperate with federal agencies, with states and with local and other public and private entities in the preparation and support of marine research in the region; to enter into contracts, cooperative agreements or grants arrangements with public or private entities to conduct research; to call conferences on regional marine research issues; to collect and make available the results of, and other information pertaining to, the research conducted in the region; to utilize the research facilities and personnel of federal agencies; and to

develop and stimulate, in consultation with the Department of State, joint marine research projects with foreign nations. 16 U.S.C. § 1447b.

The plans are to contain an overview of the environmental quality conditions in the coastal and marine waters of the region; a comprehensive inventory and description of all marine research related to water quality and ecosystem health; a statement and explanation of the marine research needs and priorities; an assessment of how the plan will incorporate existing marine, coastal, and estuarine research and management in the region; and a general description of marine research and monitoring objectives and timetables. 16 U.S.C. § 1447c. The NOAA Administrator shall administer a grant program to support projects aimed at achieving research priorities. The types of projects eligible for funding are described in the statute. 16 U.S.C. § 1447d.

The Boards would cease to exist on October 1, 1999 unless extended by Congress, but funding was not provided. 16 U.S.C. § 1447b(f). However, planning processes were already under way which strengthened regional relationships and highlighted the need for a long-term commitment to regional marine research planning and implementation by federal and state agencies. On the West Coast, for example, the Pacific Northwest and California developed separate regional agendas using well-designed planning processes and with carefully considered priorities for marine and coastal research. Within the federal agency structure, NOAA expanded its coordination efforts, emphasizing regional collaboration to improve productivity, build capacity, and increase the value of NOAA research activities and products, and NOAA has provided funds through the National Sea Grant College Program to develop regional plans in coastal regions around the country

Coastal Zone Management Act of 1972, 16 U.S.C. §§ 1451-1466

Estuarine Research

This statute establishes the National Estuarine Research Reserve System. The Secretary of Commerce may designate an estuarine area as a national estuarine reserve if the Governor of the coastal state in which the area is located nominates the area. The Secretary must also make certain findings: (a) that the area is a representative estuarine ecosystem that is suitable for long-term research and contributes to the biogeographical and typological balance of the System; and (b) that the designation of the area as a reserve will serve to enhance public awareness and understanding of estuarine areas. 16 U.S.C. § 1461(a), (b).

Estuarine Research Guidelines

The Secretary shall develop guidelines for the conduct of research within the System that shall include: (1) a mechanism for identifying and establishing priorities among the coastal management issues that should be addressed through coordinated research within the System; (2) the establishment of common research principles and objectives to guide the development of research programs within the System; (3) the identification of uniform research methodologies which will insure the maximum use of the System for research purposes; (4) the establishment of performance standards upon which the effectiveness of the research efforts and the value of reserves in addressing the coastal management issues may be measured; and (5) the consideration of additional sources of funds for estuarine research. 16 U.S.C. § 1461(c). The

Secretary shall take such action as is necessary to promote and coordinate the use of the System for research purposes including requiring that NOAA, in conducting or supporting estuarine research, give priority consideration to research that uses the System. 16 U.S.C. § 1461(d).

Coastal Resources Research

The Secretary of Commerce was directed to provide for the establishment of a National Coastal Resources Research and Development Institute to be administered by the Oregon State Marine Science Center. The Institute was to conduct research and carry out educational and demonstration projects designed to promote the efficient and responsible development of ocean and coastal resources, including arctic resources. Such projects were to be based on biological, geological, genetic, economic and other scientific research applicable to the purposes of this section and shall include studies on the economic diversification and environmental protection of the Nation's coastal areas. The Institute was to establish an advisory council to provide advice, including recommendations regarding the support of research, projects and studies. 16 U.S.C. § 1463b.

There is no indication that this Institute is still functioning. Though the statute places no express limitation on the life of the Institute, the fact that it was to report to the Secretary of Commerce within two years of July 1984, together with the fact that all advisory councils established after January 5, 1973 were scheduled by separate statute to terminate after the expiration of two years (Pub. L. 92-463), suggests that the Institute may have had a limited duration. However, NOAA is authorized by separate statute to enter cooperative agreements to promote scientific activities. See “Agreements to Aid and Promote Scientific and Educational Activities” above. Pursuant to that authority, NOAA continues the federal/academic marine research partnership it has with Oregon State University and will continue to fund and participate in the Cooperative Institute for Marine Resources Studies at least until 2016 and perhaps for up to five years beyond 2016. This effort brings NOAA and Oregon State researchers together to perform research on marine ecosystems and habitat, on restoration of marine resources, and on seafloor processes.

Harmful Algal Bloom and Hypoxia Research and Control Act of 1998, 16 U.S.C. § 1451 note, §§ 601-606, as amended by the Harmful Algal Bloom and Hypoxia Research and Control Amendments Act of 2004 (Pub. L. 108-456) and the Harmful Algal Bloom and Hypoxia Research and Control Amendments Act of 2014 (Pub. L. 113-124)

Scientific Assessments

Not less than once every five years an Inter-Agency Task Force on Harmful Algal Blooms and Hypoxia, which was established under this Act and is chaired by the Secretary of Commerce, shall complete and submit to Congress a scientific assessment of harmful algal blooms in United States coastal waters. The first such assessment was due to be submitted by December 10, 2006 and was to consider only marine harmful algal blooms. All subsequent assessments shall examine both marine and freshwater harmful algal blooms, including those in the Great Lakes and the upper reaches of estuaries. The assessments under this subsection shall (a) examine the causes and ecological consequences, and economic costs, of harmful algal blooms; (b) describe the potential ecological and economic costs and benefits of possible actions for preventing,

controlling, and mitigating harmful algal blooms; (c) evaluate progress made by, and the needs of, Federal research programs on the causes, characteristics, and impacts of harmful algal blooms; and (d) identify ways to improve coordination and to prevent unnecessary duplication of effort among Federal agencies and departments with respect to research on harmful algal blooms. Pub. L. 108-456, section 603(h).

Not less than once every five years the Inter-Agency Task Force shall complete and submit to Congress a scientific assessment of hypoxia in U.S. coastal waters and in the Great Lakes following the same guidelines which the statute applies to assessments of harmful algal blooms. The first such assessment was due to be submitted by December 10, 2006. Pub. L. 108-456, section 603(g).

National Research Program.

The Task Force shall also develop and submit to Congress a plan providing for a comprehensive and coordinated national research program to develop and demonstrate prevention, control, and mitigation methods to reduce the impacts of harmful algal blooms on coastal ecosystems (including the Great Lakes), public health, and the economy. The plan shall (a) establish priorities and guidelines for a competitive, peer reviewed, merit based interagency research, development, demonstration, and technology transfer program on methods for the prevention, control, and mitigation of harmful algal blooms; (b) identify ways to improve coordination among Federal agencies and departments; and (c) include to the maximum extent practicable diverse institutions and underrepresented populations. The Secretary of Commerce shall establish a research, development, demonstration, and technology transfer program and shall ensure, through consultation with Sea Grant Programs, that the results and findings of the program are communicated to State, Indian tribe, and local governments, and to the general public. Pub. L. 108-456, section 603(i).

