



XI.
APPENDICES

APPENDIX A. NATIONAL MARINE SANCTUARIES ACT

THE NATIONAL MARINE SANCTUARIES ACT

16 U.S.C. 1431 ET. SEQ., as amended by Public Law 106-513

Sec. 301. FINDINGS, PURPOSES, AND POLICIES; ESTABLISHMENT OF SYSTEM.

(a) FINDINGS.--The Congress finds that--

(1) this Nation historically has recognized the importance of protecting special areas of its public domain, but these efforts have been directed almost exclusively to land areas above the high-water mark;

(2) certain areas of the marine environment possess conservation, recreational, ecological, historical, scientific, educational, cultural, archeological, or esthetic qualities which give them special national, and in some instances, international, significance;

(3) while the need to control the effects of particular activities has led to enactment of resource-specific legislation, these laws cannot in all cases provide a coordinated and comprehensive approach to the conservation and management of special areas of the marine environment; and

(4) a Federal program which establishes areas of the marine environment which have special conservation, recreational, ecological, historical, cultural, archeological, scientific, educational, or esthetic qualities as national marine sanctuaries managed as the National Marine Sanctuary System will improve the conservation, understanding, management, and wise and sustainable use of marine resources;

(B) enhance public awareness, understanding, and appreciation of the marine environment; and

(C) maintain for future generations the habitat, and ecological services, of the natural assemblage of living resources that inhabit these areas.

(b) PURPOSES AND POLICIES.--The purposes and policies of this title are--

(1) 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 the National Marine Sanctuary System;

(2) to provide authority for comprehensive and coordinated conservation and management of these marine areas, and activities affecting them, in a manner which complements existing regulatory authorities;

(3) to maintain the natural biological communities in the national marine sanctuaries, and to protect, and, where appropriate, restore and enhance natural habitats, populations, and ecological processes;

(4) to enhance public awareness, understanding, appreciation, and wise and sustainable use of the marine environ-

ment, and the natural, historical, cultural, and archeological resources of the National Marine Sanctuary System;

(5) to support, promote, and coordinate scientific research on, and long-term monitoring of, the resources of these marine areas;

(6) to facilitate to the extent compatible with the primary objective of resource protection, all public and private uses of the resources of these marine areas not prohibited pursuant to other authorities;

(7) to develop and implement coordinated plans for the protection and management of these areas with appropriate Federal agencies, State and local governments, Native American tribes and organizations, international organizations, and other public and private interests concerned with the continuing health and resilience of these marine areas;

(8) to create models of, and incentives for, ways to conserve and manage these areas, including the application of innovative management techniques; and

(9) to cooperate with global programs encouraging conservation of marine resources.

(c) ESTABLISHMENT OF SYSTEM.--There is established the National Marine Sanctuary System, which shall consist of national marine sanctuaries designated by the Secretary in accordance with this title.

Sec. 302. DEFINITIONS

As used in this title, the term--

(1) "Draft management plan" means the plan described in section 304(a)(1)(C)(v);

(2) "Magnuson-Stevens Act" means the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.);

(3) "marine environment" means those areas of coastal and ocean waters, the Great Lakes and their connecting waters, and submerged lands over which the United States exercises jurisdiction, including the exclusive economic zone, consistent with international law;

(4) "Secretary" means the Secretary of Commerce;

(5) "State" means each of the several States, the District of Columbia, the Commonwealth of Puerto Rico, the Commonwealth of the Northern Mariana Islands, American Samoa, the Virgin Islands, Guam, and any other commonwealth, territory, or possession of the United States;

(6) "damages" includes--

(A) compensation for--

(i)(I) the cost of replacing, restoring, or acquiring the equivalent of a sanctuary resource; and (II) the value of the lost use of a sanctuary resource pending its restoration or replacement or the acquisition of an equivalent sanctuary resource; or

(ii) the value of a sanctuary resource if the sanctuary resource cannot be restored or replaced or if the equivalent of such resource cannot be acquired;

(B) the cost of damage assessments under section 312(b)(2);
(C) the reasonable cost of monitoring appropriate to the injured, restored, or replaced resources;

(D) the cost of curation and conservation of archeological, historical, and cultural sanctuary resources; and

(E) the cost of enforcement actions undertaken by the Secretary in response to the destruction or loss of, or injury to, a sanctuary resource;

(7) “response costs” means the costs of actions taken or authorized by the Secretary to minimize destruction or loss of, or injury to, sanctuary resources, or to minimize the imminent risks of such destruction, loss, or injury, including costs related to seizure forfeiture, storage, or disposal arising from liability under section 312;

(8) “sanctuary resource” means any living or nonliving resource of a national marine sanctuary that contributes to the conservation, recreational, ecological, historical, educational, cultural, archeological, scientific, or aesthetic value of the sanctuary;

(9) “exclusive economic zone” means the exclusive economic zone as defined in the Magnuson-Stevens Act; and

(10) ‘System’ means the National Marine Sanctuary System established by section 301.

Sec. 303. SANCTUARY DESIGNATION STANDARDS

(a) STANDARDS.--The Secretary may designate any discrete area of the marine environment as a national marine sanctuary and promulgate regulations implementing the designation if the Secretary determines that--

(1) the designation will fulfill the purposes and policies of this title;

(2) the area is of special national significance due to--

(A) its conservation, recreational, ecological, historical, scientific, cultural, archeological, educational, or esthetic qualities;

(B) the communities of living marine resources it harbors; or

(C) its resource or human-use values;

(3) existing State and Federal authorities are inadequate or should be supplemented to ensure coordinated and comprehensive conservation and management of the area, including resource protection, scientific research, and public education;

(4) designation of the area as a national marine sanctuary will facilitate the objectives in subparagraph (3); and

(5) the area is of a size and nature that will permit comprehensive and coordinated conservation and management.

(b) FACTORS AND CONSULTATIONS REQUIRED IN MAKING DETERMINATIONS AND FINDINGS.--

(1) Factors.--For purposes of determining if an area of the marine environment meets the standards set forth in subsection (a), the Secretary shall consider--

(A) the area’s natural resource and ecological qualities, including its contribution to biological productivity, maintenance of ecosystem structure, maintenance of ecologically or commercially important or threatened species or species assemblages, maintenance of critical habitat of endangered species, and the biogeographic representation of the site;

(B) the area’s historical, cultural, archaeological, or paleontological significance;

(C) the present and potential uses of the area that depend on maintenance of the area’s resources, including commercial and recreational fishing, subsistence uses other commercial and recreational activities, and research and education;

(D) the present and potential activities that may adversely affect the factors identified in subparagraphs (A), (B), (C);

(E) the existing State and Federal regulatory and management authorities applicable to the area and the adequacy of those authorities to fulfill the purposes and policies of this title;

(F) the manageability of the area, including such factors as its size, its ability to be identified as a discrete ecological unit with definable boundaries, its accessibility, and its suitability for monitoring and enforcement activities;

(G) the public benefits to be derived from sanctuary status, with emphasis on the benefits of long-term protection of nationally significant resources, vital habitats, and resources which generate tourism;

(H) the negative impacts produced by management restrictions on income-generating activities such as living and nonliving resources development;

(I) the socioeconomic effects of sanctuary designation;

(J) the area’s scientific value and value for monitoring the resources and natural processes that occur there;

(K) the feasibility, where appropriate, of employing innovative management approaches to protect sanctuary resources or to manage compatible uses; and

(L) the value of the area as an addition to the System.

(2) Consultation.--In making determinations and findings, the Secretary shall consult with--

(A) the Committee on Resources of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate;

(B) the Secretaries of State, Defense, Transportation, and the Interior, the Administrator, and the heads of other interested Federal agencies;

(C) the responsible officials or relevant agency heads of the appropriate State and local government entities, including coastal zone management agencies, that will or are likely to be affected by the establishment of the area as a national marine sanctuary;

(D) the appropriate officials of any Regional Fishery Management Council established by section 302 of the Magnuson-Stevens Act (16 U.S.C. 1852) that may be affected by the proposed designation; and

(E) other interested persons.

Sec. 304. PROCEDURES FOR DESIGNATION AND IMPLEMENTATION

(a) SANCTUARY PROPOSAL.--

(1) Notice.--In proposing to designate a national marine sanctuary, the Secretary shall--

(A) issue, in the Federal Register, a notice of the proposal, proposed regulations that may be necessary and reasonable to implement the proposal, and a summary of the draft management plan;

(B) provide notice of the proposal in newspapers of general circulation or electronic media in the communities that may be affected by the proposal; and

(C) no later than the day on which the notice required under subparagraph (A) is submitted to Office of the Federal Register, submit a copy of that notice and the draft sanctuary designation documents prepared pursuant to section 304(a)(2), including an executive summary, to the Committee on Resources of the House of Representatives, the Committee on Commerce, Science, and Transportation of the Senate, and the Governor of each State in which any part of the proposed sanctuary would be located.

(2) Sanctuary Designation Documents.- The Secretary shall prepare and make available to the public sanctuary designation documents on the proposal that include the following:

(A) A draft environmental impact statement pursuant to the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.).

(B) A resource assessment that documents-

(i) present and potential uses of the area, including commercial and recreational fishing, research and education, minerals and energy development, subsistence uses, and other commercial, governmental, or recreational uses;

(ii) after consultation with the Secretary of the Interior, any commercial, governmental, or recreational resource uses in the areas that are subject to the primary jurisdiction of the Department of the Interior; and

(iii) information prepared in consultation with the Secretary of Defense, the Secretary of Energy, and the Administrator of the Environmental Protection Agency, on any past, present, or proposed future disposal or discharge of materials in the vicinity of the proposed sanctuary. Public disclosure by the Secretary of such information shall be consistent with national security regulations.

(C) A draft management plan for the proposed national marine sanctuary that includes the following:

(i) The terms of the proposed designation.

(ii) Proposed mechanisms to coordinate existing regulatory and management authorities within the area.

(iii) The proposed goals and objectives, management responsibilities, resource studies, and appropriate strategies for managing sanctuary resources of the proposed sanctuary, including interpretation and education, innovative

management strategies, research, monitoring and assessment, resource protection, restoration, enforcement, and surveillance activities.

(iv) An evaluation of the advantages of cooperative State and Federal management if all or part of the proposed sanctuary is within the territorial limits of any State or is superjacent to the subsoil and seabed within the seaward boundary of a State, as that boundary is established

under the Submerged Lands Act (43 U.S.C. 1301 et seq.).

(v) An estimate of the annual cost to the Federal Government of the proposed designation, including costs of personnel, equipment and facilities, enforcement, research, and public education.

(vi) The proposed regulations referred to in paragraph (1)(A).

(D) Maps depicting the boundaries of the proposed sanctuary.

(E) The basis for the determinations made under section 303(a) with respect to the area.

(F) An assessment of the considerations under section 303(b)(1).

(3) Public Hearing.--No sooner than thirty days after issuing a notice under this subsection, the Secretary shall hold at least one public hearing in the coastal area or areas that will be most affected by the proposed designation of the area as a national marine sanctuary for the purpose of receiving the views of interested parties.

(4) Terms of Designation.--The terms of designation of a sanctuary shall include the geographic area proposed to be included within the sanctuary, the characteristics of the area that give it conservation, recreational, ecological, historical, research, educational, or esthetic value, and the types of activities that will be subject to regulation by the Secretary to protect those characteristics. The terms of designation may be modified only by the same procedures by which the original designation is made.

(5) Fishing Regulations.--The Secretary shall provide the appropriate Regional Fishery Management Council with the opportunity to prepare draft regulations for fishing within the exclusive economic zone as the Council may deem necessary to implement the proposed designation. Draft regulations prepared by the Council, or a Council determination that regulations are not necessary pursuant to this paragraph, shall be accepted and issued as proposed regulations by the Secretary unless the Secretary finds that the Council's action fails to fulfill the purposes and policies of this title and the goals and objectives of the proposed designation. In preparing the draft regulations, a Regional Fishery Management Council shall use as guidance the national standards of section 301(a) of the Magnuson-Stevens Act (16 U.S.C. 1851) to the extent that the standards are consistent and compatible with the goals and objectives of the proposed designation. The Secretary shall prepare the fishing regulations, if the Council declines to make a determination with respect to the need for regulations, makes a determination

which is rejected by the Secretary, or fails to prepare the draft regulations in a timely manner. Any amendments to the fishing regulations shall be drafted, approved, and issued in the same manner as the original regulations. The Secretary shall also cooperate with other appropriate fishery management authorities with rights or responsibilities within a proposed sanctuary at the earliest practicable stage in drafting any sanctuary fishing regulations.

(6) Committee Action.--After receiving the documents under subsection (a)(l)(C), the Committee on Resources of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate may each hold hearings on the proposed designation and on the matters set forth in the documents. If within the forty-five day period of continuous session of Congress beginning on the date of submission of the documents, either Committee issues a report concerning matters addressed in the documents, the Secretary shall consider this report before publishing a notice to designate the national marine sanctuary.

(b) TAKING EFFECT OF DESIGNATIONS.--

(1) Notice.--In designating a national marine sanctuary, the Secretary shall publish in the Federal Register notice of the designation together with final regulations to implement the designation and any other matters required by law, and submit such notice to the Congress. The Secretary shall advise the public of the availability of the final management plan and the final environmental impact statement with respect to such sanctuary. The Secretary shall issue a notice of designation with respect to a proposed national marine sanctuary site not later than 30 months after the date a notice declaring the site to be an active candidate for sanctuary designation is published in the Federal Register under regulations issued under this Act, or shall publish not later than such date in the Federal Register findings regarding why such notice has not been published. No notice of designation may occur until the expiration of the period for Committee action under subsection (a)(6). The designation (and any of its terms not disapproved under this subsection) and regulations shall take effect and become final after the close of a review period of forty-five days of continuous session of Congress beginning on the day on which such notice is published unless in the case of a natural [sic] marine sanctuary that is located partially or entirely within the seaward boundary of any State, the Governor affected certifies to the Secretary that the designation or any of its terms is unacceptable, in which case the designation or the unacceptable term shall not take effect in the area of the sanctuary lying within the seaward boundary of the State.

(2) Withdrawal of Designation.-- If the Secretary considers that actions taken under paragraph (1) will affect the designation of a national marine sanctuary in a manner that the goals and objectives of the sanctuary or System cannot be fulfilled, the Secretary may withdraw the entire designation. If the Secretary does not withdraw the designation, only those terms of the designation or not certified under paragraph (1) shall take effect.

(3) Procedures.-- In computing the forty-five-day periods of continuous session of Congress pursuant to subsection (a)(6) and paragraph (1) of this subsection--

(A) continuity of session is broken only by an adjournment of Congress sine die; and

(B) the days on which either House of Congress is not in session because of an adjournment of more than three days to a day certain are excluded.

(c) ACCESS AND VALID RIGHTS.--

(1) Nothing in this title shall be construed as terminating or granting to the Secretary the right to terminate any valid lease, permit, license, or right of subsistence use or of access that is in existence on the date of designation of any national marine sanctuary.

(2) The exercise of a lease, permit, license, or right is subject to regulation by the Secretary consistent with the purposes for which the sanctuary is designated.

(d) INTERAGENCY COOPERATION.--

(1) Review of Agency Actions.--

(A) In General.--Federal agency actions internal or external to a national marine sanctuary, including private activities authorized by licenses, leases, or permits, that are likely to destroy, cause the loss of, or injure any sanctuary resource are subject to consultation with the Secretary.

(B) Agency Statements Required.-- Subject to any regulations the Secretary may establish each Federal agency proposing an action described in subparagraph (A) shall provide the Secretary with a written statement describing the action and its potential effects on sanctuary resources at the earliest practicable time, but in no case later than 45 days before the final approval of the action unless such Federal agency and the Secretary agree to a different schedule.

(2) Secretary's Recommended Alternatives.--If the Secretary finds that a Federal agency action is likely to destroy, cause the loss of, or injure a sanctuary resource, the Secretary shall (within 45 days of receipt of complete information on the proposed agency action) recommend reasonable and prudent alternatives, which may include conduct of the action elsewhere, which can be taken by the Federal agency in implementing the agency action that will protect sanctuary resources.

(3) Response to Recommendations.--The agency head who receives the Secretary's recommended alternatives under paragraph (2) shall promptly consult with the Secretary on the alternatives. If the agency head decides not to follow the alternatives, the agency head shall provide the Secretary with a written statement explaining the reasons for that decision.

(4) FAILURE TO FOLLOW ALTERNATIVE.- If the head of a Federal agency takes an action other than an alternative recommended by the Secretary and such action results in the destruction of, loss of, or injury to a sanctuary resource, the head of the agency shall promptly prevent and mitigate

further damage and restore or replace the sanctuary resource in a manner approved by the Secretary.

(e) REVIEW OF MANAGEMENT PLANS.--Not more than 5 years after the date of designation of any national marine sanctuary, and thereafter at intervals not exceeding 5 years, the Secretary shall evaluate the substantive progress toward implementing the management plan and goals for the sanctuary, especially the effectiveness of site-specific management techniques and strategies, and shall revise the management plan and regulations as necessary to fulfill the purposes and policies of this title. This review shall include a prioritization of management objectives.

(f) LIMITATION ON DESIGNATION OF NEW SANCTUARIES.-

(1) FINDING REQUIRED.- The Secretary may not publish in the Federal Register any sanctuary designation notice or regulations proposing to designate a new sanctuary, unless the Secretary has published a finding that--

(A) the addition of a new sanctuary will not have a negative impact on the System; and

(B) sufficient resources were available in the fiscal year in which the finding is made to--

(i) effectively implement sanctuary management plans for each sanctuary in the System; and

(ii) complete site characterization studies and inventory known sanctuary resources, including cultural resources, for each sanctuary in the System within 10 years after the date that the finding is made if the resources available for those activities are maintained at the same level for each fiscal year in that 10 year period.

(2) DEADLINE.- If the Secretary does not submit the findings required by paragraph (1) before February 1, 2004, the Secretary shall submit to the Congress before October 1, 2004, a finding with respect to whether the requirements of subparagraphs (A) and (B) of paragraph 1 have been met by all existing sanctuaries.

(3) LIMITATION ON APPLICATION.- Paragraph (1) does not apply to any sanctuary designation documents for--

(A) a Thunder Bay National Marine Sanctuary; or

(B) a Northwestern Hawaiian Islands National Marine Sanctuary.

(g) NORTHWESTERN HAWAIIAN ISLANDS CORAL REEF RESERVE.-

(1) PRESIDENTIAL DESIGNATION.- The President, after consultation with the Governor of the State of Hawaii, may designate any Northwestern Hawaiian Islands coral reef or coral reef ecosystem as a coral reef reserve to be managed by the Secretary of Commerce.

(2) SECRETARIAL ACTION.- Upon the designation of a reserve under paragraph (1) by the President, the Secretary shall--

(A) take action to initiate the designation of the reserve as a National Marine Sanctuary under sections 303 and 304 of the National Marine Sanctuaries Act (16 U.S.C. 1433);

(B) establish a Northwestern Hawaiian Islands Reserve Advisory Council under section 315 of that Act (16 U.S.C. 1445a), the membership of which shall include at least 1 representative from Native Hawaiian groups; and

(C) until the reserve is designated as a National Marine Sanctuary, manage the reserve in a manner consistent with the purposes and policies of that Act.