The Harmful Algal Bloom and Hypoxia Research and Control Amendments Act of 2014, which became law on June 30, 2014, requires the NOAA Administrator, acting through the Task Force, to: (1) maintain, enhance, and periodically review a national harmful algal bloom and hypoxia program; and (2) develop and submit to Congress a comprehensive research plan and action strategy to address marine and freshwater harmful algal blooms and hypoxia. Pub. L. 113-124, sections 603A and 603B. It expands the functions of the Task Force to include (1) expediting and coordinating the interagency review process by ensuring timely review and dispersal of required reports and assessments; and (2) promoting the development of new technologies for predicting, monitoring, and mitigating harmful algal bloom and hypoxia conditions. Pub. L. 113-124, section 603A(c). It also prescribes additional duties for the NOAA Administrator, including coordinating with and working with regional, state, and tribal and local government agencies; coordinating with the Secretary of State to support international efforts; and identifying additional research, development, and demonstration needs. Pub. L. 113-124, section 603A(d).

Endangered Species Act, 16 U.S.C. §§ 1531-1544

The Secretary of Commerce may permit, under such terms and conditions as he or she shall prescribe any act otherwise prohibited by section 9 of the Act for scientific purposes or to

enhance the propagation or survival of an affected species, including, but not limited to, acts necessary for the establishment and maintenance of experimental populations. 16 U.S.C. § 1539(a)(1)(A). The Secretary may authorize the release (and the related transportation) of any population (including eggs, propagules, or individuals) of an endangered species or a threatened species outside the current range of such species if the Secretary determines that such release will further the conservation of such species. Before authorizing the release of any population, the Secretary shall by regulation identify the population and determine, on the basis of the best available information, whether or not such population is essential to the continued existence of an endangered species or a threatened species. 16 U.S.C. § 1539(j).

Magnuson-Stevens Fishery Conservation and Management Act, as amended, 16 U.S.C. §§ 1801–1891d

Pacific Insular Areas

The Secretary of State, with the concurrence of the Secretary of Commerce and in consultation with any appropriate Council, may negotiate and enter into a Pacific Insular Area fishery agreement to authorize foreign fishing within the exclusive economic zone adjacent to a Pacific Insular Area. Prior to entering into a Pacific Insular Area fishery agreement, the Western Pacific Council and the appropriate Governor shall develop a 3-year marine conservation plan. Such plan shall be consistent with any applicable fishery management plan, identify conservation and management objectives (including criteria for determining when such objectives have been met), and prioritize planned marine conservation projects. Conservation and management objectives shall include (i) Pacific Insular Area observer programs, or other monitoring programs; (ii) conduct of marine and fisheries research, including development of systems for information collection, analysis, evaluation, and reporting; (iii) conservation, education, and enforcement activities related to marine and coastal management, such as living marine resource assessments, habitat monitoring and coastal studies; and (iv) grants to the University of Hawaii for technical assistance projects by the Pacific Island Network, such as education and training in the development and implementation of sustainable marine resources development projects, scientific research, and conservation strategies. 16 U.S.C § 1824(e)(4).

Bycatch of Protected Living Marine Resources

To the greatest extent possible, the Secretary of Commerce shall provide appropriate assistance to nations whose fishing vessels are engaged or have been engaged during the preceding year in fishing activities or practices: (i) in waters beyond any national jurisdiction that result in bycatch of a protected living marine resource or that target or incidentally take sharks; or activities (ii) beyond the exclusive economic zone of the United States that result in bycatch of a protected living marine resource shared by the United States. The Secretary shall undertake, where appropriate, cooperative research activities on species statistics and improved harvesting techniques with those nations or organizations; encourage and facilitate the transfer of appropriate technology; and provide assistance to those nations or organizations in designing and implementing appropriate fish harvesting plans. 16 U.S.C. § 1826k(d).

Regional Fishery Management Councils

Each of the Nation's eight Regional Fishery Management Councils shall establish, maintain, and appoint the members of a scientific and statistical committee to assist it in the development,

collection, evaluation, and peer review of such statistical, biological, economic, social, and other scientific information as is relevant to such Council's development and amendment of any fishery management plan. Each Council shall develop, in conjunction with the scientific and statistical committee, multi-year research priorities for fisheries, fisheries interactions, habitats, and other areas of research that are necessary for management purposes, that shall (a) establish priorities for 5-year periods; (b) be updated as necessary; and (c) be submitted to the Secretary and the regional science centers of the National Marine Fisheries Service for their consideration in developing research priorities and budgets for the region of the Council. 16 U.S.C § 1852(g)(1), (h)(7)

Cooperative Research and Management Program

The Secretary of Commerce, in consultation with the Councils, shall establish a cooperative research and management program to address critical needs identified by the Regional Fishery Management Councils in consultation with the Secretary of Commerce. Priority shall be given to (a) projects to collect data to improve, supplement, or enhance stock assessments; (b) projects to assess the amount and type of bycatch or post-release mortality occurring in a fishery; (c) conservation engineering projects designed to reduce bycatch; (d) projects for the identification of habitat areas of particular concern; and (e) projects designed to collect and compile economic and social data. The program shall be implemented on a regional basis and shall be developed and conducted through partnerships among federal, state, and tribal managers and scientists (including interstate fishery commissions), fishing industry participants (including use of commercial charter or recreational vessels for gathering data), and educational institutions. 16 U.S.C. § 1867(a), (c).

Information Collection Programs

If a Council determines that additional information would be beneficial for developing, implementing, or revising a fishery management plan or for determining whether a fishery is in need of management, the Council may request that the Secretary implement an information collection program for the fishery which would provide the types of information specified by the Council. The Secretary shall undertake such an information collection program if he or she determines that the need is justified, and shall promulgate regulations to implement the program within 60 days after such determination is made. If the Secretary determines that additional information is necessary for developing, implementing, revising, or monitoring a fishery management plan, or for determining whether a fishery is in need of management, the Secretary may, by regulation, implement an information collection or observer program requiring submission of such additional information for the fishery. 16 U.S.C. § 1881a(a).

Resource Assessments

The Secretary may use the private sector to provide vessels, equipment, and services necessary to survey the fishery resources of the United States when the arrangement will yield statistically reliable results. The Secretary shall undertake efforts to expand annual fishery resource assessments in all regions of the Nation. 16 U.S.C. § 1881a(e).

Fisheries Research

The Secretary shall initiate and maintain, in cooperation with the Councils, a comprehensive program of fishery research to carry out and further the purposes, policy, and provisions of this

Act. Such program shall be designed to acquire knowledge and information, including statistics, on fishery conservation and management and on the economics and social characteristics of the fisheries. Areas of research shall include: (1) research to support fishery conservation and management, including but not limited to, biological research concerning the abundance and life history parameters of stocks of fish, the interdependence of fisheries or stocks of fish, the identification of essential fish habitat, the impact of pollution on fish populations, the impact of wetland and estuarine degradation, and other factors affecting the abundance and availability of fish; (2) conservation engineering research, including the study of fish behavior and the development and testing of new gear technology and fishing techniques to minimize bycatch and any adverse effects on essential fish habitat and to promote efficient harvest of target species; (3) research on the fisheries, including the social, cultural, and economic relationships among fishing vessel owners, crew, U.S. fish processors, associated shore-side labor, seafood markets and fishing communities; and (4) information management research, including the development of a fishery information base and an information management system that will permit the full use of information in support of effective fishery conservation and management. 16 U.S.C. § 1881c (a), (c).

Deep Sea Coral Research and Technology Program

The Secretary of Commerce, in consultation with appropriate regional fishery management councils and in coordination with other federal agencies and educational institutions, shall establish a program (1) to identify existing research on, and known locations of, deep sea corals and to submit such information to the appropriate Councils; (2) to locate and map locations of deep sea corals and submit such information to the Councils; (3) to monitor activity in locations where deep sea corals are known or likely to occur, and to submit such information to the appropriate Councils; (4) to conduct research, including cooperative research with fishing industry participants, on deep sea corals and related species, and on survey methods; (5) to develop technologies or methods designed to assist fishing industry participants in reducing interactions between fishing gear and deep sea corals; and (6) to prioritize program activities in areas where deep sea corals are known to occur, and in areas where scientific modeling or other methods predict deep sea corals are likely to be present. Beginning 1 year after January 12, 2007, the Secretary, in consultation with the Councils, shall submit biennial reports to Congress and the public on steps taken by the Secretary to identify, monitor, and protect deep sea coral areas, including summaries of the results of mapping, research, and data collection performed under the program. 16 U.S.C. § 1884.

Fisheries Conservation and Management Fund

The Secretary of Commerce shall establish and maintain a fund, to be known as the "Fisheries Conservation and Management Fund." Amounts in the Fund shall be available to the Secretary, without appropriation or fiscal year limitation, to disburse, among other things, for (a) cooperative fishery research and analysis, in collaboration with fishery participants, academic institutions, community residents, and other interested parties; (b) the development of methods or new technologies to improve the quality, health safety, and value of fish landed; and (c) for conducting analyses of fish and seafood for health benefits and risks, including levels of contaminants and, where feasible, the source of such contaminants. 16 U.S.C. § 1891b(a), (b).

Shark Finning Prohibition Act, 16 U.S.C. §§ 1822 note, 1857(1)(P), Pub. L. 106-557, §§ 1-10, as amended

The purpose of this Act is to eliminate shark finning by addressing the problem comprehensively at both the national and international levels. The Secretary of Commerce shall establish a research program that, among other things, collects data to support stock assessments, identifies fishing gear and practices that minimizes incidental take, identifies methods for releasing sharks from fishing gear, and conducts research on the nature and extent of the harvest of sharks and shark fins by foreign fleets and the international trade in shark fins and other shark products. Pub. L. 106-557, § 7(6). The National Marine Fisheries Service, in consultation with the Western Pacific Fisheries Management Council, shall initiate a cooperative research program with the commercial longline industry to carry out activities consistent with this Act. The Service may initiate such shark cooperative research programs upon the request of any other fishery management council. Pub. L. 106-557, § 8.

Antarctic Marine Living Resources Convention Act of 1986, 16 U.S.C. §§ 2431-2444

Basic Research Under the United States Antarctic Program

The Convention on the Conservation of Antarctic Marine Living Resources establishes international mechanisms and creates legal obligations necessary for the protection and conservation of Antarctic marine living resources. The Convention incorporates an innovative ecosystem approach to the management of Antarctic marine living resources, including standards designed to ensure the health of the individual populations and species and to maintain the health of the Antarctic marine ecosystem as a whole. United States basic and directed research programs concerning the marine living resources of the Antarctic are essential to achieve the United States goal of effective implementation of the objectives of the Convention. 16 U.S.C. § 2431. The Director of the National Science Foundation, in consultation with the Secretary of State and the heads of other appropriate departments and agencies of the United States, including the Secretary of Commerce, shall continue to support basic research investigations of the Antarctic marine ecosystem as a part of the United States Antarctic Program. 16 U.S.C. § 2441(a)(1)(A).

National Aquaculture Act of 1980, 16 U.S.C. §§ 2801-2810

Research on Effects of Aquaculture

The Secretaries of Agriculture, Commerce and the Interior are directed to establish a National Aquaculture Development Plan. The Plan shall, among other things, (a) identify aquatic species that the Secretaries determine to have significant potential for culturing on a commercial or other basis; (b) recommend actions to be taken by the public and private sectors (which may include, but are not limited to, research and development, technical assistance, demonstration, extension education, and training activities) that are necessary to achieve such potential; (c) address, life history, genetics, physiology, pathology, and disease control (including research regarding organisms that may not be harmful to fish and shellfish, but are injurious to humans); (d) include, where appropriate, research programs on the effect of aquaculture on estuarine and other water areas and on the management of such areas for aquaculture; and (e) include such other

research and development, technical assistance, demonstration, extension education, and training programs as the Secretary of Agriculture deems necessary or appropriate to carry out this Act. 16 U.S.C. § 2803.

Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, as amended by the National Invasive Species Act of 1996, 16 U.S.C. §§ 4701-4751

Among the purposes of this Act are to coordinate federally conducted, funded or authorized research, prevention control, information dissemination and other activities regarding the zebra mussel and other aquatic nuisance species, and to establish a program of research and technology development and assistance to states in the management and removal of zebra mussels. 16 U.S.C. § 4701(b)(2), (5).

The statute established an interagency Aquatic Nuisance Species Task Force, of which the NOAA Administrator is one co-chair. The Task Force is called upon to develop a program to prevent the introduction and spread of aquatic nuisance species and to monitor and control such species. 16 U.S.C. §§ 4721, 4722(a). The Task Force is directed to conduct research concerning (a) the environmental and economic risks and impacts associated with the introduction of aquatic nuisance species into the waters of the United States; (b) the principal pathways by which aquatic nuisance species are introduced and dispersed; (c) possible methods for the prevention, monitoring and control of aquatic nuisance species; and (d) the assessment of the effectiveness of prevention, monitoring and control methods. The Task Force is directed to allocate funds for competitive research grants to be administered through the National Sea Grant College Program and the Cooperative Fishery and Wildlife Research Units. 16 U.S.C. § 4722(f)(1), (3).

The Task Force shall also undertake a program of prevention, monitoring, control, education and research for the zebra mussel to be implemented in the Great Lakes and any other waters of the United States infested or likely to become infested by the zebra mussel. The is to include (i) research and development concerning the species life history, environmental tolerances and impacts on fisheries and other ecosystem components, as well as the efficacy of control mechanisms and means of avoiding or minimizing impacts; (ii) tracking the dispersal of the species and establishment of an early warning system to alert likely areas of future infestations; (iii) development of control plans in coordination with regional, state and local entities; and (iv) provision of technical assistance to regional, state and local entities to carry out this section. 16 U.S.C. § 4722(i)(1)(a).