(3) PUBLIC COMMENT.- Notwithstanding any other provision of law, no closure areas around the Northwestern Hawaiian Islands shall become permanent without adequate review and comment.

(4) COORDINATION.- The Secretary shall work with other Federal agencies and the Director of the National Science Foundation, to develop a coordinated plan to make vessels and other resources available for conservation or research activities for the reserve.

(5) REVIEW.- If the Secretary has not designated a national marine sanctuary in the Northwestern Hawaiian Islands under sections 303 and 304 of the National Marine Sanctuaries Act (16 U.S.C. 1433, 1434) before October 1, 2005, the Secretary shall conduct a review of the management of the reserve under section 304(e) of that Act (16 U.S.C. 1434(e)).

(6) REPORT.- No later than 6 months after the date of enactment of this Act, the Secretary shall submit a report to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Resources, describing actions taken to implement this subsection, including costs of monitoring, enforcing, and addressing marine debris, and the extent to which the fiscal or other resources necessary to carry out this subsection are

reflected in the Budget of the United States Government submitted by the President under section 1104 of title 31, United States Code.

(7) AUTHORIZATION OF APPROPRIATIONS.- There are authorized to be appropriated to the Secretary of Commerce to carry out the provisions of this subsection such sums, not exceeding \$4,000,000 for each of fiscal years 2001, 2002, 2003, 2004, and 2005, as are reported under paragraph (6) to be reflected in the Budget of the United States Government.

Sec. 305. APPLICATION OF REGULATIONS AND INTERNATIONAL NEGOTIATIONS

(a) REGULATIONS.--This title and the regulations issued under section 304 shall be applied in accordance with generally recognized principles of international law, and in accordance with the treaties, conventions, and other agreements to which the United States is a party. No regulation shall apply to or be enforced against a person who is not a citizen, national, or resident alien of the United States, unless in accordance with--

- (1) generally recognized principles of international law;
- (2) an agreement between the United States and the foreign state of which the person is a citizen; or
- (3) an agreement between the United States and the flag state of a foreign vessel, if the person is a crewmember of the vessel.

(b) **NEGOTIATIONS.**--The Secretary of State, in consultation with the Secretary, shall take appropriate action to enter into negotiations with other governments to make necessary arrangements for the protection of any national marine sanctuary and to promote the purposes for which the sanctuary is established.

(c) **INTERNATIONAL COOPERATION.**--The Secretary, in consultation with the Secretary of State and other appropriate Federal agencies, shall cooperate with other governments and international organizations in the furtherance of the purposes and policies of this title and consistent with applicable regional and multilateral arrangements for the protection and management of special marine areas.

Sec. 306. PROHIBITED ACTIVITIES

It is unlawful for any person to--

- (1) destroy, cause the loss of, or injure any sanctuary resource managed under law or regulations for that sanctuary;
- (2) possess, sell, offer for sale, purchase, import, export, deliver, carry, transport, or ship by any means any sanctuary resource taken in violation of this section;
- (3) interfere with the enforcement of this title by--
 - (A) refusing to permit any officer authorized to enforce this title to board a vessel, other than a vessel operated by the Department of Defense or United States Coast Guard, subject to such person's control for the purposes of conducting any search or inspection in connection with the enforcement of this title;
 - (B) resisting, opposing, impeding, intimidating, harassing, bribing, interfering with, or forcibly assaulting any person authorized by the Secretary to implement this title or any such authorized officer in the conduct of any search or inspection performed under this title; or
 - (C) knowingly and willfully submitting false information to the Secretary or any officer authorized to enforce this title in connection with any search or inspection conducted under this title; or
- (4) violate any provision of this title or any regulation or permit issued pursuant to this title.

Sec. 307. ENFORCEMENT

- (a) **IN GENERAL.**--The Secretary shall conduct such enforcement activities as are necessary and reasonable to carry out this title.
- (b) **POWERS OF AUTHORIZED OFFICERS.**--Any person who is authorized to enforce this title may--
 - (1) board, search, inspect, and seize any vessel suspected of being used to violate this title or any regulation or permit

issued under this title and any equipment, stores, and cargo of such vessel;

- (2) seize wherever found any sanctuary resource taken or retained in violation of this title or any regulation or permit issued under this title;
- (3) seize any evidence of a violation of this title or of any regulation or permit issued under this title;
- (4) execute any warrant or other process issued by any court of competent jurisdiction;
- (5) exercise any other lawful authority; and
- (6) arrest any person, if there is reasonable cause to believe that such a person has committed an act prohibited by section 306(3).

(c) **CRIMINAL OFFENSES-**

(1) **OFFENSES.**- A person is guilty of an offense under this subsection if the person commits any act prohibited by section 306(3).

(2) **PUNISHMENT.**- Any person that is guilty of an offense under this subsection--

(A) except as provided in subparagraph (B), shall be fined under title 18, United States Code, imprisoned for not more than 6 months, or both; or

(B) in the case of a person who in the commission of such an offense uses a dangerous weapon, engages in conduct that causes bodily injury to any person authorized to enforce this title or any person authorized to implement the provisions of this title, or places any such person in fear of imminent bodily injury, shall be fined under title 18, United States Code, imprisoned for not more than 10 years, or both.

(d) **CIVIL PENALTIES.**--

(1) **Civil penalty.**--Any person subject to the jurisdiction of the United States who violates this title or any regulation or permit issued under this title shall be liable to the United States for a civil penalty of not more than \$100,000 for each such violation, to be assessed by the Secretary. Each day of a continuing violation shall constitute a separate violation.

(2) **Notice.**--No penalty shall be assessed under this subsection until after the person charged has been given notice and an opportunity for a hearing.

(3) **In Rem Jurisdiction.**--A vessel used in violating this title or any regulation or permit issued under this title shall be liable in rem for any civil penalty assessed for such violation. Such penalty shall constitute a maritime lien on the vessel and may be recovered in an action in rem in the district court of the United States having jurisdiction over the vessel.

(4) **Review of Civil Penalty.**--Any person against whom a civil penalty is assessed under this subsection may obtain review in the United States district court for the appropriate district by filing a complaint in such court not later than 30 days after the date of such order.

(5) **Collection of Penalties.**--If any person fails to pay an assessment of a civil penalty under this section after it

has become a final and unappealable order, or after the appropriate court has entered final judgment in favor of the Secretary, the Secretary shall refer the matter to the Attorney General, who shall recover the amount assessed in any appropriate district court of the United States. In such action, the validity and appropriateness of the final order imposing the civil penalty shall not be subject to review.

(6) **Compromise or Other Action by Secretary.**--The Secretary may compromise, modify, or remit, with or without conditions, any civil penalty which is or may be imposed under this section.

(e) **FORFEITURE.**--

(1) **In General.**--Any vessel (including the vessel's equipment, stores, and cargo) and other item used, and any sanctuary resource taken or retained, in any manner, in connection with or as a result of any violation of this title or of any regulation or permit issued under this title shall be subject to forfeiture to the United States pursuant to a civil proceeding under this subsection. The proceeds from forfeiture actions under this subsection shall constitute a separate recovery in addition to any amounts recovered as civil penalties under this section or as civil damages under section 312. None of those proceeds shall be subject to set-off.

(2) **Application of the Customs Laws.**--The Secretary may exercise the authority of any United States official granted by any relevant customs law relating to the seizure, forfeiture, condemnation, disposition, remission, and mitigation of property in enforcing this title.

(3) **Disposal of Sanctuary Resources.**--Any sanctuary resource seized pursuant to this title may be disposed of pursuant to an order of the appropriate court or, if perishable, in a manner prescribed by regulations promulgated by the Secretary. Any proceeds from the sale of such sanctuary resource shall for all purposes represent the sanctuary resource so disposed of in any subsequent legal proceedings.

(4) **Presumption.**--For the purposes of this section there is a rebuttable presumption that all sanctuary resources found on board a vessel that is used or seized in connection with a violation of this title or of any regulation or permit issued under this title were taken or retained in violation of this title or of a regulation or permit issued under this title.

(f) **PAYMENT OF STORAGE, CARE, AND OTHER COSTS.**--

(1) **Expenditures.**--

(A) Notwithstanding any other law, amounts received by the United States as civil penalties, forfeitures of property, and costs imposed under paragraph (2) shall be retained by the Secretary in the manner provided for in section 107(f)(1) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980.

(B) Amounts received under this section for forfeitures and costs imposed under paragraph (2) shall be used to pay the reasonable and necessary costs incurred by the Secretary to provide temporary storage, care, maintenance, and

disposal of any sanctuary resource or other property seized in connection with a violation of this title or any regulation or permit issued under this title.

(C) Amounts received under this section as civil penalties and any amounts remaining after the operation of subparagraph (B) shall be used, in order of priority, to--

(i) manage and improve the national marine sanctuary with respect to which the violation occurred that resulted in the penalty or forfeiture;

(ii) pay a reward to any person who furnishes information leading to an assessment of a civil penalty, or to a forfeiture of property, for a violation of this title or any regulation or permit issued under this title; and

(iii) manage and improve any other national marine sanctuary.

(2) **Liability for Costs.**--Any person assessed a civil penalty for a violation of this title or of any regulation or permit issued under this title, and any claimant in a forfeiture action brought for such a violation, shall be liable for the reasonable costs incurred by the Secretary in storage, care, and maintenance of any sanctuary resource or other property seized in connection with the violation.

(g) **SUBPOENAS.**--In the case of any hearing under this section which is determined on the record in accordance with the procedures provided for under section 554 of title 5, United States Code, the Secretary may issue subpoenas for the attendance and testimony of witnesses and the production of relevant papers, books, electronic files, and documents, and may administer oaths.

(h) **USE OF RESOURCES OF STATE AND OTHER FEDERAL AGENCIES.**--The Secretary shall, whenever appropriate, use by agreement the personnel, services, and facilities of State and other Federal departments, agencies, and instrumentalities, on a reimbursable or nonreimbursable basis, to carry out the Secretary's responsibilities under this section.

(i) **COAST GUARD AUTHORITY NOT LIMITED.**--Nothing in this section shall be considered to limit the authority of the Coast Guard to enforce this or any other Federal law under section 89 of title 14, United States Code.

(j) **INJUNCTIVE RELIEF.**--If the Secretary determines that there is an imminent risk of destruction or loss of or injury to a sanctuary resource, or that there has been actual destruction or loss of, or injury to, a sanctuary resource which may give rise to liability under section 312, the Attorney General, upon request of the Secretary, shall seek to obtain such relief as may be necessary to abate such risk or actual destruction, loss, or injury, or to restore or replace the sanctuary resource, or both. The district courts of the United States shall have jurisdiction in such a case to order such relief as the public interest and the equities of the case may require.

(k) **AREA OF APPLICATION AND ENFORCEABILITY.**--The area of application and enforceability of this title includes the territorial sea of the United States, as described in Presidential Proclamation 5928 of December 27, 1988, which is subject to the sovereignty of the United States, and the

United States exclusive economic zone, consistent with international law.

(l) **NATIONWIDE SERVICE OF PROCESS.**- In any action by the United States under this title, process may be served in any district where the defendant is found, resides, transacts business, or has appointed an agent for the service of process.

SEC. 308. REGULATIONS.

The Secretary may issue such regulations as may be necessary to carry out this title.

Sec. 309. RESEARCH, MONITORING, AND EDUCATION.

(a) **IN GENERAL.**- The Secretary shall conduct, support, or coordinate research, monitoring, evaluation, and education programs consistent with subsections (b) and (c) and the purposes and policies of this title.

(b) **RESEARCH AND MONITORING.**-

(1) **IN GENERAL.**- The Secretary may--

(A) support, promote, and coordinate research on, and long-term monitoring of, sanctuary resources and natural processes that occur in national marine sanctuaries, including exploration, mapping, and environmental and socioeconomic assessment;

(B) develop and test methods to enhance degraded habitats or restore damaged, injured, or lost sanctuary resources; and

(C) support, promote, and coordinate research on, and the conservation, curation, and public display of, the cultural, archeological, and historical resources of national marine sanctuaries.

(2) **AVAILABILITY OF RESULTS.**- The results of research and monitoring conducted, supported, or permitted by the Secretary under this subsection shall be made available to the public.

(c) **EDUCATION.**-

(1) **IN GENERAL.**- The Secretary may support, promote, and coordinate efforts to enhance public awareness, understanding, and appreciation of national marine sanctuaries and the System. Efforts supported, promoted, or coordinated under this subsection must emphasize the conservation goals and sustainable public uses of national marine sanctuaries and the System.

(2) **EDUCATIONAL ACTIVITIES.**- Activities under this subsection may include education of the general public, teachers, students, national marine sanctuary users, and ocean and coastal resource managers.

(d) **INTERPRETIVE FACILITIES.**-

(1) **IN GENERAL.**- The Secretary may develop interpretive facilities near any national marine sanctuary.

(2) **FACILITY REQUIREMENT.**- Any facility developed under this subsection must emphasize the conservation goals and sustainable public uses of national marine sanctuaries by providing the public with information about the conserva-

tion, recreational, ecological, historical, cultural, archeological, scientific, educational, or esthetic qualities of the national marine sanctuary.

(e) **CONSULTATION AND COORDINATION.**- In conducting, supporting, and coordinating research, monitoring, evaluation, and education programs under subsection (a) and developing interpretive facilities under subsection (d), the Secretary may consult or coordinate with Federal, interstate, or regional agencies, States or local governments.

Sec. 310. SPECIAL USE PERMITS

(a) **ISSUANCE OF PERMITS.**--The Secretary may issue special use permits which authorize the conduct of specific activities in a national marine sanctuary if the Secretary determines such authorization is necessary--

(1) to establish conditions of access to and use of any sanctuary resource; or

(2) to promote public use and understanding of a sanctuary resource.

(b) **PUBLIC NOTICE REQUIRED.**- The Secretary shall provide appropriate public notice before identifying any category of activity subject to a special use permit under subsection (a).

(c) **PERMIT TERMS.**--A permit issued under this section--

(1) shall authorize the conduct of an activity only if that activity is compatible with the purposes for which the sanctuary is designated and with protection of sanctuary resources;

(2) shall not authorize the conduct of any activity for a period of more than 5 years unless renewed by the Secretary;

(3) shall require that activities carried out under the permit be conducted in a manner that does not destroy, cause the loss of, or injure sanctuary resources; and

(4) shall require the permittee to purchase and maintain comprehensive general liability insurance, or post an equivalent bond, against claims arising out of activities conducted under the permit and to agree to hold the United States harmless against such claims.

(d) **FEES.**--

(1) **Assessment and Collection.**--The Secretary may assess and collect fees for the conduct of any activity under a permit issued under this section.

(2) **Amount.**--The amount of a fee under this subsection shall be equal to the sum of--

(A) costs incurred, or expected to be incurred, by the Secretary in issuing the permit;

(B) costs incurred, or expected to be incurred, by the Secretary as a direct result of the conduct of the activity for which the permit is issued, including costs of monitoring the conduct of the activity; and

(C) an amount which represents the fair market value of the use of the sanctuary resource.

(3) Use of Fees.--Amounts collected by the Secretary in the form of fees under this section may be used by the Secretary--

(A) for issuing and administering permits under this section; and

(B) for expenses of managing national marine sanctuaries.

(4) WAIVER OR REDUCTION OF FEES.- The Secretary may accept in-kind contributions in lieu of a fee under paragraph (2)(C), or waive or reduce any fee assessed under this subsection for any activity that does not derive a profit from the access to or use of sanctuary resources.

(e) VIOLATIONS.--Upon violation of a term or condition of a permit issued under this section, the Secretary may--

(1) suspend or revoke the permit without compensation to the permittee and without liability to the United States;

(2) assess a civil penalty in accordance with section 307; or

(3) both.

(f) REPORTS.--Each person issued a permit under this section shall submit an annual report to the Secretary not later than December 31 of each year which describes activities conducted under that permit and revenues derived from such activities during the year.

(g) FISHING.--Nothing in this section shall be considered to require a person to obtain a permit under this section for the conduct of any fishing activities in a national marine sanctuary.

Sec. 311. COOPERATIVE AGREEMENTS, DONATIONS, AND ACQUISITIONS

(a) AGREEMENTS AND GRANTS- The Secretary may enter into cooperative agreements, contracts, or other agreements with, or make grants to, States, local governments, regional agencies, interstate agencies, or other persons to carry out the purposes and policies of this title.

(b) AUTHORIZATION TO SOLICIT DONATIONS.--The Secretary may enter into such agreements with any nonprofit organization authorizing the organization to solicit private donations to carry out the purposes and policies of this title.

(c) DONATIONS.--The Secretary may accept donations of funds, property, and services for use in designating and administering national marine sanctuaries under this title. Donations accepted under this section shall be considered as a gift or bequest to or for the use of the United States.

(d) ACQUISITIONS.--The Secretary may acquire by purchase, lease, or exchange, any land, facilities, or other property necessary and appropriate to carry out the purposes and policies of this title

(e) USE OF RESOURCES OF OTHER GOVERNMENT AGENCIES.- The Secretary may, whenever appropriate, enter into an agreement with a State or other Federal agency to use the personnel, services, or facilities of such agency on a reim-

bursable or nonreimbursable basis, to assist in carrying out the purposes and policies of this title.

(f) AUTHORITY TO OBTAIN GRANTS.- Notwithstanding any other provision of law that prohibits a Federal agency from receiving assistance, the Secretary may apply for, accept, and use grants from other Federal agencies, States, local governments, regional agencies, interstate agencies, foundations, or other persons, to carry out the purposes and policies of this title.

Sec. 312. DESTRUCTION OR LOSS OF, OR INJURY TO, SANCTUARY RESOURCES

(a) LIABILITY FOR INTEREST.--

(1) Liability to united states.--Any person who destroys, causes the loss of, or injures any sanctuary resource is liable to the United States for an amount equal to the sum of--

(A) the amount of response costs and damages resulting from the destruction, loss, or injury; and

(B) interests on that amount calculated in the manner described under section 1005 of the Oil Pollution Act of 1990.

(2) Liability In Rem.--Any vessel used to destroy, cause the loss of, or injure any sanctuary resource shall be liable in rem to the United States for response costs and damages resulting from such destruction, loss, or injury. The amount of that liability shall constitute a maritime lien on the vessel and may be recovered in an action in rem in the district court of the United States having jurisdiction over the vessel.

(3) Defenses.--A person is not liable under this subsection if that person establishes that--

(A) the destruction or loss of, or injury to, the sanctuary resource was caused solely by an act of God, an act of war, or an act or omission of a third party, and the person acted with due care;

(B) the destruction, loss, or injury was caused by an activity authorized by Federal or State law; or

(C) the destruction, loss, or injury was negligible.

(4) Limits to Liability.-- Nothing in sections 4281-4289 of the Revised Statutes of the United States or section 3 of the Act of February 13, 1893, shall limit the liability of any person under this title.