North Pacific Anadromous Stocks Act of 1992, 16 U.S.C. §§ 5001-5012

North Pacific Anadromous Stocks. In carrying out the provisions of the Convention on the Conservation of Anadromous Stocks of the North Pacific Ocean and the provisions of this Act, the Secretary of Commerce may arrange for cooperation with agencies of the United States, the states, private institutions and organizations, and agencies of the government of any Party to the Convention, to conduct scientific and other programs, and may execute such memoranda as may be necessary to reflect such agreements. 16 U.S.C. § 5007(b) The United States Section to the North Pacific Anadromous Fish Commission, in consultation with an Advisory Panel established

under the Act, shall identify and recommend to the Commission research needs and priorities for anadromous stocks and ecologically related species subject to the Convention, and oversee the United States research programs involving such fisheries, stocks, and species. 16 U.S.C. § 5003(c).

There are authorized to be appropriated from time to time such sums as may be necessary for carrying out the purposes and provisions of the Convention and of this Act. Funds that shall be made available to the Secretary of Commerce for research and related activities shall be expended to carry out the program of the Commission in accordance with the recommendations of the United States Section and to carry out other research and observer programs pursuant to the Convention. 16 U.S.C. § 5011.

Atlantic Coastal Fisheries Cooperative Management Act, 16 U.S.C. §§ 5101-5108

The Secretary of Commerce in cooperation with the Secretary of the Interior shall develop and implement a program to support the interstate fishery management efforts of the Atlantic States Marine Fisheries Commission. The program shall include activities to support and enhance state cooperation in collection, management, and analysis of fishery data; law enforcement; habitat conservation; fishery research, including biological and socioeconomic research; and fishery management planning. 16 U.S.C. § 5103(a).

Atlantic Striped Bass Conservation Act, 16 U.S.C. §§ 5151-5158

To support and encourage the development, implementation, and enforcement of effective interstate action regarding the conservation and management of the Atlantic striped bass, the Secretary of Commerce, in consultation with the Secretary of the Interior, shall conduct continuing, comprehensive studies of Atlantic striped bass stocks. These studies shall include (1) annual stock assessments, (2) investigations of the causes of fluctuations in Atlantic striped bass populations; (3) investigations of the effects of water quality, land use, and other environmental factors; (4) investigations of the interactions between Atlantic striped bass and other fish, and the effects of interspecies predation and competition. The Secretaries, in consultation with the Atlantic States Marine Fisheries Commission, shall conduct a study of the socio-economic benefits of the Atlantic striped bass resource. 16 U.S.C. § 5155(a), (b).

Coral Reef Conservation Act of 2000, 16 U.S.C. §§ 6401-6409

One of the purposes of this Act is to develop sound scientific information on the condition of coral reef ecosystems and the threats to such ecosystems. 16 U.S.C. § 6401. The NOAA Administrator is directed to develop, and periodically review and revise, a National Coral Reef Action Strategy which shall discuss, among other things, research, monitoring and assessment activities, as well as international and regional issues, for the purpose of advancing coral reef conservation. 16 U.S.C. § 6402. The Secretary of Commerce, through the NOAA Administrator, shall provide grants of financial assistance for projects for the conservation of coral reefs and for proposals approved by the Administrator. Proposals must be consistent with

the Action Strategy and must enhance conservation of coral reefs by, among other things, developing sound scientific information on the condition of coral reef ecosystems or the threats to such ecosystems, including factors that cause coral disease. 16 U.S.C. § 6403(a), (g). The Secretary may conduct activities to conserve coral reefs and coral reef ecosystems. Authorized activities include mapping, monitoring, assessment, restoration, and scientific research that benefit the understanding, sustainable use, and long-term conservation of coral reefs and coral reef ecosystems. 16 U.S.C. § 6406.

Western and Central Pacific Fisheries Convention Implementation Act, 16 U.S.C. §§ 6901-6910

All federal agencies are authorized, upon the request of the Secretary of Commerce, to cooperate in the conduct of scientific and other programs and to furnish facilities and personnel for the purpose of assisting the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean in carrying out its duties under the Convention on the Conservation and Management of the Highly Migratory Fish Stocks in the Western and Central Pacific Ocean. 16 U.S.C § 6907(b).

Deep Seabed Hard Mineral Resources Act, 30 U.S.C. §§ 1401-1473

The NOAA Administrator shall conduct a continuing program of ocean research to support environmental assessment activity through the period of exploration and commercial recovery authorized by this Act. The program shall include the development, acceleration, and expansion, as appropriate, of studies of the ecological, geological, and physical aspects of the deep seabed in general areas of the ocean where exploration and commercial development under the authority of this Act are likely to occur, including, but not limited to (a) natural diversity of the deep seabed biota; (b) life histories of major benthic, midwater, and surface organisms most likely to be affected by commercial recovery activities; (c) long- and short-term effects of commercial recovery on the deep seabed biota; and (d) assessment of the effects of seabased processing activities. 30 U.S.C. § 1419(a)(2).

NOAA issued a Final Programmatic Impact Statement in 1981, a Marine Environmental Research Plan in 1982, and reported biennially to Congress from 1981 through 1995. However, no funds were appropriated under the Act for fiscal year 1995. In submitting its 1995 report, NOAA indicated that, “[b]ecause of the low level of industrial and NOAA activity under the Act, NOAA would defer submission of further reports until such time as the level of activity increases.” See http://www.gc.noaa.gov/documents/gcil_dsm_1995_report.pdf. Reporting has not been resumed.

National Sea Grant College Program Act Amendments of 2002, 33 U.S.C. § 857-20

Not later than February 15 of each year, the NOAA Administrator and the Director of the National Science Foundation shall jointly submit to the Committees on Resources and Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of

the Senate a report on how the oceans and coastal research activities of NOAA (including the Coastal Ocean Program and the National Sea Grant College Program) and of the National Science Foundation will be coordinated during the fiscal year following the fiscal year in which the report is submitted. The report shall describe in detail any overlapping ocean and coastal research interests between the agencies and specify how such research interests will be pursued by the programs in a complementary manner.

The Coast and Geodetic Survey Act, 33 U.S.C. §§ 883a-883l

Geophysical Sciences: Investigations and Research

To improve the efficiency of the National Ocean Survey and to increase engineering and scientific knowledge, the Secretary of Commerce is authorized to conduct developmental work for the improvement of surveying and cartographic methods, instruments, and equipment; and to conduct investigations and research in geophysical sciences (including geodesy, oceanography, seismology, and geomagnetism). 33 U.S.C. § 883d

Ocean Satellite Data

The NOAA Administrator shall take such actions, including the sponsorship of applied research, as may be necessary to assure the future availability and usefulness of ocean satellite data to the maritime community. 33 U.S.C. § 883j

Ocean and Atmospheric Research and Development, 33 U.S.C. §§ 893-893c (The America COMPETES Reauthorization Act of 2010)

The NOAA Administrator, in consultation with the Director of the National Science Foundation and the Administrator of the NASA, shall establish a coordinated program of ocean, coastal, Great Lakes, and atmospheric research and development, in collaboration with academic institutions and other nongovernmental entities, that shall focus on the development of advanced technologies and analytical methods that will promote United States leadership in ocean and atmospheric science and competitiveness in the applied uses of such knowledge. 33 U.S.C. § 893(a).