(b) RESPONSE ACTIONS AND DAMAGE ASSESSMENT.-

(1) Response Actions.--The Secretary may undertake or authorize all necessary actions to prevent or minimize the destruction or loss of, or injury to, sanctuary resources, or to minimize the imminent risk of such destruction, loss, or injury.

(2) Damage Assessment.--The Secretary shall assess damages to sanctuary resources in accordance with section 302(6).

(c) CIVIL ACTIONS FOR RESPONSE COSTS AND DAMAGES.—

(1) The Attorney General, upon request of the Secretary, may commence a civil action against any person or vessel

who may be liable under subsection (a) for response costs and damages. The Secretary, acting as trustee for sanctuary resources for the United States, shall submit a request for such an action to the Attorney General whenever a person may be liable for such costs or damages.

(2) An action under this subsection may be brought in the United States district court for any district in which-

(A) the defendant is located, resides, or is doing business, in the case of an action against a person;

(B) the vessel is located, in the case of an action against a vessel; or

(C) the destruction of, loss of, or injury to a sanctuary resource occurred.

(d) **USE OF RECOVERED AMOUNTS.**--Response costs and damages recovered by the Secretary under this section shall be retained by the Secretary in the manner provided for in section 107(f)(1) of the Comprehensive Environmental Response, Compensation and Liability Act (42 U.S.C. 9607(f)(1)), and used as follows:

(1) **RESPONSE COSTS.**- Amounts recovered by the United States for costs of response actions and damage assessments under this section shall be used, as the Secretary considers appropriate--

(A) to reimburse the Secretary or any other Federal or State agency that conducted those activities; and

(B) after reimbursement of such costs, to restore, replace, or acquire the equivalent of any sanctuary resource.

(2) **OTHER AMOUNTS.**- All other amounts recovered shall be used, in order of priority--

(A) to restore, replace, or acquire the equivalent of the sanctuary resources that were the subject of the action, including for costs of monitoring and the costs of curation and conservation of archeological, historical, and cultural sanctuary resources;

(B) to restore degraded sanctuary resources of the national marine sanctuary that was the subject of the action, giving priority to sanctuary resources and habitats that are comparable to the sanctuary resources that were the subject of the action; and

(C) to restore degraded sanctuary resources of other national marine sanctuaries.

(3) **Federal-State Coordination.**--Amounts recovered under this section with respect to sanctuary resources lying within the jurisdiction of a State shall be used under paragraphs (2)(A) and (B) in accordance with the court decree or settlement agreement and an agreement entered into by the Secretary and the Governor of that State.

(e) **STATUTE OF LIMITATIONS.**- An action for response costs or damages under subsection (c) shall be barred unless the complaint is filed within 3 years after the date on which the Secretary completes a damage assessment and restoration plan for the sanctuary resources to which the action relates.

SEC. 313. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to the Secretary--

(1) to carry out this title--

(A) \$32,000,000 for fiscal year 2001;

(B) \$34,000,000 for fiscal year 2002;

(C) \$36,000,000 for fiscal year 2003;

(D) \$38,000,000 for fiscal year 2004;

(E) \$40,000,000 for fiscal year 2005; and

(2) for construction projects at national marine sanctuaries, \$6,000,000 for each of fiscal years 2001, 2002, 2003, 2004, and 2005.

Sec. 314. U.S.S. MONITOR ARTIFACTS AND MATERIALS

(a) **CONGRESSIONAL POLICY.** -- In recognition of the historical significance of the wreck of the United States ship Monitor to coastal North Carolina and to the area off the coast of North Carolina known as the Graveyard of the Atlantic, the Congress directs that a suitable display of artifacts and materials from the United States ship Monitor be maintained permanently at an appropriate site in coastal North Carolina. [P.L. 102-587 authorized a grant for the acquisition of space in Hatteras Village, NC, for display of artifacts and administration and operations of the Monitor National Marine Sanctuary.

(b) **DISCLAIMER.** --This section shall not affect the following:

(1) **Responsibilities Of Secretary.**--The responsibilities of the Secretary to provide for the protection, conservation, and display of artifacts and materials from the United States ship Monitor.

(2) **Authority Of Secretary.**--The authority of the Secretary to designate the Mariner's Museum, located at Newport News, Virginia, as the principal museum for coordination of activities referred to in paragraph (1).

Sec. 315. ADVISORY COUNCILS

(a) **ESTABLISHMENT.**--The Secretary may establish one or more advisory councils (in this section referred to as an 'Advisory Council') to advise and make recommendations to the Secretary regarding the designation and management of national marine sanctuaries. The Advisory Councils shall be exempt from the Federal Advisory Committee Act.

(b) **MEMBERSHIP.**--Members of the Advisory Councils may be appointed from among--

(1) persons employed by Federal or State agencies with expertise in management of natural resources;

(2) members of relevant Regional Fishery Management Councils established under section 302 of the Magnuson-Stevens Act; and

(3) representatives of local user groups, conservation and other public interest organizations, scientific organizations, educational organizations, or others interested in the protection and multiple use management of sanctuary resources.

(c) LIMITS ON MEMBERSHIP.--For sanctuaries designated after the date of enactment of the National Marine Sanctuaries Program Amendments Act of 1992, the membership of Advisory Councils shall be limited to no more than 15 members.

(d) STAFFING AND ASSISTANCE.--The Secretary may make available to an Advisory Council any staff, information, administrative services, or assistance the Secretary determines are reasonably required to enable the Advisory Council to carry out its functions.

(e) PUBLIC PARTICIPATION AND PROCEDURAL MATTERS.--The following guidelines apply with respect to the conduct of business meetings of an Advisory Council:

(1) Each meeting shall be open to the public, and interested persons shall be permitted to present oral or written statements on items on the agenda.

(2) Emergency meetings may be held at the call of the chairman or presiding officer.

(3) Timely notice of each meeting, including the time, place, and agenda of the meeting, shall be published locally and in the Federal Register, except that in the case of a meeting of an Advisory Council established to provide assistance regarding any individual national marine sanctuary the notice is not required to be published in the Federal Register.

(4) Minutes of each meeting shall be kept and contain a summary of the attendees and matters discussed.

Sec. 316. ENHANCING SUPPORT FOR NATIONAL MARINE SANCTUARIES

(a) AUTHORITY.- The Secretary may establish a program consisting of--

(1) the creation, adoption, and publication in the Federal Register by the Secretary of a symbol for the national marine sanctuary program, or for individual national marine sanctuaries or the System;

(2) the solicitation of persons to be designated as official sponsors of the national marine sanctuary program or of individual national marine sanctuaries;

(3) the designation of persons by the Secretary as official sponsors of the national marine sanctuary program or of individual sanctuaries;

(4) the authorization by the Secretary of the manufacture, reproduction, or other use of any symbol published under paragraph (1), including the sale of items bearing such a symbol, by official sponsors of the national marine sanctuary program or of individual national marine sanctuaries;

(5) the creation, marketing, and selling of products to promote the national marine sanctuary program, and entering into exclusive or nonexclusive agreements authorizing entities to create, market or sell on the Secretary's behalf;

(6) the solicitation and collection by the Secretary of monetary or in-kind contributions from official sponsors for the manufacture, reproduction or use of the symbols published under paragraph (1);

(7) the retention of any monetary or in-kind contributions collected under paragraphs (5) and (6) by the Secretary; and

(8) the expenditure and use of any monetary and in-kind contributions, without appropriation, by the Secretary to designate and manage national marine sanctuaries.

Monetary and in-kind contributions raised through the sale, marketing, or use of symbols and products related to an individual national marine sanctuary shall be used to support that sanctuary.

(b) CONTRACT AUTHORITY.-- The Secretary may contract with any person for the creation of symbols or the solicitation of official sponsors under subsection (a).

(c) RESTRICTIONS.-- The Secretary may restrict the use of the symbols published under subsection (a), and the designation of official sponsors of the national marine sanctuary program or of individual national marine sanctuaries to ensure compatibility with the goals of the national marine sanctuary program.

(d) PROPERTY OF UNITED STATES.-- Any symbol which is adopted by the Secretary and published in the Federal Register under subsection (a) is deemed to be the property of the United States.

(e) PROHIBITED ACTIVITIES.-- It is unlawful for any person--

(1) designated as an official sponsor to influence or seek to influence any decision by the Secretary or any other Federal official related to the designation or management of a national marine sanctuary, except to the extent that a person who is not so designated may do so;

(2) to represent himself or herself to be an official sponsor absent a designation by the Secretary;

(3) to manufacture, reproduce, or otherwise use any symbol adopted by the Secretary under subsection (a)(1), including to sell any item bearing such a symbol, unless authorized by the Secretary under subsection (a)(4) or subsection (f); or

(4) to violate any regulation promulgated by the Secretary under this section.

(f) COLLABORATIONS- The Secretary may authorize the use of a symbol adopted by the Secretary under subsection (a)(1) by any person engaged in a collaborative effort with the Secretary to carry out the purposes and policies of this title and to benefit a national marine sanctuary or the System.

(g) AUTHORIZATION FOR NON-PROFIT PARTNER ORGANIZATION TO SOLICIT SPONSORS.-

(1) IN GENERAL.- The Secretary may enter into an agreement with a non-profit partner organization authorizing it to assist in the administration of the sponsorship program established under this section. Under an agreement entered into under this paragraph, the Secretary may authorize the non-profit partner organization to solicit persons to be official sponsors of the national marine sanctuary system or of individual national marine sanctuaries, upon such terms

as the Secretary deems reasonable and will contribute to the successful administration of the sanctuary system. The Secretary may also authorize the non-profit partner organization to collect the statutory contribution from the sponsor, and, subject to paragraph (2), transfer the contribution to the Secretary.

(2) REIMBURSEMENT FOR ADMINISTRATIVE COSTS.- Under the agreement entered into under paragraph (1), the Secretary may authorize the non-profit partner organization to retain not more than 5 percent of the amount of monetary contributions it receives from official sponsors under the agreement to offset the administrative costs of the organization in soliciting sponsors.

(3) PARTNER ORGANIZATION DEFINED.- In this subsection, the term 'partner organization' means an organization that--

(A) draws its membership from individuals, private organizations, corporation, academic institutions, or State and local governments; and

(B) is established to promote the understanding of, education relating to, and the conservation of the resources of a particular sanctuary or 2 or more related sanctuaries.

SEC. 318. DR. NANCY FOSTER SCHOLARSHIP PROGRAM.

(a) ESTABLISHMENT.- The Secretary shall establish and administer through the National Ocean Service the Dr. Nancy Foster Scholarship Program. Under the program, the Secretary shall award graduate education scholarships in oceanography, marine biology or maritime archeology, to be known as Dr. Nancy Foster Scholarships.

(b) PURPOSES- The purposes of the Dr. Nancy Foster Scholarship Program are--

(1) to recognize outstanding scholarship in oceanography, marine biology, or maritime archeology, particularly by women and members of minority groups ; and

(2) to encourage independent graduate level research in oceanography, marine biology, or maritime archeology.

(c) AWARD.- Each Dr. Nancy Foster Scholarship--

(1) shall be used to support graduate studies in oceanography, marine biology, or maritime archeology at a graduate level institution of higher education; and

(2) shall be awarded in accordance with guidelines issued by the Secretary.

(d) DISTRIBUTION OF FUNDS.- The amount of each Dr. Nancy Foster Scholarship shall be provided directly to a recipient selected by the Secretary upon receipt of certification that the recipient will adhere to a specific and detailed plan of study and research approved by a graduate level institution of higher education.

(e) FUNDING- Of the amount available each fiscal year to carry out this title, the Secretary shall award 1 percent as Dr. Nancy Foster Scholarships.

(f) SCHOLARSHIP REPAYMENT REQUIREMENT- The Secretary shall require an individual receiving a scholarship under this section to repay the full amount of the scholarship to the Secretary if the Secretary determines that the individual, in obtaining or using the scholarship, engaged in fraudulent conduct or failed to comply with any term or condition of the scholarship.

(g) MARITIME ARCHEOLOGY DEFINED- In this section the term 'maritime archeology' includes the curation, preservation, and display of maritime artifacts.

APPENDIX B. DESIGNATION DOCUMENT FOR THE STELLWAGEN BANK NATIONAL MARINE SANCTUARY

On November 4, 1992, the Oceans Act of 1992 became law (Pub. L. 102-587). Section 2202 of Title II of that Act, known as the National Marine Sanctuaries Program Amendments Act of 1992 (“NMSPAA”), designated an area of waters and submerged lands, including the living and non-living resources within those waters, as described in Article II, as the Stellwagen Bank National Marine Sanctuary.

ARTICLE I. EFFECT OF DESIGNATION

Title III of the Marine Protection, Research and Sanctuaries Act of 1972, as amended (the “Act” or “MPRSA”), 16 U.S.C. 1431 *et seq.* authorizes the issuance of such final regulations as are necessary and reasonable to implement the designation, including managing and protecting the conservation, recreational, ecological, historical, research, educational and esthetic resources and qualities of the Stellwagen Bank National Marine Sanctuary. Section 1 of Article IV of this Designation Document lists activities of the type that either are to be regulated, or may have to be regulated subsequently in order to protect Sanctuary resources and qualities. Listing does not necessarily mean that a type of activity will be regulated; however, if a type of activity is not listed it may not be regulated, except on an emergency basis, unless Section 1 of Article IV is amended to include the type of activity by the procedures outlined in section 304(a) of the MPRSA.

ARTICLE II: DESCRIPTION OF THE AREA

The Stellwagen Bank National Marine Sanctuary (the “Sanctuary”) boundary encompasses a total of approximately 638 square nautical miles (approximately 2181 square kilometers) of ocean waters, and the submerged lands thereunder, over and surrounding the submerged Stellwagen Bank and additional submerged features, offshore the Commonwealth of Massachusetts. The boundary encompasses the entirety of Stellwagen Bank; Tillies Bank to the northeast of Stellwagen Bank; and southern portions of Jeffreys Ledge, to the north of Stellwagen Bank. Portions of the Sanctuary are adjacent to three coastal ocean areas designated by the Commonwealth of Massachusetts as Ocean Sanctuaries. The northwestern border coincides with the North Shore Ocean Sanctuary. The southern border coincides with the seaward limit of Commonwealth jurisdictional waters adjacent to the Cape Cod Bay Ocean Sanctuary; and is also tangential to the Cape Cod Ocean Sanctuary. The western border of the Stellwagen Bank Sanctuary occurs approximately 25 miles east of Boston, Massachusetts. Appendix RR to this Designation Document sets the precise Sanctuary boundary.

ARTICLE III: CHARACTERISTICS OF THE AREA THAT GIVE IT PARTICULAR VALUE

Stellwagen Bank is a glacially-deposited, primarily sandy feature measuring nearly twenty miles in length, occurring in a roughly southeast-to-northwest direction between Cape Cod and Cape Ann, Massachusetts. It is located at the extreme southwestern corner of the Gulf of Maine, and forms a partial “gateway” to Cape Cod Bay, situated shoreward and southwest of the Bank.

The presence of the Bank feature contributes to a particular combination of physical and oceanographic characteristics which results in two distinct peak productivity periods annually, when overturn and mixing of coastal waters with nutrient-rich waters from deeper strata produce a complex system of overlapping mid-water and benthic habitats. From the time of Colonial settlement, this area has supported an abundant and varied array of fisheries, which continue to provide livelihoods for an active commercial fleet. Important fisheries include bluefin tuna, herring, cod, haddock, winter and summer flounder, silver hake, pollock, ocean pout, lobster, shrimp, surf clam and sea scallop. The commercial value of fish caught (exclusive of bluefin tuna) within Sanctuary waters exceeded \$15 million in 1990.

The biological productivity of the Bank also attracts a seasonal variety of large and small cetaceans, several of which are classified as endangered species. The Stellwagen Bank environment provides feeding and nursery areas for humpback, fin, and northern right whales, the latter being the most critically-endangered of all large cetacean species. The photo-identification at Stellwagen Bank of 100 or more individual right whales from a total North Atlantic population estimated in 1990 at approximately 300 to 350 indicates the importance of the Bank to this species. The predictable seasonal presence of these and other cetacean species has generated a growing commercial whalewatch industry, involving more than 40 vessels (over 1.5 million passengers), and producing revenues in excess of \$17 million in 1988.

A vessel traffic separation scheme (TSS) crosses directly over Stellwagen Bank, and accommodates approximately 2,700 commercial vessels annually in and out of Boston, Massachusetts. Existing or potential additional human activities involving the Stellwagen Bank environment include dredged materials disposal; sand and gravel extraction; offshore mariculture development; and offshore fixed artificial platform construction.

The uniqueness of the Stellwagen Bank environment as well as its accessibility draws the continuing interest of area scientific institutions, including the Center for Coastal Studies, Cetacean Research Unit, University of Massachusetts, Woods Hole Oceanographic Institution, Marine Biological Laboratory, Manomet Bird Observatory, New England Aquarium, University of Rhode Island and the National Marine Fisheries Service (NOAA). In light of the increasing levels of human activities, several issues such as: interactions between marine mammals and commercial/recreational

vessels; immediate, long-term and cumulative impacts on marine mammals from whale-watching vessel activity; and the immediate, long-term and cumulative effects of discharge/disposal operations on the Bank's resources and qualities require coordinated and comprehensive monitoring and research.

ARTICLE IV. SCOPE OF REGULATIONS

SECTION 1. ACTIVITIES SUBJECT TO REGULATION

The following activities are subject to regulation under the Act, including prohibition, to the extent necessary and reasonable to ensure the protection and management of the conservation, recreational, ecological, historical, research, educational or esthetic resources and qualities of the area:

- a. Discharging or depositing, from within the boundary of the Sanctuary, any material or other matter;
- b. Discharging or depositing, from beyond the boundary of the Sanctuary, any material or other matter;
- c. Exploring for, developing, or producing oil, gas or minerals (e.g., clay, stone, sand, gravel, metalliferous ores and nonmetalliferous ores or any other solid material or other matter of commercial value ["industrial materials"]) in the Sanctuary;
- d. Drilling into, dredging or otherwise altering the seabed of the Sanctuary; or constructing, placing or abandoning any structure, material or other matter on the seabed of the Sanctuary;
- e. Development or conduct in the Sanctuary of mariculture activities;
- f. Taking, removing, moving, catching, collecting, harvesting, feeding, injuring, destroying or causing the loss of, or attempting to take, remove, move, catch, collect, harvest, feed, injure, destroy or cause the loss of, a marine mammal, marine reptile, seabird, historical resource or other Sanctuary resource;
- g. Transferring of petroleum-based products or materials from vessel-to-vessel or "lightering", in the Sanctuary;
- h. Operation of a vessel (i.e., water craft of any description capable of being used as a means of transportation) in the Sanctuary;
- i. Possessing within the Sanctuary a Sanctuary resource or any other resource, regardless of where taken, removed, moved, caught, collected or harvested, that, if it had been found within the Sanctuary, would be a Sanctuary resource;
- j. Interfering with, obstructing, delaying or preventing an investigation, search, seizure or disposition of seized property in connection with enforcement of the Act or any regulation or permit issued under the Act.

Section 2. Emergencies

Where necessary to prevent or minimize the destruction of, loss of, or injury to a Sanctuary resource or quality; or minimize the imminent risk of such destruction, loss or injury, any activity, including those not listed in Section 1 of this Article, is subject to immediate temporary regulation, including prohibition.

ARTICLE V. EFFECT ON LEASES, PERMITS, LICENSES, AND RIGHTS

If any valid regulation issued by any Federal, State or local authority of competent jurisdiction, regardless of when issued, conflicts with a Sanctuary regulation, the regulation deemed by the Director, Office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration, or his or her designee to be more protective of Sanctuary resources and qualities shall govern.

Pursuant to section 304(c)(1) of the Act, 16 U.S.C. § 1434(c)(1), no valid lease, permit, license, approval or other authorization issued by any Federal, State or local authority of competent jurisdiction, or any right of subsistence use or access, may be terminated by the Secretary of Commerce, or his or her designee, as a result of this designation, or as a result of any Sanctuary regulation, if such authorization or right was in existence on the effective date of this designation. However, the Secretary of Commerce, or designee, may regulate the exercise (including, but not limited to, the imposition of terms and conditions) of such authorization or right consistent with the purposes for which the Sanctuary is designated.

In no event may the Secretary or designee issue a permit authorizing, or otherwise approving: (1) the exploration for, development of, or production of industrial materials within the Sanctuary; or (2) the disposal of dredged material within the Sanctuary (except by a certification, pursuant to Section 940.10, of valid authorizations in existence on the effective date of Sanctuary designation). Any purported authorizations issued by other authorities after the effective date of Sanctuary designation for any of these activities within the Sanctuary shall be invalid.

ARTICLE VI. ALTERATION OF THIS DESIGNATION

The terms of designation, as defined under Section 304(a) of the Act, may be modified only by the procedures outlined in section 304(a) of the MPRSA, including public hearings, consultation with interested Federal, State, and local agencies, review by the appropriate Congressional committees, and Governor of the Commonwealth of Massachusetts, and approval by the Secretary of Commerce or designee.

APPENDIX RR. COORDINATES.

Coordinates Based on North American Datum of 1927				
			Loran	
	LATITUDE	LONGITUDE	9960W	9960X
E1	42 45 59.83	70 13 01.77	13,607.19	25,728.57
E2	42 05 35.51	70 02 08.14	13,753.39	25,401.78
E3	42 06 18.25	70 03 17.55	13,756.72	25,412.46
E4	42 06 29.53	70 04 03.36	13,760.30	25,417.53
E5	42 07 02.70	70 05 13.61	13,764.52	25,427.27
E6	42 07 13.80	70 06 23.75	13,770.54	25,434.45
E7	42 07 35.95	70 07 27.89	13,775.08	25,442.51
E8	42 07.42.33	70 08 26.07	13,780.35	25,448.27
E9	42 07 59.94	70 09 19.78	13,784.24	25,455.02
E10	42 08 04.95	70 10 24.40	13,790.27	25,461.28
E11	42 07 55.19	70 11 47.67	13,799.38	25,467.56
E12	42 07 59.84	70 13 03.35	13,806.58	25,474.95
E13	42 07 46.55	70 14 21.91	13,815.52	25,480.62
E14	42 07 27.29	70 15 22.95	13,823.21	25,484.05
E15	42 06 54.57	70 16 42.71	13,833.88	25,487.79
E16	42 07 44.89	70 28 15.44	13,900.14	25,563.22
E17	42 32 53.52	70 35 52.38	13,821.60	25,773.51
E18	42 33 30.24	70 35 14.96	13,814.43	25,773.54
E19	42 33 48.14	70 35 03.81	13,811.68	25,774.28
E20	42 34 30.45	70 34 22.98	13,803.64	25,774.59
E21	42 34 50.37	70 33 21.93	13,795.43	25,770.55
E22	42 35 16.08	70 32 32.29	13,787.92	25,768.31
E23	42 35 41.80	70 31 44.20	13,780.57	25,766.25
E24	42 36 23.08	70 30 58.98	13,772.14	25,766.14
E25	42 37 15.51	70 30 23.01	13,763.69	25,768.12
E26	42 37 58.88	70 30 06.60	13,758.09	25,771.07
E27	42 38 32.46	70 30 06.54	13,755.07	25,774.58
E28	42 39 04.08	70 30 11.29	13,752.75	25,778.35

APPENDIX C. KEY TOPICS AND ISSUES IDENTIFIED DURING PUBLIC SCOPING FOR REVISION OF THE STELLWAGEN BANK SANCTUARY MANAGEMENT PLAN

TOPIC 1: HABITAT AND ECOSYSTEM PROTECTION

Issue A: Alteration of Sanctuary Habitat by Human Activity

Issue B: More Detailed Site Characterization and Assessment of Resource Status

Issue C: Need for Comprehensive Ecosystem Protection

Issue D: Need for Compatibility Determinations and Carrying Capacities

TOPIC 2: IMPACTS OF HUMAN ACTIVITIES ON MARINE MAMMALS

Issue A: Need for More Information on Habits and Use of Sanctuary Habitats by Whales and Other Marine Mammals

Issue B: Vessel Strikes on Whales and Other Marine Mammals

Issue C: Whale Harassment and Behavioral Disturbance

Issue D: Entanglement of Whales and Other Marine Mammals in Fishing Gear and Marine Debris

Issue E: Impacts of Vessel Noise and Other Acoustics on Marine Mammals

TOPIC 3: CONDITION OF WATER QUALITY AND CONTAMINANT TRANSPORT

Issue A: No Existing Comprehensive Water Quality Plan

Issue B: Lack of Baseline Water Quality Data Including Toxins and Contaminants

Issue C: Appropriateness of Wastewater Discharge by Vessels

Issue D: Impacts of Municipal Sewage Outfalls and Other Waste Streams

TOPIC 4: LACK OF PUBLIC AWARENESS

Issue A: Low Name Recognition

Issue B: Better Information Dissemination to the Public and User Groups

Issue C: Program Support through Leveraged Partnerships

Issue D: Public Education through Curriculum Development

TOPIC 5: PROTECTION OF SUBMERGED CULTURAL RESOURCES (SCRs)

Issue A: Need for Inventory and Assessment and Comprehensive Characterization of SCRs

Issue B: No Plan for SCR Management and Protection

Issue C: Lack of Public Outreach and Interpretation of SCRs

[Note: The NMSP's Maritime Heritage Program has since substituted the term "Maritime Heritage Resource" for the term "Submerged Cultural Resource," because the new term has broader applicability system-wide.]

TOPIC 6: EFFECTIVE ENFORCEMENT

Issue A: Need Greater Compliance with Regulations

Issue B: New Vessel Types / Activities Require Monitoring

Issue C: Whale Watching Guidelines Need to Become Regulations to Avoid Injury to Marine Mammals

TOPIC 7: ADEQUACY OF ADMINISTRATIVE CAPACITY

Issue A: Base-Level Staffing and Program Support

Issue B: Infrastructure Development and Maintenance

TOPIC 8: SANCTUARY AUTHORITY AND CROSS-JURISDICTIONAL INTERACTION

Issue A: Clarification of Overlapping Agency Responsibilities

Issue B: Inter-Agency Coordination and Effectiveness

APPENDIX D. LIST OF CURRENT AND FORMER STELLWAGEN BANK SANCTUARY ADVISORY COUNCIL MEMBERS (2001-2006)

*Gib Chase,
Wildlife Biologist
Northborough, MA*

PUBLIC MEMBERS (VOTING):

RESEARCH (1)

Member: Mason Weinrich
Executive Director and Chief Scientist
The Whale Center of New England
Gloucester, MA

Alternate: Porter Hoagland, Ph.D.
Public Policy Research Specialist
Woods Hole Oceanographic Institute
Woods Hole, MA

RESEARCH (2)

Member: Peter Auster, Ph.D.
Science Director
National Undersea Research Center
University of Connecticut
Groton, CT

Alternate: Judith Pederson, Ph.D.
Manager, Center for Coastal Resources
MIT Sea Grant College Program
Cambridge, MA

CONSERVATION (1)

Member: Susan Farady, J.D.
Ecosystem Protection Project Manager
The Ocean Conservancy
Portland, ME

Alternate: Regina Asmutis-Silvia
Senior Biologist
Whale and Dolphin Conservation Society
Plymouth, MA

CONSERVATION (2)

Member: Priscilla Brooks, Ph.D.
Director, Marine Conservation Program
Conservation Law Foundation
Boston, MA

Alternate: Rachael Taylor
The Nature Conservancy
Boston, MA

Former: Erin Hesket
Senior Program Officer
Wildlife and Habitat Protection Department
International Fund for Animal Welfare (IFAW)
Yarmouthport, MA

EDUCATION (1)

Member: Richard Wheeler
Chairman, Board of Trustees
Cape Cod Museum of Natural History
Wareham, MA

Alternate: Sharon Meeker
Marine Education Specialist (ret.)
University of New Hampshire
Sea Grant College Program
Lee, NH

EDUCATION (2)

Member: Peter Borrelli
Executive Director
Provincetown Center for Coastal Studies
Provincetown, MA

Former: *Kevin C. Chu, Ph.D.*
Sea Education Association
Falmouth, MA

Alternate: Jack Crowley
Executive Director
Massachusetts Marine Educators
Fairhaven, MA

Former: *J. Michael Williamson, Ph.D.*
Director, WhaleNet and
Associate Professor, Wheelock College
Boston, MA

MARINE TRANSPORTATION

Member: William Eldridge
Owner/Operator
Peabody & Lane Corp./ Mediterranean Ship-
ping Co., Inc.
Boston, MA

Former: *Frederick L. Nolan, III*
Managing Partner
Boston Harbor Cruises
Boston, MA

Alternate: Captain Martin McCabe
Boston Harbor Pilot
Boston Harbor Pilots Association at Pier 1
East Boston, MA

Former: *William Eldridge*
Peabody & Lane Corp./ Mediterranean Ship-
ping, Co., Inc.
Boston, MA

RECREATION

- Member: Barry Gibson
New England Regional Director
Recreational Fishing Alliance (RFA)
E. Boothbay, ME
- Alternate: Michael Sosik, Jr
President
Northeast Charter Boat Captain's Association
Sturbridge, MA
- Former: Roger Jarvis
Owner/Captain
Jazz Sport Fishing
Duxbury, MA

WHALEWATCHING

- Member: Steve Milliken
Owner
Dolphin Fleet
Eastham, MA
- Former: Alan (Jerry) Hill
President
Yankee Fleet
Gloucester, MA
- Alternate: William Reilly, III
Director of Safety, Special Projects Manager
Boston Harbor Cruises
Boston, MA
- Former: David Slocum
Senior Captain
New England Aquarium Whale Watch
Boston, MA

FIXED GEAR COMMERCIAL FISHING

- Member: William Adler
Executive Director
Massachusetts Lobstermen's Association
Scituate, MA
- Alternate: David Casoni
Executive Board
South Shore Lobstermen's Association
Plymouth, MA
- Former: John W. Pappalardo
Policy Director
Cape Cod Commercial Hook Fishermen's
Assoc.
N.Chatham, MA

MOBILE GEAR COMMERCIAL FISHING

- Member: Edward Barrett
President
Massachusetts Fishermen's Partnership
Green Harbor, MA
- Former: William H. Amaru
Captain
FV Joanne A. III
South Orleans, MA
- Alternate: Vito Giacalone
Executive Board
North East Seafood Coalition
Gloucester, MA
- Former: Robert B. MacKinnon
President
MA Bay Inshore Ground Fishermen's Asso-
ciation, Inc.
Marshfield, MA

BUSINESS/INDUSTRY

- Member: Tim Moll
Vice-President
Brewer Plymouth Marine
Plymouth, MA
- Former: Jackson Kent III
Board of Directors
Massachusetts Marine Trades Association,
Inc.
Duxbury, MA
- Alternate: David Jenson
Manager
Marina Bay Boston Harbor
Quincy, MA
- Former: Peter Davidoff
Co-Owner
BOSPORT Docking and Constitution Marina
Boston, MA

AT LARGE (1)

- Member: Deborah Cramer
Marine Science Writer
Gloucester, MA
- Former: Richard C. Wheeler
Cape Cod Museum of Natural History
Wareham, MA
- Alternate: Steven Tucker
Coastal and Marine Resources Program
Manager
Cape Cod Commission
Barnstable, MA

Former: Charles Rasak
Creative Director
Creative Resources Group
Plymouth, MA

Former: Susan Snow-Cotter
Director, Massachusetts Office of Coastal
Zone Management
Boston, MA

AT LARGE (2)

Member: Sally Yozell
Vice President
Battelle Laboratories (Duxbury Operations)
Duxbury, MA

Former: Thomas W. Skinner
Director, Massachusetts Office of Coastal
Zone Management
Boston, MA

Alternate: Open

Member (3): Paul J. Diodati
Director, Massachusetts Division of Marine
Fisheries
Boston, MA
Designee: David Pierce, Ph.D., Deputy
Director

Former: Dale Brown
Gloucester Community Representative
Gloucester, MA

Former: Rob Robertson, Ph.D.
Dept of Resource Economics
University of New Hampshire
Durham, NH

FEDERAL

AT LARGE (3)

Member: Dale Brown
Gloucester Community Representative
Gloucester, MA

Member (1): Paul J. Howard,
Executive Director
New England Fishery Management Council
Newburyport, MA
Designee: Chris Kellogg, Deputy Director

Former: John Williamson
Fishing Community Activist
Kennebunk, ME

Member (2): Patricia A. Kurkul
Northeast Regional Administrator
NOAA Fisheries Service
Gloucester, MA
Designee: Kathi Rodrigues, Policy Analyst

Alternate: Donald Hourihan
Scituate Waterways Commission
Scituate, MA

Member (3): Rear Admiral Timothy Sullivan
Commander, First Coast Guard District
Boston, MA
Designee: LCDR Edward Marohn

EX-OFFICIO MEMBERS (GOVERNMENT NON-VOTING):

Former: Rear Admiral Vivian S. Crea
Commander, First Coast Guard District
Boston, MA

STATE

Member (1): Major Kathleen Dolan
Massachusetts Environmental Police
Hingham, MA

Former: Rear Admiral David P. Pekoske
Commander, First Coast Guard District
Boston, MA

Former: Richard A. Murray, Director
Massachusetts Environmental Police

Member (2): Bruce Carlisle
Assistant Director
Massachusetts Office of Coastal Zone
Management
Boston, MA

APPENDIX E. LIST OF STELLWAGEN BANK SANCTUARY ADVISORY COUNCIL MEETINGS RELATING TO MANAGEMENT PLAN REVIEW

Meeting Date	Location	Meeting Purpose
2/11/2002	Plymouth Library, Plymouth, MA	Overview of MPR Process
9/09/2002	The Radisson, Rockland, MA	Overview of Scoping Process
12/16/2002	The Town Hall, Gloucester, MA	Report of Scoping Process
3/27/2003	The Radisson, Woburn, MA	Prioritization of Scoping Issues
6/16/2003	The Radisson, Rockland, MA	Initiation of Working Groups (WG)
10/01/2003	The Clarion, Hull, MA	Review of WG Membership and Guidelines
12/04/2003	The Clarion, Hull, MA	WG Status Reports
02/10/2004	The Radisson, Rockland, MA	Chair and Team Lead WG Reports
06/08/2004	The Sheraton Colonial, Wakefield, MA	MPR Overview and Timetable
10/20/2004	National Academy of Science, Woods Hole, MA	Review and Acceptance of all WG Action Plans (AP)
11/05/2004	The State Room, Boston, MA	Prioritization of AP Strategies
02/15/2005	The Radisson, Plymouth, MA	Compatibility Determination WG status; Formation of Zoning WG
06/09/2005	Museum of Science, Boston, MA	Review and Acceptance of CD AP
07/11/2005	Sanctuary Office, Scituate, MA	Formulation of Sanctuary Vision Statement
11/09/2005	The Commonwealth Museum, Boston, MA	Review of draft Condition Report
1/24/2006	The Sheraton Colonial, Wakefield, MA	Non-Regulatory MP Discussion of Potential Targeted Management Actions
6/12/2006	The Radisson, Rockland, MA	Overview of NMSA and NEPA; Zoning WG "ecological integrity" definition

APPENDIX F. LIST OF WORKING GROUP MEMBERS

This appendix lists the members of the 12 working groups established by the Stellwagen Bank Sanctuary Advisory Council to develop draft action plans for consideration by the Advisory Council. For a list of working group meeting dates refer to <http://stellwagen.noaa.gov>

Members of the Marine Mammal Behavioral Disturbance Working Group		
Name	Seat	Affiliation
Regina Asmutis-Silvia	Sanctuary Advisory Council Chair	International Wildlife Coalition
Nathalie Ward	Team Lead	Stellwagen Bank National Marine Sanctuary
Scott MacNeil	Shipping	Tractobell LNG Co.
Dave Slocum	Whale Watch	New England Aquarium Whale Watch
Sharon Young	Conservation	U.S. Humane Society
Carole Carlson	Conservation	International Fund for Animal Welfare
Jack Kent	Recreational Use	Massachusetts Marine Trades Association
Donald Hourihan	Tuna Fishing	Tuna Fishing
Brian Hopper	Government	NOAA Fisheries Service, Northeast Regional Office
Dana Hartley	Government	NOAA Fisheries Service, Northeast Regional Office
Kim Amaral	Academic	Woods Hole Oceanographic Institution
Alternates		
Erin Heskett	Conservation	International Fund for Animal Welfare
Ralph Pratt	Tuna Fishing	Tuna Fishing
Technical Advisors		
Phil Clapham	Government	NOAA Fisheries Service, Northeast Fisheries Science Center
Chris Clark	Academia	Cornell University
Joseph Green	Government	NOAA, Office of Law Enforcement
Darlene Ketten	Academia	Woods Hole Oceanographic Institution
Jooke Robbins	NGO	Center for Coastal Studies
Peter Tyack	Academia	Woods Hole Oceanographic Institution
Pat Gerrior	Government	NOAA Fisheries Service, Northeast Region—Protected Resources

Members of the Administration Working Group		
Name	Seat	Affiliation
Richard Wheeler	Sanctuary Advisory Council Chair	Cape Cod Museum of Natural History
Nathalie Ward	Team Lead	Stellwagen Bank National Marine Sanctuary
Susan Dowds	Museums and Aquariums	New England Aquarium
Lisa Reed	Museums and Aquariums	Mystic Seaport
David Bergeron	Business Associations	Massachusetts Fishermen's Partnerships
Greg Ketchan	Business Associations	Gloucester Community Development Corporation
Dan Morast	Conservation	International Wildlife Coalition
Maggie Geist	Conservation	Association for the Preservation of Cape Cod
David Clapp	Conservation	Massachusetts Audubon Society
Stephanie Murphy	Academic	Woods Hole Oceanographic Institution
John Bullard	Academic	Sea Education Association
Vacant	Academic	
Robin Peach	Conservation	Massachusetts Environmental Trust
Steve Tucker	Cape Cod Commission	Cape Cod Commission