NOAA Oceanic and Atmospheric Research and Development

The NOAA Administrator shall implement programs and activities to identify emerging and innovative research and development priorities to enhance United States competitiveness and to support development of new economic opportunities based on NOAA research, observations, monitoring, modeling, and predictions that sustain ecosystem services. NOAA shall implement programs and activities to promote United States leadership in oceanic and atmospheric science and competitiveness in the applied uses of such knowledge, as well as programs and activities to advance ocean, coastal, Great Lakes, and atmospheric research and development, including potentially transformational research, consistent with NOAA's mission to understand, observe, and model the Earth's atmosphere and biosphere, including the oceans, in an integrated manner. 33 U.S.C. § 893(b).

NOAA Educational Program Goals

The NOAA Administrator shall conduct, develop, support, promote, and coordinate formal and informal educational activities at all levels to enhance public awareness and understanding of ocean, coastal, Great Lakes, and atmospheric science and stewardship by the general public and coastal stakeholders including, in particular, underrepresented groups in ocean and atmospheric science and policy careers. In conducting those activities, the Administrator shall build upon the educational programs and activities of the agency, with consideration given to the goal of promoting the participation of individuals from underrepresented groups in science, technology, engineering and mathematics (STEM) fields and in promoting the acquisition and retention of highly qualified and motivated young scientists to complement and supplement workforce needs. 33 U.S.C. § 893a(a). The education programs developed by NOAA shall, to the extent applicable, carry out and support research-based programs and activities designed to increase student interest and participation in STEM 33 U.S.C. § 893a(b)

NOAA's Contribution to Innovation

NOAA shall be a full participant in any interagency effort to promote innovation and economic competitiveness through near-term and long-term basic scientific research and development and the promotion of science, technology, engineering, and mathematics education, consistent with the agency mission, including authorized activities. 33 U.S.C. § 893b(a).

National Sea Grant College Program Act, 33 U.S.C. §§ 1121-1131

The objective of this Act is to increase the understanding, assessment, development, management, utilization, and conservation of the Nation's ocean, coastal, and Great Lakes resources by providing assistance to promote a strong educational base, responsive research and training activities, broad and prompt dissemination of knowledge and techniques, and multidisciplinary approaches to environmental problems. 33 U.S.C. § 1121(b). NOAA, through the national sea grant college program, offers the most suitable locus and means for such commitment and engagement. Thus, the Secretary of Commerce shall maintain within NOAA a program to be known as the National Sea Grant College Program. 33 U.S.C. § 1123(a).

Designation of Institutions

The Secretary may designate an institution, or an association or alliance of two or more institutions, as a sea grant college if the institution has an existing broad base of competence in fields related to ocean, coastal, and Great Lakes resources and is recognized for excellence in such fields (including excellence in marine resources management and science). 33 U.S.C. § 1126(a).

Duties of the Director

The Secretary of Commerce shall appoint a Director of the National Sea Grant College Program who will oversee the operation of the national sea grant office, assess the performance of the programs of sea grant colleges and, among other things, determine which of the programs carry out the highest quality research, education, extension, and training activities. The Director shall allocate funding so as to encourage and promote coordination and cooperation between the research, education, and outreach programs of NOAA and those of academic institutions; and to encourage cooperation with Minority Serving Institutions to enhance collaborative research

opportunities and increase the number of such students graduating in NOAA science areas 33 U.S.C § 1123(d). The Act also establishes the National Sea Grant Advisory Board which shall advise the Secretary and the Director concerning strategies for utilizing the sea grant college program to address the Nation's highest priorities related to the understanding, assessment, development, management, utilization, and conservation of ocean, coastal, and Great Lakes resources. 33 U.S.C. § 1128(a), (b).

Federal Water Pollution Control Act, 33 U.S.C. §§ 1251-1387

Great Lakes Research

The statute established within NOAA a Great Lakes Research Office which shall identify issues relating to the Great Lakes resources on which research is needed. The Research Office shall submit a report to Congress on such issues before the end of each fiscal year which shall identify any changes in the Great Lakes system with respect to such issues. The Research Office shall develop a comprehensive environmental research program and data base for the Great Lakes system. The data base shall include, but not be limited to, data relating to water quality, fisheries, and biota. The Research Office shall conduct, through the Great Lakes Environmental Research Laboratory, the National Sea Grant College Program, other federal laboratories, and the private sector, appropriate research and monitoring activities which address priority issues and current needs relating to the Great Lakes. 33 U.S.C. § 1268d.

Before October 1 of each year, the Program Office and the Research Office shall prepare a joint research plan for the fiscal year which begins in the following calendar year. Each plan shall (a) identify all proposed research dedicated to activities conducted under the Great Lakes Water Quality Agreement of 1978, as amended by the Water Quality Agreement of 1987 and any other agreements and amendments; (b) include an assessment of priorities for research needed to fulfill the terms of such agreement; and (c) identify all proposed research that may be used to develop a comprehensive environmental data base for the Great Lakes System and establish priorities for development of such data base. 33 U.S.C. § 1268(e).

The Great Lakes Research Office was identified in 16 U.S.C, § 1447b (*see* “Regional Marine Research Programs” above) as the Great Lakes counterpart of the Regional Marine Research Boards which were terminated in 1999. Today, the locus of NOAA’s Great Lakes research efforts, strategies, and partnerships is the Great Lakes Environmental Research Laboratory (GLERL). The 2012 Strategic Plan for the GLERL is available for review at http://www.glerl.noaa.gov/about/history/strategic_plan.pdf.

National Estuary Program

The Governor of any state may nominate an estuary lying in whole or in part within the state as an estuary of national significance and request a management conference to develop a comprehensive management plan for the estuary. The purposes of any management conference shall be, among other things, to assess trends in water quality, natural resources, and uses of the estuary; to collect, characterize, and assess data on toxics, nutrients, and natural resources within the estuarine zone to identify the causes of environmental problems; and to develop a comprehensive conservation and management plan that recommends priority corrective actions and compliance schedules addressing point and nonpoint sources of pollution to restore and

maintain the chemical, physical, and biological integrity of the estuary. In order to determine the need to convene a management conference, the Administrator of EPA shall coordinate and implement, through the National Marine Pollution Program Office and NOAA's National Marine Fisheries Service, a program of research to identify the movements of nutrients, sediments and pollutants through estuarine zones and the impact of nutrients, sediments, and pollutants on water quality, the ecosystem, and designated or potential uses of the estuarine zones. 33 U.S.C. § 1330(a)(1), (j).

Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States Act of 2012, 33 U.S.C. § 1321 note, Pub. L. 112-141, §§ 1601-1608

This statute directs the NOAA Administrator, in consultation with the Director of the Fish and Wildlife Service, to establish the Gulf Coast Ecosystem Restoration Science, Observation, Monitoring, and Technology Program to carry out research, observation, and monitoring to support, to the maximum extent practicable, the long-term sustainability of the ecosystem, fish stocks, fish habitat, and the recreational, commercial, and charter fishing industry in the Gulf of Mexico. Amounts made available to carry out this subsection may be expended for, (a) marine and estuarine research; (b) marine and estuarine ecosystem monitoring and ocean observation; (c) data collection and stock assessments; and (d) cooperative research with respect to the Gulf of Mexico. The research, monitoring, assessment, and programs shall include all marine, estuarine, aquaculture, and fish species in state and federal waters of the Gulf of Mexico. Pub. L. 112-141, Section 1604(b).

Marine Protection, Research, and Sanctuaries Act of 1972, 33 U.S.C. §§ 1401-1445

Ocean Dumping Research Programs

Title II, 33 U.S.C. §§ 1441-1444, directs the Secretary of Commerce to undertake a comprehensive, long-term research program on the effects of ocean dumping, as well as a comprehensive, continuing program of research on the possible long-range effects of pollution, overfishing, and man-induced changes in ocean ecosystems. These responsibilities shall include the scientific assessment of damages to the natural resources from spills of petroleum or petroleum products. 33 U.S.C. §§ 1441-43. In carrying out such research, the Secretary of Commerce shall take into account existing and proposed international policies affecting ocean problems. 33 U.S.C. § 1442(a). In addition, the Secretary of Commerce, under the foreign policy guidance of the President and pursuant to international agreements and treaties, may act in conjunction with any other nation or group of nations, and shall make known the results of his activities by such channels of communication as may appear appropriate. 33 U.S.C. § 1442(b). See also http://www.gc.noaa.gov/gcil_mp_ocean_dumping.html.

Marine Debris Act, 33 U.S.C. §§ 1951-1958

This Act establishes a Marine Debris Program within NOAA to identify, determine sources of marine debris, to assess, prevent, reduce, and remove marine debris and to address the adverse

impacts of marine debris on the economy of the United States, the marine environment, and navigation safety. The NOAA Administrator, acting through the Program, shall, among other things, undertake efforts to reduce the adverse impacts of lost and discarded fishing gear on living marine resources and navigation safety, including research on and development of alternatives to gear posing threats to the marine environment and methods for marking gear used in certain fisheries to enhance the tracking, recovery, and identification of lost and discarded gear. 33 U.S.C. § 1952(a), (b). The Act also establishes an Interagency Marine Debris Coordinating Committee to coordinate a comprehensive program of marine debris research and activities among federal agencies, in cooperation and coordination with non-governmental organizations, industry, universities, and research institutions, states, Indian tribes, and other nations. The Secretary of Commerce, acting through the NOAA Administrator, in cooperation with the Administrator of the EPA, shall utilize the marine debris data derived under title V of the Marine Protection, Research, and Sanctuaries Act of 1972 (33 U.S.C. 2801 *et seq.*) to assist the Committee in ensuring coordination of research, monitoring, education and regulatory actions. 33 U.S.C. § 1954(a), 9d).

Oil Pollution Act of 1990, 33 U.S.C. §§ 2701-2762

The Oil Spill Recovery Institute.

The Oil Pollution Act (OPA) of 1990 establishes a broad framework for preventing, responding to, and paying for discharges and threatened discharges of oil from ships and facilities. The Secretary of Commerce shall provide for the establishment of an Oil Spill Recovery Institute (originally called the Prince William Sound Oil Spill Recovery Institute), which is to be administered by the Prince William Sound Science Center in Cordova, Alaska.. The Institute shall conduct research and carry out educational and demonstration projects designed to identify and develop the best available techniques, equipment, and materials for dealing with oil spills in the Arctic and Subarctic marine environment; and shall complement federal and state damage assessment efforts and determine, document, assess, and understand the long-range effects of Arctic or Subarctic oil spills on the natural resources of Prince William Sound and its adjacent waters. 33 U.S.C. § 2731(a), (b). The Institute was originally scheduled to terminate in 2012. A 2005 amendment to the Act extended the programs of the Institute until one year after the date on which the Secretary, in consultation with the Secretary of the Interior, determines that oil and gas exploration, development, and production in the State of Alaska have ceased. 33 U.S.C. § 2731(i). The Institute's Research Plan for 2011-2015 may be viewed at <http://www.pws-osri.org/wp-content/uploads/2013/08/Science-Plan.pdf>.

North Pacific Marine Research Institute.

The Secretary of Commerce shall also establish a North Pacific Marine Research Institute to conduct research and carry out education and demonstration projects relating to the North Pacific marine ecosystem, with particular emphasis on marine mammal, sea bird, fish, and shellfish populations in the Bering Sea and Gulf of Alaska. 33 U.S.C. § 2738(a).

Interagency Coordinating Committee and Program.

Section 7001 of the OPA establishes an Interagency Coordinating Committee on Oil Pollution Research in order to coordinate a “comprehensive program of oil pollution research, technology development, and demonstration” together with implementation and guidance plans that are

based on the findings of that comprehensive research. The Committee is to include representatives from the Department of Commerce and NOAA. 33 U.S.C. § 2761(a), (b).

The program shall provide for research, development, and demonstration of new or improved technologies which are effective in preventing or mitigating oil discharges and which protect the environment, including (a) research, development, and demonstration of new or improved systems of mechanical, chemical, biological, and other methods for the recovery, removal, and disposal of oil; (b) research to improve information systems for decision-making, including the use of data from coastal mapping, baseline data, and other data related to the environmental effects of oil discharges, and cleanup technologies; (c) research and development of methods to restore and rehabilitate natural resources damaged by oil discharges; and (d) research to evaluate the relative effectiveness and environmental impacts of bioremediation technologies. 33 U.S.C. § 2761(c)(2). The Committee shall also establish a research program to monitor and evaluate the environmental effects of oil discharges, 33 U.S.C. § 2761(c)(4), and shall coordinate a program of competitive grants to universities or other research institutions, or groups of universities or research institutions, for the purpose of conducting a coordinated research program related to the regional aspects of oil pollution, such as prevention, removal, mitigation, and the effects of discharged oil on regional environments. 33 U.S.C. § 2761(c)(4).

The Interagency Committee is directed to coordinate and cooperate with other nations and foreign research entities in conducting oil pollution research, development, and demonstration activities, including controlled field tests of oil discharges. 33 U.S.C. § 2761(d). The statute specifically provides that, in carrying out the comprehensive research program, coordination and cooperation with other nations is authorized. 33 U.S.C. § 2761(a)(2).

Oceans and Human Health Act, 33 U.S.C. §§ 3101-3104

As part of an interagency oceans and human health research program, the Secretary of Commerce is authorized to establish an Oceans and Human Health Initiative to coordinate and implement the research and activities of NOAA related to the role of the oceans, the coasts, and the Great Lakes in human health. In carrying out this activity, the Secretary shall consult with other federal agencies conducting integrated oceans and human health research and research in related areas, including the National Science Foundation. This Oceans and Human Health Initiative is authorized to provide support for (1) a centralized program and for research coordination; (2) an advisory panel; (3) one or more NOAA national centers of excellence; (4) research grants; and (5) distinguished scholars and traineeships. 33 U.S.C. § 3102(a).

The NOAA Centers of Excellence.

The Secretary is authorized to identify and provide financial support to develop, within NOAA, one or more centers of excellence that strengthen the capabilities of NOAA to carry out its programs and activities related to the oceans' role in human health. The centers shall focus on areas related to agency missions, including use of marine organisms as indicators for marine environmental health; also including ocean pollutants, marine toxins and pathogens, harmful algal blooms, hypoxia, seafood testing, identification of potential marine products, and biology and pathobiology of marine mammals, as well as focusing on disciplines such as marine

genomics, marine environmental microbiology, ecological chemistry and conservation medicine. 33 U.S.C. § 3102(c).