Technical Advisors		
Lori Arguelles	Non-profit	National Marine Sanctuary Foundation
Mary Enstrom	Government	National Marine Sanctuary Programs
Paula Jewell	Government	Massachusetts Bay National Estuary Program
Kathie Abbott	Non-profit	Island Alliance

Members of the Ecosystem Based Sanctuary Management Working Group		
Name	Seat	Affiliation
John Williamson	Sanctuary Advisory Council Chair	Fishing Community Activist
Ben Cowie-Haskell	Team Lead	Stellwagen Bank National Marine Sanctuary
Peter Auster	Academic	University of Connecticut, National Undersea Research Center
Larry Madin	Academic	Woods Hole Oceanographic Institution
Les Kaufman	Academic	Boston University
Edward Barrett	Fishing Industry	Massachusetts Bay Groundfishermen's Association
Dave Casoni	Fishing Industry	Massachusetts Lobstermen's Association
Jerry Hill	Recreational Use	Yankee Fleet
Tom DePersia	Recreational Use	Big Fish II Sportfishing Charters
Susan Farady	Conservation	The Ocean Conservancy
Priscilla Brooks	Conservation	Conservation Law Foundation
Dierdre Kimball	Government	NOAA Fisheries Service, Northeast Region
Jon Brodziak	Government	NOAA Fisheries Service, Northeast Fisheries Science Center
Paul Howard	New England Fishery Management Council	New England Fishery Management Council
Anthony Wilbur	Government	Massachusetts Coastal Zone Management
David Pierce	Government	Massachusetts Division of Marine Fisheries
Alternates		
David Wiley	Team Lead	Stellwagen Bank National Marine Sanctuary
Elizabeth Soule	Academic	Boston University
Vito Giacolone	Fishing Industry	Massachusetts Bay Groundfishermen's Association
John Carver	Fishing Industry	South Shore Lobstermen's Association
Tom Conley	Recreational Use	Yankee Fleet
Michael Doebley	Recreational Use	Recreational Fishing Alliance
Geoffrey Smith	Conservation	The Ocean Conservancy
Jud Crawford	Conservation	Conservation Law Foundation
Kevin Chu	Government	NOAA Fisheries Service, Northeast Region
Chris Legault	Government	NOAA Fisheries Service, Northeast Fisheries Science Center
Chris Kellogg	New England Fishery Management Council	New England Fishery Management Council
Megan Tyrrell	Government	Massachusetts Coastal Zone Management

Participants of the Ecosystem Alteration Working Group		
Name	Seat	Affiliation
Porter Hoagland	Sanctuary Advisory Council Chair	Woods Hole Oceanographic Institution
David Wiley	Team Lead	Stellwagen Bank National Marine Sanctuary
Micheal J. Kaiser	Academic	Woods Hole Oceanographic Institution
Robert Steneck	Academic	University of Maine
Les Watling	Academic	University of Maine
Bob Kenney	Academic	University of Rhode Island

Chris Glass	Academic	Manomet Center for Conservation Sciences
Frank Mirarchi	Fishing Industry	Commercial Fisherman
Russell Sherman	Fishing Industry	Commercial Fisherman
Phillip Michaud	Fishing Industry	Commercial Fisherman
Mary Beth Tooley	Fishing Industry	East Coast Pelagics (Herring Fishery)
Richard Ruais	Fishing Industry	East Coast Tuna Association
Jud Crawford	Conservation	Conservation Law Foundation
Geoffrey Smith	Conservation	The Ocean Conservancy
Robert Buchsbaum	Conservation	Massachusetts Audubon Society
Rachael Taylor	Conservation	The Nature Conservancy
Stormy Mayo	Conservation	Center for Coastal Studies
Susan Murphy	National Oceanic and Atmospheric Administration Fisheries	National Oceanic and Atmospheric Administration Fisheries, Northeast Regional Office
Leslie Ann McGee	New England Fishery Management Council	New England Fishery Management Council
Susan Snow-Cotter	Massachusetts Coastal Zone Management	Massachusetts Coastal Zone Management
Alternates		
Ben Cowie-Haskell	Team Lead	Stellwagen Bank National Marine Sanctuary
Richard Taylor	Fishing Industry	Sea Scallop Working Group
Luis Ribas	Fishing Industry	Commercial Fishing
Allison Ferreira	National Oceanic and Atmospheric Administration Fisheries	National Oceanic and Atmospheric Administration Fisheries, Northeast Regional Office
Tom Nies	New England Fishery Management Council	New England Fishery Management Council
Jason Burtner	Massachusetts Coastal Zone Management	Massachusetts Coastal Zone Management
Technical Advisors		
Richard Taylor	Technical Advisor	Sea Scallop Working Group
Allen Michael	Technical Advisor	Allen D. Michael and Associates
David Pierce	Technical Advisor	Massachusetts Department of Marine Fisheries
James Lindholm	Technical Advisor	Pfleger Institute

Members of the Interagency Cooperation Working Group

Name	Seat	Affiliation
Sally Yozell	Sanctuary Advisory Council Chair	Batelle Ocean Sciences (Duxbury Operations)
Ben Cowie-Haskell	Team Lead	Stellwagen Bank National Marine Sanctuary
Kathi Rodrigues	Government	NOAA Fisheries Service, Northeast Region—Habitat Protection
Paul Howard	New England Fishery Management Council	New England Fishery Management Council
Greg Hitchen	Enforcement	U.S. Coast Guard
Andrew Cohen	Enforcement	NOAA Fisheries Service, Northeast Region
Kathleen Dolan	Enforcement	Massachusetts Environmental Police
Tom Fetherstone	Military	U.S. Navy
Tim Timmerman	Government	U.S. Environmental Protection Agency
Andrew Raddant	Government	Department of the Interior—Office of Environmental Policy and Compliance

Tom Fredette	Government	U.S. Army Corps of Engineers
Steve Tucker	Public Interest	Cape Cod Commission
Stephanie Campbell	Legal / Policy	NOAA, Office of the General Counsel
Susan Snow-Cotter	Government	Massachusetts Coastal Zone Management
Alternates		
Kevin Chu	Government	NOAA Fisheries Service, Northeast Region
Mike Hennessy	Enforcement	US Coast Guard
Joseph Green	Enforcement	NOAA, Office of Law Enforcement
Gail French	Government	U.S. Army Corps of Engineers

Members of the Maritime Heritage Resource Working Group		
Name	Seat	Affiliation
Jerry Hill	Sanctuary Advisory Council Chair	Yankee Fleet
Ben Cowie-Haskell	Team Lead	Stellwagen Bank National Marine Sanctuary
Anne Smrcina	Government	Stellwagen Bank National Marine Sanctuary
Bruce Terrell	Government	National Marine Sanctuary Program
Jeff Gray	Government	Thunder Bay National Marine Sanctuary
Ivar Babb	Academia	University of Connecticut, National Undersea Research Center
John Jensen	Academia	Mystic Seaport
Victor Mastone	Government	Massachusetts Board of Underwater Archeological Resources
Bill Lee	Commercial Fishing Industry	Commercial dragger
Don King	Commercial Fishing Industry	Commercial gillnetter
Steve James	Recreational Use	Recreational Fishing Industry
Marcie Bilinski	Diving	Technical Diver
Deborah Cramer	Conservation	Independent author/writer
David Robinson	Private	Public Archeology Laboratory, Inc.
Martina Duncan	Private	Portland Harbor Museum
Alternates		
Kevin McBride	Academic	University of Connecticut
Dave Trubey	Government	Massachusetts Board of Underwater Archeological Resources
Ned Allen	Private	Portland Harbor Museum
Technical Advisors		
Arnie Carr	Private	Private New England shipwreck expert
Deborah Marx	Government	Archeologist, Stellwagen Bank National Marine Sanctuary
Matthew Lawrence	Government	Archeologist, Stellwagen Bank National Marine Sanctuary
Joe Green	Enforcement	NOAA, Office of Law Enforcement
Greg Hitchen	Enforcement	U.S. Coast Guard

Members of the Marine Mammal Entanglement Working Group		
Name	Seat	Affiliation
Regina Asmutis-Silvia	Sanctuary Advisory Council Chair	International Wildlife Coalition
David Wiley	Team Lead	Stellwagen Bank National Marine Sanctuary
Ronnie Hunter	Commercial Whale Watch	Captain John Boats
William Bartlett	Fixed Gear Commercial Trap Fisheries	Commercial Fisherman
Gary Ostrom	Fixed Gear Commercial Trap Fisheries	Massachusetts Lobstermen's Association
David Marciano	Fixed Gear Commercial Gillnet Fisheries	Commercial Fisherman

Stephen Welch	Fixed Gear Commercial Gillnet Fisheries	Commercial Fisherman
John Pappalardo	Fixed Gear Commercial Longline Fisheries	Cape Cod Commercial Hook Fishermen's Association
Dave Morin	Conservation	Center for Coastal Studies
Sharon Young	Conservation	U.S. Humane Society
Nina Young	Conservation	The Ocean Conservancy
Jennifer Kennedy	Conservation	Blue Ocean Society
Edward Lyman	Government	Massachusetts Division of Marine Fisheries
David Gouveia	Government	NOAA Fisheries Service, Northeast Region
Marjorie Rossman	Government	NOAA, Northeast Fisheries Science Center
Pat Fiorelli	New England Fishery Management Council	New England Fishery Management Council
Tom French	Academia	Massachusetts Department of Marine Fisheries
Lisa Conger	Academia	New England Aquarium Right Whale Program
Alternates		
Dan McKiernan	Government	Massachusetts Department of Marine Fisheries
Diane Borggaard	Government	NOAA Fisheries Service, Northeast Region—Protected Resources
Technical Advisors		
Joseph Green	Enforcement	NOAA, Office of Law Enforcement
Greg Hitchen	Enforcement	U.S. Coast Guard
Kathleen Dolan	Enforcement	Massachusetts Environmental Police
Mason Weinrich	Non-profit	Whale Center of New England
Jooke Robbins	Non-profit	Center for Coastal Studies
John F. Kenney	Government	NOAA Fisheries Service

Members of the Marine Mammal Vessel Strikes Working Group		
Name	Seat	Affiliation
Mason Weinrich	Sanctuary Advisory Council Chair	Whale Center of New England
David Wiley	Team Lead	Stellwagen Bank National Marine Sanctuary
Bill Eldridge	Shipping Industry	Peabody Lane Shipping
Brad Wellock	Shipping Industry	Massachusetts Port Authority
Rick Nolan	Shipping Industry	Boston Harbor Cruises
Erin Heskett	Conservation	International Fund for Animal Welfare
Regina Asmutis-Silvia	Conservation	International Wildlife Coalition
Karen Steuer	Conservation	National Environmental Trust
Colleen Coogan	Conservation	Independent
David Gouveia	Government	NOAA Fisheries Service, Northeast Region—Protected Resources
Tim Cole	Government	NOAA, Northeast Fisheries Science Center
Moira Brown	Academia	Center for Coastal Studies
Amy Knowlton	Academia	New England Aquarium Right Whale Research
Hauke Kite-Powell	Academia	Woods Hole Oceanographic Institution
Jack Kent	Recreational Use	Massachusetts Marine Trades Association
Andy Glynn	Tuna Fishing	General Tuna Category Association
Mike Bartlett	Charter Boats	B-Fast Charters
Michael Prew	Charter Boats	Captain John Boats

Alternates		
Richard Meyer	Shipping	Boston Shipping Association
Carol Carlson	Conservation	International Fund for Animal Welfare
Sharon Young	Conservation	U.S. Humane Society
Brian Hopper	Government	NOAA Fisheries Service, Northeast Region—Protected Resources
Technical Advisors		
Joe Pelczarski	Government	Massachusetts Coastal Zone Management
Pat Gerrior	Government	NOAA Fisheries Service, Northeast Region
Joseph Green	Enforcement	NOAA, Office of Law Enforcement
Greg Hitchen	Enforcement	U.S. Coast Guard
Kathleen Dolan	Enforcement	Massachusetts Environmental Police

Members of the Public Outreach and Education Working Group		
Name	Seat	Affiliation
Richard Wheeler	Sanctuary Advisory Council Chair	Cape Cod Museum of Natural History
Anne Smrcina	Team Lead	Stellwagen Bank National Marine Sanctuary
William Spitzer	Aquariums/Museums	New England Aquarium
Maureen McConnell	Aquariums/Museums	Boston Museum of Science
Andrea Thorrold	Public Education	Woods Hole Oceanographic Institution
Jack Crowley	Public Education	New Bedford Oceanarium/University of Massachusetts, Dartmouth
Nicola Micozzi	Public Education	Plymouth Public Schools
Tracy Hart	Academic	University of Maine Sea Grant
Jennifer McCann	Academic	University of Rhode Island, Coastal Research Center
Lou Gainor	Media	WATD Radio, Nautical Talk
Tom Clark	Media	Stratagia
Charles Rasak	Public Awareness	Creative Resources Group
Wendy Northcross	Public Awareness	Cape Cod Chamber of Commerce
Jennifer Ferguson-Mitchell	Conservation	International Fund for Animal Welfare
Sue Moynihan	Government Public Information	Cape Cod National Seashore
Lt. Dean Jones	Government Public Information	U.S. Coast Guard
Jay Michaud	Fishing Industry	Massachusetts Lobstermen's Association
Cynde Bierman	Whale Watching	Ocean Alliance/Cape Anne Whale Watch
Bill Fairbanks	Recreational Use	Massachusetts Marine Trades Association
Technical Advisors		
Beth Daley	Media	The Boston Globe
Margaret McLaughlin	Media	capecorps.com

Members of the Water Quality Working Group		
Name	Seat	Affiliation
Judith Pederson	Sanctuary Advisory Council Chair	Massachusetts Institute of Technology, Sea Grant
Anne Smrcina	Team Lead	Stellwagen Bank National Marine Sanctuary
Jack Wiggin	Academic	University of Massachusetts, Urban Harbors Institute
Douglas Ofiara	Academic	University of Southern Maine
Carlton Hunt	Academic	Battelle Laboratories
Frederick Dauphinee	Fishing Industry	Commercial Fisherman
Jamie Collier	Conservation	Center for Coastal Studies

Tara Nye	Conservation	Association for the Preservation of Cape Cod
Tom King	Recreational Use	Charter Boat Captain
Michael Mickelson	Massachusetts Water Resources Authority	Massachusetts Water Resources Authority
Ann Rodney	Government	U.S. Environmental Protection Agency
Jan Smith	Government	Massachusetts Coastal Zone Management
Mike Leone	Maritime Transportation	Massachusetts Port Authority
Lt. Gabrielle McGrath	Government	U.S. Coast Guard
Alternates		
Bill Doherty	Fishing Industry	Commercial Fisherman
Marcia Duffy	Maritime Transportation	Massachusetts Port Authority
Brad Wellock	Maritime Transportation	Massachusetts Port Authority
Technical Advisors		
Pierre Lermusiaux	Academia	Harvard University
Bob Avila	Whale watching	Captain John Boats
Meng Zhou	Academia	University of Massachusetts, Boston

Members of the Site Characterization Working Group		
Name	Seat	Affiliation
Porter Hoagland	Sanctuary Advisory Council Chair	Cape Cod Museum of Natural History
Ben Cowie-Haskell	Team Lead	Stellwagen Bank National Marine Sanctuary
Dave Wiley	Co-Team Lead	Stellwagen Bank National Marine Sanctuary
Les Kaufman	Academia	Boston University
Jason Link	Government	NOAA Fisheries Service, Northeast Fisheries Science Center
Tim Battista	Government	NOAA Ocean Service, National Centers for Coastal Ocean Science
Tony Wilbur	Government	Massachusetts Coastal Zone Management
Page Valentine	Government	U.S. Geological Survey
Mason Weinrich	Marine Mammals	Whale Center of New England
Technical Advisors		
Richard Taylor	Fishing Industry	Sea Scallop Working Group
Gordon Waring	Government	NOAA Fisheries Service, Northeast Fisheries Science Center
Olivia Rugo	Fishing Industry	Massachusetts Fishermen's Partnership
Brian Hooker	Government	NOAA Fisheries Service, Northeast Region—Sustainable Fisheries
Susan Farady	Conservation	The Ocean Conservancy
Alan Michaels	Private	Independent
Frank Mirarchi	Fishing Industry	Commercial Fisherman
Peter Taylor	Conservation	Gulf of Maine Council on the Marine Environment
Dave Lincoln	Fishing Industry	Massachusetts Fishermen's Partnership
Dave Casoni	Fishing Industry	Massachusetts Lobstermen's Association
Mike Michelson	Government	Massachusetts Water Resources Authority
Jud Crawford	Conservation	Conservation Law Foundation
Lew Incze	Academia	University of Southern Maine
Mike Thompson	Consultant	Perot Systems Government Services

Members of the Compatibility Determination Working Group		
Name	Seat	Affiliation
Susan Farady	Sanctuary Advisory Council Chair	Ocean Conservancy
Ben Cowie-Haskell	Team Lead	Stellwagen Bank National Marine Sanctuary
Dave Bergeron	Commercial Fishing	MA Fishermen's Partnerships
Barry Gibson	Recreational Fishing	Recreational Fishing Alliance
Steve Milliken	Whale Watch Industry	Dolphin Fleet
Priscilla Brooks	Conservation	Conservation Law Foundation
Gib Chase	Conservation	Private Citizen
Tracey Morin Dalton	Academia	University of Rhode Island
John Duff	Legal/ Policy	University of Massachusetts—Boston
Dale Brown	Government	Gloucester Community Development
Kathi Rodrigues	Government	NOAA Fisheries Service, Northeast Region—Habitat Protection
Susan Snow-Cotter	Government	MA Coastal Zone Management
Richard Meyer	Shipping Industry	Boston Shipping Association
David Terkla	Economist	University of Massachusetts—Boston
Technical Advisors		
Mary Foley	Government	National Park Service—Cape Cod National Seashore
Andrew Raddant	Government	U.S. Department of the Interior
Ward Feurt	Government	Rachel Carson National Wildlife Refuge
Stephanie Campbell	Legal	NOAA Office of General Counsel
Hélène Scalliet	Government	National Marine Sanctuary Program

APPENDIX G. EXISTING FEDERAL AND STATE AUTHORITIES RELEVANT TO STELLWAGEN BANK SANCTUARY PROTECTION AND MANAGEMENT

INTRODUCTION

This appendix presents an overview of the various Federal and State management authorities which provide statutory responsibility for protecting marine resources in the area of the Stellwagen Bank National Marine Sanctuary. The following discussion describes relevant legislative mandates, and the principal administrative measures taken to implement those mandates.

FEDERAL AUTHORITIES

Federal statutes vary greatly in scope and approach, ranging from broad-based legislation addressing resource conservation and environmental protection (such as the Magnuson Fishery Conservation Management Act), to regulation of specific activities and resources.

Magnuson Fishery Conservation and Management Act (MFCMA) (16 U.S.C. Part 1801 et seq.)