The Secretary is authorized to provide grants of financial assistance to the scientific community for critical research and projects that explore the relationship between the oceans and human health and that complement or strengthen the programs and activities of NOAA related to the oceans' role in human health. Officers and employees of federal agencies may collaborate with, and participate in, such research and projects to the extent requested by the grant recipient. 33 U.S.C. § 3102(d).

Tsunami Warning and Education Act, 33 U.S.C. §§ 3201-3207

One of the purposes of this Act is to improve mapping, modeling, research, and assessment efforts to improve tsunami detection, forecasting, warnings, notification, outreach, mitigation, response, and recovery. 33 U.S.C. § 3202(3). The NOAA Administrator shall, in consultation with other agencies, academic institutions, and state, local and tribal interests, establish or maintain a tsunami research program to develop detection, forecast, communication, and mitigation science and technology, including advanced sensing techniques, information and communication technology, data collection, analysis, and assessment for tsunami tracking and numerical forecast modeling. Such research program shall (1) consider other appropriate research to mitigate the impact of tsunamis; (2) coordinate with the National Weather Service on technology to be transferred to operations; (3) include social science research to develop and assess community warning, education, and evacuation materials; and (4) ensure that research and findings are available to the scientific community. 33 U.S.C. § 3205. The Administrator shall develop and execute a plan for the transfer of technology from ongoing research into the tsunami forecasting and warning program established under 33 U.S.C. § 3203.

NOAA Undersea Research Program Act of 2009, 33 U.S.C §§ 3401-3426

National Ocean Exploration Program.

The NOAA Administrator shall, in consultation with the National Science Foundation and other appropriate Federal agencies, establish a coordinated national ocean exploration program within NOAA that promotes collaboration with other federal ocean and undersea research and exploration programs. 33 U.S.C. § 3402. In carrying out the Program, the NOAA Administrator shall conduct interdisciplinary voyages or other scientific activities in conjunction with other federal agencies or academic or educational institutions, to explore and survey little known areas of the marine environment, to inventory, observe, and assess living and nonliving marine resources, and to report such findings. The NOAA Administrator shall give priority attention to deep ocean regions, with a focus on deep-water marine systems that hold potential for important scientific discoveries, such as hydrothermal vent communities and seamounts. The Administrator shall also conduct scientific voyages to locate, define, and document historic shipwrecks, submerged sites, and other ocean exploration activities that combine archaeology and oceanographic sciences. The Administrator shall enhance the technical capability of the United States marine science community by promoting the development of improved oceanographic research, communication, navigation, and data collection systems, as well as underwater platforms and sensor and autonomous vehicles. 33 U.S.C § 3403(a). Finally, the Administrator

may accept donations of property, data, and equipment to be applied for the purpose of exploring the oceans or increasing knowledge of the oceans. 33 U.S.C § 3403(b)).

The NOAA Administrator, in coordination with NSF, NASA, USGS, the Navy, MMS and relevant governmental, nongovernmental, academic, industry, and other experts, shall convene an ocean exploration and undersea research technology and infrastructure task force to develop and implement a strategy to, among other things, facilitate transfer of new exploration and undersea research technology to the programs authorized under this Act; to improve availability of communications infrastructure, including satellite capabilities, to such programs; and to conduct public outreach activities that improve the public understanding of ocean science, resources, and processes, in conjunction with relevant programs of NOAA, NSF, and other agencies. 33 U.S.C § 3404.

National Undersea Research Program.

The NOAA Administrator shall establish and maintain an undersea research program and shall designate a Director of that program. The purpose of the program is to increase scientific knowledge essential for the informed management, use, and preservation of oceanic, marine, and coastal areas and the Great Lakes. 33 U.S.C § 3421(a). The Director of the program shall, among other things, cooperate with institutions of higher education and other educational marine and ocean science organizations, and shall make available undersea research facilities, equipment, technologies, information, and expertise to support undersea research efforts by these organizations. 33 U.S.C § 3422.

The program shall be conducted through a national headquarters, a network of extramural regional undersea research centers that represent all relevant NOAA regions, and the National Institute for Undersea Science and Technology (which was established in 2002 by the University of Southern Mississippi and the University of Mississippi in partnership with NOAA's Undersea Research Program to develop and apply new technologies that enhance undersea research). 33 U.S.C § 3423(a).

The following are the research, exploration, education, and technology programs that shall be conducted: (1) core research and exploration based on national and regional undersea research priorities; (2) advanced undersea technology development to support NOAA's research mission and programs; (3) undersea science-based education and outreach programs to enrich ocean science education and public awareness of the oceans and Great Lakes; (4) development, testing, and transition of advanced undersea technology associated with ocean observatories, submersibles, advanced diving technologies, remotely-operated vehicles, autonomous underwater vehicles, and new sampling and sensing technologies; and (5) discovery, study, and development of natural resources and products from ocean, coastal, and aquatic systems. 33 U.S.C § 3424(a).

Ocean and Coastal Mapping Integration Act, 33 U.S.C. §§ 3501-3507

The NOAA Administrator shall establish a program to develop, in coordination with an Interagency Committee on Ocean and Coastal Mapping and affected coastal states, a coordinated and comprehensive federal ocean and coastal mapping plan for the Great Lakes and coastal

state waters, the territorial sea, the exclusive economic zone, and the Continental Shelf of the United States that (a) enhances ecosystem approaches in decision-making for the conservation and management of marine resources and habitats, (b) establishes priorities for research and mapping, (c) supports the siting of research and other platforms, (d) enhances safety of navigation, and (e) advances ocean and coastal science. 33 U.S.C. §§ 3501(a), 3502(a). The Interagency Committee is to be convened or identified by the Administrator.

In developing such a program, the Administrator shall work with the Committee to, among other things, facilitate the adaptation of existing technologies as well as foster expertise in new ocean and coastal mapping technologies, including through research, development, and training conducted among federal agencies and in cooperation with non-governmental entities. The NOAA Administrator shall also develop data standards and protocols for use by federal, coastal state, and other entities in mapping and otherwise documenting locations of federally permitted activities, living and nonliving coastal and marine resources, marine ecosystems, sensitive habitats, submerged cultural resources, undersea cables, offshore aquaculture projects, offshore energy projects, and any areas designated for purposes of environmental protection or conservation and management of living and nonliving coastal and marine resources. 33 U.S.C. § 3501(c).

The Act authorizes the Administrator to operate three Joint Ocean and Coastal Mapping Centers to serve as hydrographic centers of excellence. The centers are to conduct a variety of activities, including research and development of innovative ocean and coastal mapping technologies, equipment, and data products; mapping of the U.S. Outer Continental Shelf and other areas; and advancing the use of remote sensing technologies for related issues, including mapping and assessment of essential fish habitat and of coral resources, ocean observations, and ocean exploration. 33 U.S.C. § 3504(c).