The MFCMA provides for the conservation and management of all fishery resources between 3 and 200 nm (5.6 and 380 km) offshore. The Department of Commerce, NOAA Fisheries Service, is charged with establishing guidelines for and approving fishery management plans (FMPs) prepared by regional fishery management councils for selected fisheries. These plans determine the levels of commercial and sport fishing consistent with achieving and maintaining the optimum yield of each fishery. The waters of the study area are within the jurisdiction of the New England Fishery Management Council (NEFMC).

Benthic continental shelf fishery resources located outside state waters, such as lobster and crabs, are subject to management under the MFCMA. Within Federal waters the MFCMA is enforced by the U.S. Coast Guard (USCG) and NOAA Fisheries Service. The Act empowers the Secretary of Commerce to enter into agreements with any State agency for enforcement purposes in state waters. Such agreements exist between the Massachusetts Environmental Police (MEP) and NOAA Fisheries Service, whereby both parties have been deputized to enforce each other's laws. As a result, Federal enforcement personnel can now enforce State fishery laws within 3 nm (5.6km), and State officers can enforce Federal fishery laws between 3 and 200 nm (5.6 and 370km).

The waters of the sanctuary are within the primary jurisdiction of the NEFMC. However, some fishery management plans (FMPs) developed by the Mid-Atlantic Fishery Management Council and some coastal fishery management plans (CMPs) developed by the Atlantic States Marine Fish-

eries Commission are also applicable to managing fisheries occurring within the sanctuary.

Fishery management plans are currently in place for: American lobster; Atlantic sea scallop; northern shrimp; multi-species (covering cod, haddock, Pollack, redfish, yellowtail flounder, winter flounder, American plaice, witch flounder, windowpane flounder, white hake, red hake, silver hake, and ocean pout); Atlantic salmon; bluefish; summer flounder; butterfish; squid; quahog; surf clam; and mackerel.

Atlantic Tunas Convention Act of 1975 (16 U.S.C. part 971 et. seq.)

The Atlantic Tunas Convention Act authorizes the Secretary of Commerce to implement the recommendations of the International Commission for the Conservation of Atlantic Tunas (ICCAT). This authority has been delegated to the Assistant Administrator for Fisheries. Established in 1969, the Convention is responsible for the management of the Atlantic bluefin tunas (*Thunnus thynnus*) in the Atlantic Ocean and adjacent seas. After national quotas and other management measures are established by ICCAT, NOAA Fisheries Service establishes quotas and regulations for U.S. commercial and recreational fishing

Atlantic Fisheries Act of 1942 (more commonly known as "Atlantic States Marine Fisheries Compact", Pub. L. 77-539, as amended by Pub. L. 81-721.)

This act authorized the creation of the Atlantic States Marine Fisheries Commission. The Commission is composed of all Atlantic coastal states, each represented by the head of the fisheries administrative agency, a legislative appointee, and a governor's appointee. The Commission provides a forum for discussion and resolution of common fishery problems. Under amendment I of its charter, the states can develop joint management regulations for fishery resources primary in state waters and shared by one or more states. Under contract from the NOAA Fisheries Service, the Commission administers the Federally-funded Interstate Fisheries Management Program. Interstate fisheries management plans include northern shrimp, lobster, striped bass, and summer flounder.

Atlantic Coastal Fisheries Cooperative Management Act, 16 U.S.C. § 5101 et seq. (2001)

The Atlantic Coastal Fisheries Cooperative Management Act (ACFCMA) was designed to change the nature and potency of the Atlantic States Marine Fisheries Commission. Its purpose is to support interstate conservation and management of Atlantic coast fisheries through "development, implementation, and enforcement of coastal fishery plans." Coastal fishery management plans (CMPs) must be consistent with national standards provided by the Magnuson Fishery Conservation and Management Act (MFCMA), and the Secretary of Commerce and NMFS are responsible for implementing regulations complementary to CMPs. ACFCMA CMPs operate much like MFCMA FMPs, and they apply to any fishery resource that moves among, or is broadly distributed across, waters under the jurisdiction

of one or more States or waters under the jurisdiction of one or more States and the U.S. Exclusive Economic Zone. The ACFCMA shifts regulatory responsibility for such coastal fishery resources to states – and requires those states to implement that responsibility within the framework of the Atlantic States Marine Fisheries Commission – in order to combat the “inconsistent” State and Federal regulations over Atlantic coastal fishery resources. CMPs are currently in place for the following: American eel; horseshoe crab; spot; American lobster; northern shrimp; spotted seatrout; Atlantic croaker; red drum; striped bass; Atlantic herring; scup; summer flounder; Atlantic menhaden; shad and river herring; tautog; Atlantic sturgeon; Spanish mackerel; weakfish; black sea bass; spiny dogfish and coastal sharks; winter flounder; and bluefish.

Endangered Species Act (ESA) (16 U.S.C. Part 1531-1543.)

The Federal Endangered Species program provides protection for listed species of animals and plants in both state water and the waters beyond. The U.S. Fish and Wildlife Service (FWS) and NOAA Fisheries Service determine which species need protection and maintain a list of endangered and threatened species. One of the most significant protections provided by the Endangered Species Act is the prohibition on taking. The term “take” is defined broadly to mean “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct” (16 USC part 1532(19)). The FWS regulations define the term “harm” to mean an act which actually kills or injures wildlife, including significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. The regulations define the term “harass” to mean “an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering” (50 CFR 173).

The Endangered Species Act also provides for the indirect protection of endangered species and their habitats by establishing a consultation process designed to insure that projects authorized, funded or carried out by Federal agencies are not likely to jeopardize the continued existences of endangered or threatened species, or “result in the destruction or adverse modification of habitat of such species which is determined to be critical” (16 USC 1536). Critical habitat areas for endangered species are designated by the FWS and NOAA Fisheries Service. The 1978 amendments to the Act establish a Cabinet level committee authorized to exempt Federal agencies (through an elaborate review process) from compliance with their responsibilities with regard to the jeopardy standard and critical habitat.

Several endangered marine mammal species occur within the sanctuary area, including: the humpback whale, fin whale, northern right whale, sei whale and blue whale. Listed species of marine reptiles include: the leatherback sea turtle (E), loggerhead sea turtle (T), Kemp’s (or Atlantic) ridley sea turtle (E), and green sea turtle (T). Marine

mammals and marine reptiles listed under the ESA are responsibility of the NOAA Fisheries Service. Listed species of birds occurring within the sanctuary area are: the peregrine falcon (E), bald eagle (E), roseate tern (E), and piping plover (T). These species are the responsibility of the Fish and Wildlife Service.

Marine Mammal Protection Act (MMPA) (16 USC 1361 et. seq.)

The MMPA provides protection to marine mammals in both state waters and the waters beyond. It is designed to protect all species of marine mammals. As specified in the MMPA, the Department of Interior, U.S. Fish and Wildlife Service (FWS), is responsible for the management of polar bears, walrus (a Pinniped), northern and southern sea otters, three species of manatees, and dugong; the Department of Commerce, NOAA Fisheries Service, is responsible for all other marine mammals. The Marine Mammal Commission advises these implementing agencies and sponsors relevant scientific research. The primary management features of the MMPA include: 1) a moratorium on “taking” of marine mammals; 2) the development of a management approach designed to achieve an “optimum sustainable population” (OSP) for all species or population stocks of marine mammals, and 3) protection of populations determined to be “depleted”.

The MMPA defines “take” broadly to include “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct” (16 USC part 1532(19)). The term “harass” has been interpreted to encompass acts unintentional but adversely affecting marine mammals, such as operation of motor boats in waters in which these animals are found. The MMPA allows certain exceptions to the moratorium. First, the Secretary may issue permits for public display or scientific research. Second, the Secretary may grant exemptions for takes of small numbers of marine mammals incidental to other lawful activities. Third, the Secretary may make a special waiver of the moratorium on taking for particular species or populations of marine mammals, provided that the species or population being considered is at or above its determined optimum sustainable population. No such waiver, however, has been granted concerning any marine mammal found in the area of the sanctuary

Marine mammal species whose population is determined to be depleted receive additional protection. Under only limited circumstances may permits be issued for the taking of any marine mammal determined to be depleted, including, but not limited to, scientific research and enhancing the survival or recovery of a species or stock of depleted species.

The 1988 amendments to the MMPA added requirements that observers be carried onboard commercial fishing vessels to determine levels of incidental take of marine mammals. Commercial fishing activities are divided into categories on the basis of gear-type and associated levels of potential incidental take of marine mammals. For example, Category 1

vessels such as gillnetters may have to carry an observer, if requested by NOAA Fisheries Service, and the Secretary of Commerce may place observers on vessels in Categories 2 and 3 with the consent of the vessel owner. This observer program has been in operation since early 1990. Although the authority for its management is with the NOAA Fisheries Service, the day-to-day operational management may be delegated to state and local authorities.

Marine mammal species whose populations are determined to be “depleted” receive additional protection under the MMPA. With exception of scientific research permits, no permits for taking depleted species may be issued. Species occurring within the area of the sanctuary which have been determined to be depleted include the humpback whale, fin back whale, northern right whale, sei whale and blue whale, based on their “endangered” status under the Endangered Species Act.

Migratory Bird Treaty Act (MBTA) (16 USC 703 et. seq.)

The essential provision of the Migratory Bird Treaty Act, which implements conventions with Great Britain, Mexico, Russia, and Japan, makes it unlawful except as permitted by regulations “to pursue, hunt, take, capture, kill... any migratory bird, any part, nest or egg” or any product of any such bird protected by the Convention (16USC 703). The Secretary of the Interior is charged with determining when, and to what extent if at all, and by what means, to permit these activities. Each treaty establishes a “closed season” during which no hunting is permitted. A distinction is made between game and nongame birds. The closed season for migratory birds other than game birds is year-round.

Clean Water Act (CWA) (33 U.S.C. 1251 et. seq.)

The goal of the CWA is to restore and maintain the chemical, physical, and biological integrity of the nation’s waters. To varying degrees, navigable waters of the United States, the contiguous zone, and the oceans beyond are subject to requirements of the CWA.

The CWA’s chief mechanism for preventing and reducing water pollution is the National Pollutant Discharge Elimination System (NPDES), administered by the Environmental Protection Agency (EPA). Under the NPDES program, a permit is required for discharge of any pollutant from a point source into the navigable waters of the United States, the waters of the contiguous zone, or ocean waters.

Since oil and gas development pursuant to Federal lease sales occur beyond state waters, an NPDES permit from EPA is required for discharges associated with this activity. EPA generally grants NPDES permits for offshore oil and gas development based on published effluent guidelines (40 CFR Part 435). Other conditions beyond these guidelines may, however, be imposed by the regional administrator on a case-by-case basis.

The CWA prohibits the discharge of oil or hazardous substances in quantities that may be harmful to the public health or welfare or the environment, including but not limited to fish, shellfish, wildlife, and public and private

property, shorelines and beaches, into or upon the navigable water of the U.S., adjoining shorelines, or into or upon the waters of the contiguous zone, or in connection with activities under the Outer Continental Shelf Lands Act or the Deepwater Port Act of 1974, or which may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the U.S., except in the case of such discharges into or upon the water of the contiguous zone or which may affect the above-mentioned natural resources, where permitted under the Protocol of 1978 Relating to the International Convention for the Prevention of Pollution from Ships.

When harmful discharges do take place, the National Contingency Plan (NCP) for the removal of oil and hazardous substance discharges (40 CFR Part 300), which is designed to minimize the impacts on marine resources, take effect. The USCG, in cooperation with EPA, administers the NCP. The NCP establishes the organizational framework whereby oil and hazardous substance spills are to be cleaned up. To carry out the NCP, regional plans have been established; the USCG has issued such a plan for Federal Region IX which encompasses the sanctuary area. Under the plan, Coast Guard personnel are to investigate all reported offshore spills, notify the party responsible (if known) of its obligation to clean up the spill, and supervise the clean-up. If the party responsible for the spill does not promptly begin cleanup operations, the Coast Guard may hire private organizations.

The CWA also requires that publicly owned sewage treatment works meet effluent limitations based on effluent reductions attainable through the application of secondary treatment by July 1, 1977 [33 USC 1311(b)(1)]. EPA does have the authority, however, to waive the July 1, 1977 deadline for secondary treatment for discharges into marine waters under certain circumstances (33 USC 1311 (h)).

Permits from the Army Corps of Engineers (COE), which are based on EPA guidelines, are required prior to the discharge of dredged or fill materials in navigable waters that lie inside the baseline from which the territorial sea (defined to be three nautical miles off shore) is measured and fill materials into the territorial sea (33 USC 1344; § CFR 230.2).

Finally, the CWA requires vessels to comply with marine sanitation regulations issued by EPA and enforced by the USCG (33 USC 1322).

Rivers and Harbors Act 1899 (RHA) (33 U.S.C. 401 et. seq.)

Section 10 (33 USC 402) of the RHA prohibits the unauthorized obstruction of navigable waters of the United States. The construction of any structure or any excavation or fill activity in the navigable waters of the U.S. is prohibited without a permit from the COE. Section 13 (33U.S.C. 407) prohibits the discharge of refuse into navigable water of the U.S., but has been largely superseded by the CWA, discussed above.

Ports and Waterways Safety Act (PWSA) (33 U.S.C. 1231 et. seq.)

The Ports and Waterways Safety Act (PWSA), as amended by the Ports and Tanker Safety Act of 1978 (and the Oil Pollution Act of 1990), is designed to promote navigation and vessel safety and the protection of the marine environment. The PWSA applies both in state waters and the waters beyond out to 200 nautical miles.

The PWSA authorizes the U.S. Coast Guard to construct, operate, maintain, improve or expand vessel traffic services and control vessel traffic in ports, harbors, and other waters subject to congested vessel traffic. The Oil Pollution Act of 1990 amends the PWSA to mandate that the USCG “require appropriate vessels, which operate in the areas of a vessel traffic service, to utilize or comply with that service.

In addition to vessel control, the U.S. Coast Guard regulates other navigational and shipping activities. It has promulgated numerous regulations relating to vessel design, construction, and operations designed to minimize the likelihood of as accident and reduce vessel source pollution.

The 1978 amendments of the PWSA establish a comprehensive program for regulating the design, construction, operation, equipping, and banning of all tankers using U.S. ports to transfer oil and hazardous materials. These requirements are, for the most part, in agreement with protocols (passed in 1978) to the International Convention for the Prevention of Pollution from Ships, 1973, and the International Convention on Safety of Life at Sea, 1974.

The U.S Coast Guard is also vested with the primary responsibility for maintaining boaster safety, including the tasks of conducting routine vessel inspections and coordination of rescue operations.

Under the PWSA, the Coast Guard establishes vessel traffic services and systems for ports, harbors and other waters subject to congested vessel traffic. Within the area of the sanctuary, a vessel traffic separation scheme (TSS) has been established directly across Stellwagen Bank, to service the major port of Boston. The PWSA regulations also address vessel design, construction and operation, and are designed to reduce vessel accidents and vessel source pollution.

Act to Prevent Pollution from Ships (APPS) (33 U.S.C. 1901 et. seq.)

The International Convention for the Prevention of Pollution of the Sea by Oil, 1954, and the Oil Pollution Act of 1961 have been superseded by the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the 1978 Protocol relating thereto (MARPOL 73/78) and implemented by the Act to Prevent Pollution from Ships, 1980, as amended in 1982, 1987, (APPS). The APPS, in implementing Annex I of MARPOL 73/78, regulates the discharge of oil and oily mixtures from seagoing ships, including oil tankers. The APPS, in implementing Annex II of MARPOL 73/78, regulates the discharge of noxious liquid substances from seagoing ships. Enforcement of the Act is the responsibility of the USCG.

When more than 12 nautical miles from the nearest land, any discharge of oil or oily mixture into the sea from a ship subject to APPS, other than an oil tanker or from machinery space bilges of an oil tanker subject to APPS, is prohibited except when: 1) the oil or oily mixture does not originate from cargo pump room bilges; 2) the oil or oily mixture is not mixed with oil cargo residues; 3) the ship is not within a Special Area (the sanctuary is not a Special Area for purposes of APPS); 4) the ship is proceeding en route; 5) the oil content of the effluent without dilution is less than 100 parts per million (PPM); and 6) the ship has in operation oily-water separating equipment, a bilge monitor, bilge alarm or combination thereof. 33CFR 151.10 (a).

The restrictions on discharge 12 nautical miles or less from the nearest land are more stringent. Within 12 nautical miles of the nearest land, any discharge of oil or oily mixture into the sea from a ship other than an oil tanker or from machinery space bilge of an oil tanker is prohibited except when: 1) the oil or oily mixture does not originate from cargo pump room bilges; 2) the oil or oily mixture is not mixed with oil cargo residues; 3) the oil content of the effluent without dilution does not exceed 15ppm; 4) the ship has in operation oily-water separating equipment, a bilge monitor, bilge alarm, or combination thereof; and 5) the oily-water separating equipment is equipped with a 15ppm bilge alarm. [NOTE: In the navigable waters of the U.S., the CWA, section 311 (b)(3) and 40 CFR 110 govern all discharges of oil or oil mixtures.] 33CFR 151.10(b).

APPS is amended by the Marine Plastic Pollution Research and Control Act of 1987 (MPPRCA), which implements Annex V of MARPOL 73/78 in the U.S. The MPPRCA and implementing regulations at 33 CFR 151.51 to 151.77 apply to U.S. Ships (except warships and ships owned or operated by the U.S.) everywhere, including recreational vessels, and to other ships subject to MARPOL 73/78 while in the navigable waters or the Exclusive Economic Zone of the U.S. They prohibit the discharge of plastic or garbage mixed with plastic into any waters and the discharge of dunnage, lining and packing materials that float within 25 nautical miles of the nearest land. Other unground garbage may be discharged beyond 12 nautical miles from the nearest land. Other garbage ground to less than one inch may be discharged beyond three nautical miles of the nearest land. Fixed and floating platforms and associated vessels are subject to more stringent restrictions. “Garbage” is defined as all kinds of victual, domestic and operational waste, excluding fresh fish and parts thereof, generated during the normal operations of the ship and liable to be disposed of continuously or periodically except dishwater, gray water and certain substances. 33 CFR 151.05.

Oil Pollution Act of 1990 (OPA) (P.L. 101-380, 33 USC 2701 et. seq.)

The Oil Pollution Act of 1990 (OPA) creates a comprehensive prevention, response, liability, and compensation regime for dealing with vessel and facility-caused oil pollution. The OPA provides for environmental safeguards in oil transportation greater than those existing before its

passage by: setting new standards for vessel construction, crew licensing, and manning; providing for better contingency planning; enhancing Federal response capability; broadening enforcement authority; increasing penalties; and authorizing multi-agency research and development. A one billion dollar trust fund is available to cover clean-up costs and damages not compensated by the spiller.

Title I creates a liability and compensation regime for tank vessel and facility-source oil pollution. Any party responsible for the discharge, or the substantial threat of discharge, of oil into navigable waters of adjoining shorelines or the Exclusive Economic Zone is liable for the removal costs and damages, including assessment costs; for injury, destruction, loss, or loss of use of natural resources, injury to or economic losses resulting from destruction of real or personal property; subsistence use of natural resources, net lost government revenues, lost profits or impairment of earning capacity; and net costs of providing increased or additional public services during or after removal activities. NOAA has the responsibility of promulgating damage assessment. Sums recovered by a trustee for natural resource damages will be retained in a revolving trust account to reimburse or pay costs incurred by the trustee with respect to those resources.

Title II makes numerous amendments to conform to other Federal statutes, particularly section 311 of the Clean Water Act, and to the provisions of the Oil Pollution Act.

Title III encourages the establishment of an international inventory of spill removal equipment and personnel.

Title IV is divided into three subtitles: A) Prevention; B) Removal; and C) Penalties and Miscellaneous. Subtitle A gives added responsibility to the Coast Guard regarding merchant marine personnel, including the review of alcohol and drug abuse and review of criminal records prior to issuance and renewal of documentation. It also amends the Ports and Waterways Safety Act to: require the Coast Guard to “require appropriate vessels which operate in an area of vessel traffic service to utilize or comply with that service.” and 2) authorize the construction, improvement and expansion of vessel traffic services.

Further, subtitle A establishes double hull requirements for tank vessels. Most tank vessels over 5,000 gross tons will be required to have double hulls by 2010, while vessels under 5,000 gross tons will be required to have a double hull or double containment systems by 2015. All newly constructed tankers must contain a double hull (or double containment systems if under 5,000 gross tons), while existing vessels are phased out over a period of years.

Subtitle B amends subsection 311 (C) of the Clean Water Act, requiring the Federal Government to ensure effective and immediate removal of a discharge, and mitigation or prevention of a substantial threat of a discharge, of oil or hazardous substance into or on the navigable waters, on the adjoining shorelines, into or on the waters of the Exclusive Economic Zone, or that may affect natural resources belonging to, appertaining to, or under the exclusive management

authority of the U.S. It also requires a revision and republication of the National Contingency Plan within one year which will include, among other things, a fish and Wildlife response plan developed in consultation with NOAA and U.S. Fish and Wildlife Service. Nothing in subtitle B preempts the rights of States to require stricter standards for removal actions.

Subtitle C alters and increases civil and administrative penalties for illegal discharges and violations of regulations promulgated under the Clean Water Act.

Title VII authorizes an oil pollution research and technology development program, including the establishment of an interagency coordination committee that is chaired by the Department of Transportation and composed of representatives from the Departments of Energy, the Interior, Transportation, Commerce (including NOAA), and Defense, and the Environmental Protection Agency, Federal Emergency Management Agency, National Aeronautics and Space Administration, as well as such other Federal agencies as the President may designate.

Title IX amends the Oil Spill Liability Trust Fund and increases from \$500 million to \$1 billion the amount that can be spent on any single oil spill incident, of which no more than \$500 million may be spent on natural resource damage assessments and claims.

Federal Aviation Act (49 USC 1301 et. seq.)

The Federal Aviation Act gives the Secretary of Transportation broad powers to promote air commerce and to regulate the use of navigable airspace to ensure aircraft safety and efficient use of such airspace. In furtherance of this mandate, the Federal Aviation Administration within the Department of Transportation publishes aeronautical charts which provide a variety of information to pilots, including the location of “sensitive” and “areas which should be avoided.” Currently, there are no site-specific regulations for flights over the Stellwagen Bank sanctuary.

Clean Air Act (CAA) (42 USC 7401 et. seq.)

The Clean Air Act (CAA) sets general guidelines and minimal air quality standards on a nationwide basis in order to protect and enhance the quality of the Nation’s air resources. States are responsible for developing comprehensive plans for all regions within their boundaries.

Outer Continental Shelf Lands Act (OCSLA) (43 USC 1331 et. seq.)

The Outer Continental Shelf Lands Act, (OCSLA) as amended in 1978 and 1985, establishes Federal jurisdiction over the mineral resources of the Outer Continental Shelf (OCS) beyond 3nm (5.6km) and gives the Secretary of Interior primary responsibility for managing OCS mineral exploration and development. The Secretary’s responsibility has been delegated to the Minerals Management Service (MMS).

In unique or special areas, MMS may impose special lease stipulations designed to protect specific geological and

biological phenomena. These stipulations may vary among lease sale tracts and sales.

Lessees are required to include, in exploration and development and production plans, specific information concerning emissions and their potential impacts on coastal areas. Such authority includes the enforcement of regulations made pursuant to the OCSLA (30 CFR Parts 250 and 256) and the enforcement of stipulations applicable to particular leases.

In addition to DOI, both the Army Corps of Engineers (COE) and the U.S. Coast Guard (USCG) have responsibility over OCS mineral development to the extent that such development affects navigation (43 USC 1333). The COE is responsible for ensuring, through a permit system, that OCS structures on the OCS are properly marked and that safe working conditions are maintained onboard.

MMS is also charged with supervising OCS operations, including approval of exploration and development and production plans and applications for pipeline rights of way on the OCS.

Title I of the Marine Protection, Research, and Sanctuaries Act (MPRSA) (33 USC 1401 et. seq.)

Title I of the Marine Protection, Research, and Sanctuaries Act (MPRSA), also known as the Ocean Dumping Act, Prohibits: 1) any person from transporting, without a permit, from the U.S. any material for the purpose of dumping it into ocean waters (defined to mean those waters of the open seas lying seaward of the baseline from which the territorial sea is measured) and 2) in the case of a vessel or aircraft registered in the U.S., or flying the U.S. flag, or in the case of a U.S. agency, any person from transporting, without a permit, from any location, any material for the purpose of dumping it into ocean waters. Title I also prohibits any person from dumping, without a permit, into the “territorial sea,” or the contiguous zone extending 12 nautical miles seaward from the baseline of the territorial sea, to the extent that it may affect the territorial sea or the territory of the U.S., any material transported from a location outside of the U.S. The EPA regulates, through the issuance of permits, the transportation, for the purpose of dumping, and the dumping of all materials except dredged material; the COE regulates, through the issuance of permits, the transportation, for the purpose of dumping, and the dumping of dredged material. The COE permits are subject to EPA review and approval. Title I also makes it unlawful after December 31, 1991, for any person to dump into ocean waters, or to transport for the purposes of dumping into ocean waters, sewage sludge or industrial waste.

National Historic Preservation Act (NHPA) (16 USC 470 et. seq.)

The NHPA was established to provide a national framework for the preservation of historic properties around the nation. To accomplish this goal, Section 101 of the NHPA authorizes the Secretary of the Interior to maintain a National Register of “districts, sites, buildings, structures, and objects

significant in American history, architecture, archeology, and culture.” The National Marine Sanctuary Program (NMSP) is required by National Marine Sanctuary Program Regulations (15 CFR Part 922.2) to comply with the Federal Archaeology Program, a collection of laws and standards that includes the National Historic Preservation Act of 1966 (NHPA).

Two sections of the NHPA relate directly to obligations Federal Agencies have to historic and archaeological resources. Section 110 of the NHPA sets out the broad historic preservation responsibilities of a Federal agency. Section 106 of the NHPA, requires a Federal agency to take into account the effects of its undertakings on properties listed or eligible for listing on the National Register.

Any federal agency conducting, licensing, or assisting an undertaking which may affect a property listed or eligible for listing on the National Register must, prior to the action, take into account the effect of the undertaking on the property and provide the Advisory Council on Historic Preservation a reasonable opportunity to comment on the proposed action (16USC 470f). The basic criterion applied by the Advisory Council is whether the undertaking will change the quality of the site’s historic, architectural, archeological, or cultural character (36 CFR part 800).

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 USC 9601 et. seq.)

The principal purpose of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) in the clean-up of hazardous waste sites consists of four fundamental elements. First, CERCLA creates an information gathering and evaluation system to help Federal and State governments categorize hazardous waste sites and prioritize responses. Second, CERCLA provides Federal authority to respond to releases of hazardous substances. Response actions are carried out pursuant to the National Contingency Plan (NCP). Third, CERCLA establishes a Hazardous Substance Trust Fund to pay for removal and remedial actions and related costs. Finally, CERCLA makes persons responsible for hazardous substance releases liable for costs of removal or remedial action incurred by the Federal or State governments; other necessary costs of response incurred by others; damages for injury, destruction or loss of natural resources; and costs of any health assessment or health effects study carried out pursuant to the Act.

State Authorities

Because the Stellwagen Bank National Marine Sanctuary is located entirely outside State territorial waters, State agencies do not have jurisdiction over the area. However, through the following laws, State agencies can influence the quality of the sanctuary environment.

Massachusetts Coastal Zone Management Act of 1972 (Mass. General Laws Chapter 21A, Chapter 6A, sections 2-71, 16 USC 1451 et. seq.)

MCZM is the principal ocean planning and policy agency of the Commonwealth of Massachusetts. Its jurisdiction of particular relevance here is all State territorial waters, and any activity seaward of State territorial waters, that will likely have a direct effect on the coastal zone. The MCZM plan is embodied in the approved 2002 Coastal Management Plan which also articulates a series of 20 enforceable program policies and associated program principles which direct activities or projects proposed for the coastal waters and areas adjacent thereto. The policies deal with a broad range of issues, from protection of critical areas, to port and harbor operations, to offshore oil and gas development. MCZM enforces its program policies through existing Massachusetts statutes and their implementing regulations.

Massachusetts Ocean Sanctuaries Act (Mass. General Laws Chapter 132A, section 12A – 16F, 18)

The Department of Conservation and Recreation (DCR) administers the Ocean Sanctuaries Program. The Massachusetts Ocean Sanctuaries Act prohibits activities that may significantly alter or endanger the ecology or appearance of the ocean, seabed, or subsoil of state ocean sanctuaries or the Cape Cod National Seashore. To accomplish this goal, the Act prohibits: (1) building structures on or under the seabed; (2) construction or operation of offshore or floating electrical generating stations; (3) drilling or removal of sand, gravel (except for the purposes of beach nourishment), other minerals, gases, or oils; (4) dumping or discharge of commercial, municipal, domestic or industrial wastes; (5) commercial advertising; and (6) incineration of solid waste or refuse on vessels within state ocean sanctuary boundaries. These prohibitions may be waived if a finding of “public necessity and convenience” can be made for the proposed project or activity. Under the Ocean Sanctuaries Act, DCR does not issue any licenses or permits, but acts through the regulatory process of other agencies, particularly the Chapter 91 Waterways Program.

Wetlands Protection Act (Mass. General Laws Chapter 131, section 40)

This authority is exercised primarily through the city or town conservation commission, with appeal to the Massachusetts Department of Environmental Protection. The Act protects wetland resources, the functions and attributes therein relevant to the SBNMS may include wildlife habitat,

fisheries, “land under the ocean,” land containing shellfish, and prevention of pollution. The Act applies to any activity which involves “dredging, filling, altering, or removing” within the State resource area.

Massachusetts Environmental Policy Act (Mass. General Laws Chapter 30, sections 61-62H)

The Massachusetts Environmental Policy Act (MEPA) provides for a coordinated State review of generally large and complicated projects, allowing more efficient collection of essential information covering a wide range of potential adverse environmental impacts. The information collected during the MEPA process is to be used by regulatory agencies in their regulatory reviews. For example, dredging projects involving volumes of dredged material greater than 10,000 cubic yards would be reviewed by MEPA.

Massachusetts Public Waterfront Act (Mass. General Laws Chapter 91)

This authority is primarily involved in the licensing of fill and structures in the tidelands of the Commonwealth of Massachusetts, with a principal regulatory interest in preserving safe navigation and public access.

Massachusetts Clean Water Act (Mass. General Laws Chapter 21, Section 26-53)

Along with delegated authority under provisions of the Clean Water Act at Section 401, the Department of Environmental Protection, Division of Water Pollution Control (DEP-DWPC) reviews discharges into waters of the Commonwealth of Massachusetts. This Act’s principal interest is the protection of water quality.

Massachusetts Board of Underwater Archaeological Resources (Mass. General Laws Chapter 6, Sections 179-180; Chapter 9, Section 26; Chapter 11D’ Chapter 30, Section 61; Chapter 91, Section 63, 72)

The Board of Underwater Archaeological Resources (BUAR) is responsible for the protection and preservation of underwater archaeological resources in the waters of the Commonwealth of Massachusetts. A permit from the Board is required for activities which affect archaeological resources under their jurisdiction.

APPENDIX H. QUESTIONS AND ANSWERS REGARDING REGULATORY COORDINATION ON FISHING BETWEEN THE NATIONAL MARINE SANCTUARY PROGRAM AND FEDERAL FISHERY MANAGEMENT AGENCIES

(NMSP FREQUENTLY ASKED QUESTIONS—MARCH 2004)

1. DOES THE NATIONAL MARINE SANCTUARY PROGRAM (NMSP) HAVE AUTHORITY UNDER THE NATIONAL MARINE SANCTUARIES ACT (NMSA) TO REGULATE FISHING ACTIVITIES?

Yes. Section 304(a) of the NMSA provides authority to issue regulations as may be necessary to protect the resources and qualities for which individual sanctuaries were designated. This would include regulations for certain fishing activities if determined necessary to protect sanctuary resources or qualities.

The NMSA has specific requirements as to how any sanctuary fishing regulations are to be developed. Specifically, Section 304(a)(5) of the NMSA requires NOAA to provide the relevant fishery management councils the opportunity to prepare draft sanctuary fishing regulations.

The Council has 120 days to act upon the request by the sanctuary and will use as guidance the national standards of section 301(a) of the Magnuson-Stevens Act to the extent those standards are consistent and compatible with the goals and objectives of the sanctuary. If the draft regulations are found by NOAA to meet the goals and objectives of the sanctuary and the purposes and policies of the NMSA, they will be published as sanctuary regulations under the authority of the NMSA.

The NMSA also states that if the Council declines to make a determination as to the need for fishing regulations in the Sanctuary, makes a determination that is rejected by NOAA, requests that NOAA prepare the draft regulations, or does not prepare the draft regulations in a timely manner, NOAA will prepare the fishing regulations. Regardless of whether the Council or NOAA drafts the sanctuary fishing regulations, NOAA will be responsible for compliance with the NMSA, National Environmental Policy Act, Administrative Procedure Act, and other applicable requirements.

The scope of a sanctuary's regulatory authority is further defined in its designation document. A designation document may need to be changed to allow for some regulations. The NMSA has specific procedures and requirements for changing a term of designation.

2. THERE ARE ALREADY FEDERAL AGENCIES SUCH AS THE NATIONAL MARINE FISHERIES SERVICE (NMFS) AS WELL AS STATE AGENCIES, WHICH REGULATE FISHERIES.

WHY DOES THE NMSP NEED TO BE INVOLVED IN FISHERIES ISSUES?

The NMSA focuses on ecosystem protection including protection of biological communities and habitats. Fish populations and habitat are integral parts of any Sanctuary's ecosystem. Fish populations also play important roles as predators and prey for a wide range of species.

The National Marine Sanctuary Program (NMSP) recognizes that regulatory authority over fisheries management resides with these other fisheries management agencies.

The Sanctuary has an important role in working with these regulatory agencies regarding fishing matters as they relate to the sanctuaries, as well as working with other partners to develop practical solutions for ecosystem protection.

3. WHAT IS A DESIGNATION DOCUMENT & HOW DOES IT LIMIT THE NMSP'S ABILITY TO REGULATE ACTIVITIES?

The NMSA defines the terms of designation of a sanctuary as:

- The geographic area of the sanctuary
- The characteristics of the area that give it conservation, recreational, ecological, historical, research, educational, or esthetic value
- The types of activities that will be subject to regulation to protect those characteristics

At the time of designation of a sanctuary, NOAA lists the activities that may be subject to regulation in the designation document and issues regulations addressing what activities will be regulated. Both the list of activities subject to regulation as well as the regulations themselves can be amended as long as NOAA follows the applicable legal and administrative processes (e.g., the NMSA, National Environmental Policy Act and Administrative Procedure Act) required to do so.

4. WHAT ARE THE KEY STEPS AND REQUIREMENTS FOR CHANGING A TERM OF DESIGNATION?

When changing a term of designation NOAA follows the applicable NMSA procedures for designation of a sanctuary, which are provided in sections 303 and 304 of the Act.

Key steps in this process include:

- Making required determinations and considering factors, as listed in the NMSA
- Conducting required consultations with Congress, Federal, State, and local agencies, the appropriate Fishery Management Council, and other interested persons
- Preparing appropriate designation documents which include an environmental impact statement, resource assessments, maps, revised draft management plan with the proposed changes to the term(s) of designation, basis of determinations, and any proposed regulations
- Providing public notice and opportunity to comment on the proposed designation documents, including holding

at least one public hearing

- Providing the public notice and the proposed designation documents to Congress and the Governor of any State in which the Sanctuary is located
- Publishing notice of the final designation documents and providing notice to Congress and the Governor

Final changes to a term(s) of designation, and implementing regulations, shall take effect and become final after the close of a review period of 45 days of continuous session of Congress.

During this final 45-day review period the Governor has the opportunity to certify to NOAA that the change to the term of designation is unacceptable, in which case the unacceptable term of designation shall not take effect in that part of the sanctuary within the boundary of the state.

5. CAN ALL SANCTUARIES REGULATE FISHING ACTIVITIES?

Yes, as long as fishing is listed as being subject to regulation in a sanctuary's designation document. If fishing is not so listed, it cannot be regulated without amending the designation document and adhering to the applicable requirements of the NMSA, NEPA, and APA.

Under the NMSA, the relevant fishery management council would be provided the opportunity to draft the sanctuary fishery regulations to achieve the desired resource protection objective.

Any changes to the designation document would be narrowly constructed to address the specific resource protection objective.

6. HOW DOES A SANCTUARY DECIDE TO REGULATE CERTAIN FISHING ACTIVITIES?

A sanctuary may decide to regulate certain fishing activities during a management plan review or as the need arises. A management plan review is required for every sanctuary every five years and is focused on reassessing the adequacy of protection of all sanctuary resources and qualities. During this process the working groups, Sanctuary Advisory Council and/or public might raise concerns that could lead to a determination that there is a need to regulate some aspects of fishing to protect certain sanctuary resources or qualities from damage or degradation. Outside of a management plan review, the Sanctuary Advisory Council or another constituent may raise, or a sanctuary may otherwise become aware of, an issue that may need to be addressed by regulating certain fishing activities.

During a management plan review, multi-stakeholder workgroups are convened to plan for priority issues, involving fishermen and other parties in developing the recommendations for these groups. The working groups provide a series of recommendations for subsequent review and deliberation by the sanctuary's Advisory Council.

After reviewing the results of the working groups, Sanctuary Advisory Council recommendations, and consultations with

agency partners, particularly NOAA Fisheries Service and the relevant fishery management council, a sanctuary may decide to regulate certain fishing activities within the sanctuary. A Sanctuary Advisory Council would also be heavily involved in such a decision and any subsequent action outside of a management plan review.