Integrated Coastal and Ocean Observation System Act of 2009, 33 U.S.C. §§ 3601-3611

The Integrated Coastal and Ocean Observation System Act establishes a national integrated system of ocean, coastal, and Great Lakes observing systems to address regional and national needs for ocean information; to gather specific data on key coastal, ocean, and Great Lakes variables; and to ensure timely and sustained dissemination and availability of these data. The purposes also include authorization of activities to promote basic and applied research to develop, test, and deploy innovations and improvements in coastal and ocean observation technologies, modeling systems, and other scientific and technological capabilities to improve our conceptual understanding of weather and climate, the ocean-atmosphere dynamics, global climate change, the physical, chemical, and biological dynamics of the ocean, coastal and Great Lakes environments, and to conserve healthy and restore degraded coastal ecosystems. 33 U.S.C. § 3601. The Act identifies NOAA as the lead Federal agency and directs the establishment of an Integrated Ocean Observing Program Office within NOAA. 33 U.S.C. § 3602(c)(3).

In order to fulfill the purposes of this Act, the System shall be national in scope and include a research and development program consisting of basic and applied research and technology development to improve understanding of coastal and ocean systems and their relationships to human activities and to ensure improvement of operational assets and products, including related infrastructure, observing technologies, and information and data processing and management technologies; and large scale computing resources and research to advance modeling of coastal and ocean processes. 33 U.S.C. § 3603(b). The System is also intended to fulfill the Nation's international obligations to contribute to the Global Earth Observation System of Systems and the Global Ocean Observing System. 33 U.S.C. § 3603(a).

Federal Ocean Acidification Research and Monitoring Act of 2009, 33 U.S.C. §§ 3701-3708

The purposes of this Act are to provide for development and coordination of a comprehensive interagency plan to monitor and conduct research on the processes of ocean acidification and consequences of ocean acidification on marine organisms and ecosystems, and to establish an interagency research and monitoring program on ocean acidification. The statute also establishes an ocean acidification program within NOAA. 33 U.S.C. § 3701.

The Act establishes an interagency working group that is chaired by NOAA and is charged, among other things, with developing and implementing the strategic research and monitoring plan to guide federal research on ocean acidification. The group is also charged with overseeing the development of an assessment of the potential impacts of ocean acidification as well as development of adaptation and mitigation strategies to conserve marine organisms and ecosystems exposed to ocean acidification. The working group shall also coordinate the U.S. federal research and monitoring program with research and monitoring programs and scientists from other nations. 33 U.S.C. § 3703(b).

The Ocean Acidification Program established within NOAA is directed to conduct research, monitoring, and other activities consistent with the strategic research and implementation plan developed by the interagency working group. Program activities are to include interdisciplinary research among the ocean and atmospheric sciences, and coordinated research and activities to improve understanding of ocean acidification; research to identify and develop adaptation strategies and techniques for effectively conserving marine ecosystems as they cope with increased ocean acidification; educational opportunities that encourage an interdisciplinary and international approach to exploring the impacts of ocean acidification; national public outreach activities to improve the understanding and current scientific knowledge of ocean acidification and its impacts on marine resources; and coordination of ocean acidification monitoring and impacts research with other appropriate international ocean science bodies. The program is also authorized to provide grants to critical research projects. 33 U.S.C. § 3705(a).

Coast Guard Authorization Act of 2010, Pub. L. 111-281, Title X (Clean Hulls), 33 U.S.C. §§ 3801-3857

Article 8 of the International Convention on the Control of Harmful Anti-Fouling Systems on Ships calls upon the Parties to the Convention take appropriate measures to promote and facilitate scientific and technical research on the effects of anti-fouling systems as well as to undertake monitoring of such effects. In particular, such research should include observation, measurement, sampling, evaluation and analysis of the effects of anti-fouling systems. The U.S. has ratified the Convention. In fulfillment of the U.S. obligation under Article 8, Section 1025 of this Act provides that the Secretary of the Department in which the Coast Guard is operating, the Administrator of EPA, and the NOAA Administrator may each undertake scientific and technical research and monitoring pursuant to article 8 of the Convention and may promote the availability of relevant information concerning (1) scientific and technical activities undertaken in accordance with the Convention; (2) marine scientific and technological programs and their objectives; and (3) the effects observed from any monitoring and assessment programs relating to antifouling systems. 33 U.S.C § 3825.

Clean Air Act, 42 U.S.C. §§ 7401-7431

The EPA Administrator, in cooperation with the Under Secretary of Commerce for Oceans and Atmosphere, shall conduct a program to identify and assess the extent of atmospheric deposition of hazardous air pollutants (and in the discretion of the Administrator, other air pollutants) to the Great Lakes, the Chesapeake Bay, Lake Champlain and coastal waters. Part of such program shall be to conduct research to develop and improve monitoring methods and to determine the relative contribution of atmospheric pollutants to total pollution loadings to the Great Lakes, the Chesapeake Bay, Lake Champlain, and coastal waters. 42 U.S.C. § 7412(m)(1).

Outer Continental Shelf Lands Act, 43 U.S.C. §§ 1331-1356b

This Act defines the Outer Continental Shelf (OCS) as all submerged lands lying seaward of state coastal waters which are under U.S. jurisdiction. The Act provides guidelines for implementing an OCS oil and gas exploration and development program and empowers the Secretary of the Interior to grant leases to the highest qualified responsible bidder and to formulate regulations, as necessary, to carry out the provisions of the Act. Under Section 1346 of the Act, the Secretary shall conduct a study of any area or region included in any oil and gas lease or other lease in order to establish information needed for assessment and management of environmental impacts on the human, marine and coastal environments of the OSC and the coastal areas which may be affected by oil and gas or other mineral development. 43 U.S.C. 1346(a)(1). In executing his responsibilities under this section, the Secretary shall, to the maximum extent practicable, “enter into appropriate arrangements to utilize on a reimbursable basis the capabilities of the Department of Commerce. In carrying out such arrangements, the Secretary of Commerce is authorized to enter into contracts or grants with any person organization, or entity with funds appropriated to the Secretary of the Interior under this [Act].” 43 U.S.C. § 1346(f).

Land Remote-Sensing Policy Act of 1992, 51 U.S.C. §§ 60101-60506, as amended December 18, 2010

United States Government agencies are authorized and encouraged to conduct research and development on the use of remote sensing in the fulfillment of their authorized missions, using funds appropriated for such purposes. 51 U.S.C. § 60131(c).

The goal of NASA's Earth Science Program is to pursue a schedule of Earth observations, research, and applications activities to better understand the Earth, how it supports life, and how human activities affect its ability to do so in the future. In pursuit of this goal, NASA shall, together with NOAA and other relevant agencies, provide United States leadership in developing and carrying out a cooperative international Earth observations-based research program. 51 U.S.C. § 60501.

NASA shall ensure that it gives high priority to those parts of its existing cooperative activities with NOAA that are related to the study of tornadoes and other severe storms, tornado-force winds, and other factors determined to influence the development of tornadoes and other severe storms, with the goal of improving the nation's ability to predict tornados and other severe storms. NASA shall also examine whether there are additional cooperative activities with NOAA that should be undertaken in the area of tornado and severe storm research. 51 U.S.C. § 60504.