If this were to occur, a sanctuary might need to amend its designation document to authorize the specific limited NMSA fishing regulation and would have to provide the relevant fishery management council the opportunity to draft such regulations. This entire process is extremely transparent and would not proceed without significant opportunities for public and constituent involvement, including the involvement of the commercial and recreational fishing communities.

7. IN ADDITION TO DIRECT SANCTUARY REGULATIONS, WHAT OTHER WAYS ARE AVAILABLE TO REGULATE FISHING IN A SANCTUARY?

In a sanctuary's discussions with NOAA Fisheries Service and the relevant fishery management council or a state fishery management agency, it could be jointly decided that the fishery management council or state could best handle the identified resource protection problem or goal under the Magnuson-Stevens Conservation and Fisheries Management Act.

For example, as three of our California Sanctuaries have progressed through their joint management plan review process, the regulation of krill harvesting has been identified as a significant issue because of krill's importance as a forage species throughout the Pacific coastal region. Those sanctuaries are discussing with the Pacific Fishery Management Council (PFMC) staff whether the PFMC would consider preventing the take of krill under the Magnuson-Stevens Fishery Conservation and Management Act. The sanctuaries could also ask the PFMC to draft sanctuary regulations regarding krill, pursuant to the NMSA.

8. WHAT IS THE NATIONAL MARINE SANCTUARY PROGRAM'S POLICY ON MARINE RESERVES?

The NMSP does not have a policy on marine reserves. Rather, marine reserves are one of a number of tools available to the NMSP to deal with issues and problems. Scientific research has indicated that carefully crafted marine reserves can be effective tools for conservation of biodiversity, but may not always be applicable to every sanctuary. The NMSP believes that any consideration of reserves should and will be a joint effort with the participation of many diverse stakeholders, including strong participation of the fishing community to tap into their extensive knowledge and to consider socioeconomic impacts of alternative reserve designs, as well as participation from other agencies, environmental organizations and the public.

The process described above is outlined in a draft zoning policy undergoing final approval. The NMSP has used zoning as a tool for over twenty years and has at least one type of zone in most sanctuaries.

APPENDIX I. REGULATIONS

Subpart N—Stellwagen Bank National Marine Sanctuary

SEC. 922.140 BOUNDARY.

(a) The Stellwagen Bank National Marine Sanctuary (Sanctuary) consists of an area of approximately 638 square nautical miles (NM) of Federal marine waters and the submerged lands thereunder, over and around Stellwagen Bank and other submerged features off the coast of Massachusetts. The boundary encompasses the entirety of Stellwagen Bank; Tillies Bank, to the northeast of Stellwagen Bank; and portions of Jeffreys Ledge, to the north of Stellwagen Bank.

(b) The Sanctuary boundary is identified by the following coordinates, indicating the most northeast, southeast, southwest, west northwest, and north-northwest points:

42 deg.45'59.83"N x 70 deg.13'01.77"W (NE);

42 deg.05'35.51"N x 70 deg.02'08.14"W (SE);

42 deg.07'44.89»W x 70 deg.28'15.44»W (SW);

42 deg.32'53.52»N x 70 deg.35'52.38»W (WNW); and

42 deg.39'04.08»N x 70 deg.30'11.29»W (NNW).

The western border is formed by a straight line connecting the most southwest and the west northwest points of the Sanctuary. At the most west-northwest point, the Sanctuary border follows a line contiguous with the three-mile jurisdictional boundary of Massachusetts to the most north-northwest point. From this point, the northern border is formed by a straight line connecting the most north-northwest point and the most northeast point. The eastern border is formed by a straight line connecting the most northeast and the most southeast points of the Sanctuary. The southern border follows a straight line between the most southwest point and a point located at 42 deg.06'54.57»N x 70 deg.16'42.7» W. From that point, the southern border then continues in a west-to-east direction along a line contiguous with the three-mile jurisdictional boundary of Massachusetts until reaching the most southeast point of the Sanctuary. The boundary coordinates are listed in appendix A to this subpart.

Sec. 922.141 Definitions.

In addition to those definitions found at Sec. 922.3, the following definitions apply to this subpart:

Industrial material means mineral, as defined in Sec. 922.3.

Traditional fishing means those commercial or recreational fishing methods which have been conducted in the past within the Sanctuary.

Sec. 922.142 Prohibited or otherwise regulated activities.

(a) Except as specified in paragraphs (b) through (f) of this section, the following activities are prohibited and thus

are unlawful for any person to conduct or to cause to be conducted:

(1)(i) Discharging or depositing, from within the boundary of the Sanctuary, any material or other matter except:

(A) Fish, fish parts, chumming materials or bait used in or resulting from traditional fishing operations in the Sanctuary;

(B) Biodegradable effluent incidental to vessel use and generated by marine sanitation devices approved in accordance with section 312 of the Federal Water Pollution Control Act, as amended, (FWPCA), 33 U.S.C. 1322 et seq.;

(C) Water generated by routine vessel operations (e.g., cooling water, deck wash down and gray water as defined by section 312 of the FWPCA) excluding oily wastes from bilge pumping; or

(D) Engine exhaust.

(ii) Discharging or depositing, from beyond the boundary of the Sanctuary, any material or other matter, except those listed in paragraphs (a)(1)(i) (A) through (D) of this section, that subsequently enters the Sanctuary and injures a Sanctuary resource or quality.

(2) Exploring for, developing or producing industrial materials within the Sanctuary.

(3) Drilling into, dredging or otherwise altering the seabed of the Sanctuary; or constructing, placing or abandoning any structure, material or other matter on the seabed of the Sanctuary, except as an incidental result of:

(i) Anchoring vessels;

(ii) Traditional fishing operations; or

(iii) Installation of navigation aids.

(4) Moving, removing or injuring, or attempting to move, remove or injure, a Sanctuary historical resource. This prohibition does not apply to moving, removing or injury resulting incidentally from traditional fishing operations.

(5) Taking any marine reptile, marine mammal or seabird in or above the Sanctuary, except as permitted by the Marine Mammal Protection Act, as amended, (MMPA), 16 U.S.C. 1361 et seq., the Endangered Species Act, as amended, (ESA), 16 U.S.C. 1531 et seq., and the Migratory Bird Treaty Act, as amended, (MBTA), 16 U.S.C. 703 et seq.

(6) Lightering in the Sanctuary.

(7) Possessing within the Sanctuary (regardless of where taken, moved or removed from), except as necessary for valid law enforcement purposes, any historical resource, or any marine mammal, marine reptile or seabird taken in violation of the MMPA, ESA or MBTA.

(8) Interfering with, obstructing, delaying or preventing an investigation, search, seizure or disposition of seized property in connection with enforcement of the Act or any regulation or permit issued under the Act.

(b) The prohibitions in paragraphs (a) (1), and (3) through (8) of this section do not apply to any activity necessary to respond to an emergency threatening life, property or the environment.

(c)(1)(i) All Department of Defense military activities shall be carried out in a manner that avoids to the maximum extent practicable any adverse impacts on Sanctuary resources and qualities.

(ii) Department of Defense military activities may be exempted from the prohibitions in paragraphs (a) (1) and (3) through (7) of this section by the Director after consultation between the Director and the Department of Defense.

(iii) If it is determined that an activity may be carried out, such activity shall be carried out in a manner that avoids to the maximum extent practicable any advance impact on Sanctuary resources and qualities. Civil engineering and other civil works projects conducted by the U.S. Army Corps of Engineers are excluded from the scope of this paragraph(c).

(2) In the event of threatened or actual destruction of, loss of, or injury to a Sanctuary resource or quality resulting from an untoward incident, including but not limited to spills and groundings caused by the Department of Defense, the Department of Defense shall promptly coordinate with the Director for the purpose of taking appropriate actions to respond to and mitigate the harm and, if possible, restore or replace the Sanctuary resource or quality.

(d) The prohibitions in paragraphs (a) (1) and (3) through (7) of this section do not apply to any activity executed in accordance with the scope, purpose, terms and conditions of a National Marine Sanctuary permit issued pursuant to Sec. 922.48 and Sec. 922.143 or a Special Use permit issued pursuant to section 310 of the Act.

(e) The prohibitions in paragraphs (a)(1) and (3) through (7) of this section do not apply any activity authorized by any lease, permit, license, approval or other authorization issued after the effective date of Sanctuary designation (November 4, 1992) and issued by any Federal, State or local authority of competent jurisdiction, provided that the applicant complies with Sec. 922.49, the Director notifies the applicant and authorizing agency that he or she does not object to issuance of the authorization, and the applicant complies with any terms and conditions the Director deems necessary to protect Sanctuary resources and qualifies. Amendments, renewals and extensions of authorizations in existence on the effective date of designation constitute authorizations issued after the effective date.

(f) Notwithstanding paragraphs (d) and (e) of this section, in no event may the Director issue a permit under Sec. 922.48 and Sec. 922.143, or under section 310 of the act, authorizing, or otherwise approving, the exploration for, develop-

ment or production of industrial materials within the Sanctuary, or the disposal of dredged materials within the Sanctuary (except by a certification, pursuant to Sec. 922.47, of valid authorizations in existence on November 4, 1992) and any leases, licenses, permits, approvals or other authorizations authorizing the exploration for, development or production of industrial materials in the Sanctuary issued by other authorities after November 4, 1992, shall be invalid.

Sec. 922.143 Permit procedures and criteria.

(a) A person may conduct an activity prohibited by Sec. 922.142 (a) (1) and (3) through (7) if conducted in accordance with scope, purpose, manner, terms and conditions of a permit issued under this section and Sec. 922.48.

(b) Applications for such permits should be addressed to the Director, Office of Ocean and Coastal Resource Management; ATTN: Manager, Stellwagen Bank National Marine Sanctuary, 175 Edward Foster Rd., Scituate, MA 02066.

(c) The Director, at his or her discretion may issue a permit, subject to such terms and conditions as he or she deems appropriate, to conduct an activity prohibited by Sec. 922.142(a) (1) and (3) through (7), if the Director finds that the activity will have only negligible short-term adverse effects on Sanctuary resources and qualities and will: further research related to Sanctuary resources and qualities; further the educational, natural or historical resource value of the Sanctuary; further salvage or recovery operations in or near the Sanctuary in connection with a recent air or marine casualty; or assist in managing the Sanctuary. In deciding whether to issue a permit, the Director may consider such factors as: the professional qualifications and financial ability of the applicant as related to the proposed activity; the duration of the activity and the duration of its effects; the appropriateness of the methods and procedures proposed by the applicant for the conduct of the activity; the extent to which the conduct of the activity may diminish or enhance Sanctuary resources and qualities; the cumulative effects of the activity; and the end value of the activity. In addition, the Director may consider such other factors as he or she deems appropriate.

(d) It shall be a condition of any permit issued that the permit or a copy thereof be displayed on board all vessels or aircraft used in the conduct of the activity.

(e) The Director may, *inter alia*, make it a condition of any permit issued that any data or information obtained under the permit be made available to the public.

(f) The Director may, *inter alia*, make it a condition of any permit issued that a NOAA official be allowed to observe any activity conducted under the permit an/or that the permit holder submit one or more reports on the status, progress or results of any activity authorized by the permit.

Appendix A to Subpart N of Part 922--Stellwagen Bank National Marine Sanctuary Boundary Coordinates

[Appendix Based on North American Datum of 1927]

Point	Latitude	Longitude
E1.....	42 deg.45'59.83 / 70 deg.13'01.77	
E2.....	42 deg.05'35.51 / 70 deg.02'08.14	
E3.....	42 deg.06'8.25 / 70 deg.03'17.55	
E4.....	42 deg.06'2.53 / 70 deg.04'03.36	
E5.....	42 deg.07'02.70 / 70 deg.05'13.61	
E6.....	42 deg.07'13.0 / 70 deg.06'23.75	
E7.....	42 deg.07'35.95 / 70 deg.07'27.89	
E8.....	42 deg.07'42.33 / 70 deg.08'26.07	
E9.....	42 deg.07'59.94 / 70 deg.09'19.78	
E10.....	42 deg.08'04.95 / 70 deg.10'24.40	
E11.....	42 deg.07'55.19 / 70 deg.11'47.67	
E12.....	42 deg.07'59.84 / 70 deg.13'03.35	
E13.....	42 deg.07'46.55 / 70 deg.14'21.91	
E14.....	42 deg.07'27.29 / 70 deg.15'22.95	
E15.....	42 deg.06'54.57 / 70 deg.16'42.71	
E16.....	42 deg.07'44.89 / 70 deg.28'15.44	
E17.....	42 deg.32'53.52 / 70 deg.35'52.38	
E18.....	42 deg.33'30.24 / 70 deg.35'14.96	
E19.....	42 deg.33'48.14 / 70 deg.35'03.81	
E20.....	42 deg.34'30.45 / 70 deg.34'22.98	
E21.....	42 deg.34'50.37 / 70 deg.33'21.93	
E22.....	42 deg.35'16.08 / 70 deg.32'32.29	
E23.....	42 deg.35'41.80 / 70 deg.31'44.20	
E24.....	42 deg.36'23.08 / 70 deg.30'58.98	
E25.....	42 deg.37'15.51 / 70 deg.30'23.01	
E26.....	42 deg.37'58.88 / 70 deg.30'06.60	
E27.....	42 deg.38'32.46 / 70 deg.30'06.54	
E28.....	42 deg.39'04.08 / 70 deg.30'11.29	

APPENDIX J. PRELIMINARY SPECIES LIST FOR THE STELLWAGEN BANK NATIONAL MARINE SANCTUARY

Family	Vernacular Name	Genus	Species	Reference
PHYLUM: PYRROPHYCOPHYTA (dinoflagellates, phytoplankton)				
Ceratiaceae		<i>Ceratium</i>	<i>sp.</i>	1
Coscinodiscaceae		<i>Coscinodiscu</i>	<i>sp.</i>	1
Thalassiosiraceae		<i>Thalassiosira</i>	<i>nordenskioldii</i>	1
PHYLUM: PORIFERA (sponges)				
Clionidae	Boring Sponge	<i>Cliona</i>	<i>celata</i>	1, 7
Clionidae	Naked sea butterfly	<i>Clione</i>	<i>limacina</i>	1
Chalinidae		<i>Gellius</i>	<i>arcoferus</i>	1
Halichondriidae	Breadcrumb Sponge	<i>Halichondria</i>	<i>panicea</i>	1
Chalinidae	Finger Sponge	<i>Haliclona</i>	<i>oculata</i>	1
Chalinidae		<i>Haliclona</i>	<i>urceola</i>	1
Halisarcidae	Slime Sponge	<i>Halisarca</i>	<i>dujardini</i>	1
Hymedesmiidae		<i>Hymedesmia</i>	<i>sp.</i>	1
Myxillidae		<i>Iophon</i>	<i>nigricans</i>	8, 10
Myxillidae		<i>Iophon</i>	<i>pattersoni</i>	6
Isodictyidae	Palmate Sponge	<i>Isodictya</i>	<i>palmata</i>	1
Myxillidae		<i>Leptosia</i>	<i>sp.</i>	8
Leucosoleniidae		<i>Leucosolenia</i>	<i>botryoides</i>	1
Mycalidae		<i>Mycale</i>	<i>lingua</i>	1
Myxillidae		<i>Myxilla</i>	<i>fimbriata</i>	1
Chalinidae	Chalice Sponge	<i>Phakellia</i>	<i>ventilabrum</i>	1
Hymedesmiidae		<i>Plocamionida</i>	<i>ambigua</i>	1
Polymastiidae		<i>Polymastia</i>	<i>hispida</i>	2
Polymastiidae		<i>Polymastia</i>	<i>infrapilosa</i>	1, 8
Polymastiidae		<i>Polymastia</i>	<i>robusta</i>	1
Sycettidae		<i>Scypha</i>	<i>ciliata</i>	1
Spongiidae	Yellow Sponge	<i>Spongia</i>	<i>barbara</i>	2
Stylocordylidae		<i>Stylocordyla</i>	<i>borealis</i>	6
Suberitidae		<i>Suberitechnius</i>	<i>hispidus</i>	1
Suberitidae		<i>Suberites</i>	<i>ficus</i>	11
Sycettidae		<i>Sycon</i>	<i>ciliata</i>	2
Subertidae		<i>Tentorium</i>	<i>semisuberites</i>	6
PHYLUM: CNIDARIA (anemones and corals)				
Gorgonacea		<i>Acanella</i>		6
Hormathiidae		<i>Actinauge</i>	<i>feline</i>	7
Actinostolidae		<i>Actinostola</i>	<i>callosa</i>	6
Alcyonacea		<i>Alcyonium</i>	<i>sp.</i>	6
Actinostolidae		<i>Antholoba</i>	<i>perdix</i>	6
Rhizangiidae		<i>Astrangia</i>	<i>sp.</i>	6
Actinidae		<i>Bolocera</i>	<i>tuediae</i>	8, 10
Cerianthidae		<i>Ceriantheopsis</i>	<i>americanus</i>	6
Cerianthidae		<i>Cerianthus</i>	<i>borealis</i>	6, 8
Edwardsiidae		<i>Edwardia</i>	<i>sulcata</i>	6
Epizoanthidae		<i>Epizoanthus</i>	<i>incrustatus</i>	6
Epizoanthidae		<i>Epizoanthus</i>	<i>sp.</i>	6

Alcyonacea		<i>Gersemia</i>	<i>rubiformis</i>	7
Caryophylliidae		<i>Lophelia</i>	<i>pertusa</i>	6
Metridiidae		<i>Metridium</i>	<i>senile</i>	6
Gorgonacea		<i>Paragorgia</i>	<i>arborea</i>	6
Pennatulacea		<i>Pennatula</i>	<i>Aculeata</i>	6, 12
Gorgonacea		<i>Primnoa</i>	<i>reseta</i>	6
Pennatulacea		<i>Stylatula</i>	<i>elegans</i>	6
Actinidae		<i>Urticina</i>	<i>felina</i>	6
Tubularia		<i>Tubularia</i>	<i>crocea</i>	7
PHYLUM: CTENOPHORA (comb jellies)				
Pleurobrachiidae	Beroe's comb jelly	<i>Beroe</i>	<i>cucumis</i>	1
Mertensiidae	Arctic Sea gooseberry	<i>Mertensia</i>	<i>ovum</i>	1
Pleurobrachiidae		<i>Pleurobrachia</i>	<i>pileus</i>	1
PHYLUM: NEMERTEA (ribbon worms)				
Amphiporidae		<i>Amphiporus</i>	<i>angulatus</i>	2
Amphiporidae		<i>Tachycineta</i>	<i>bicolor</i>	2
PHYLUM: BRYOZOA (moss animals)				
Calloporidae		<i>Amphiblestrum</i>	<i>septentriona</i>	6
Calloporidae		<i>Amphiblestrum</i>	<i>trifolium</i>	6
Bugulidae		<i>Bugula</i>	<i>sp.</i>	7
Candidae		<i>Caberea</i>	<i>ellisii</i>	6
Scrupocellariidae		<i>Caberea</i>	<i>ellisii</i>	8, 10
Calloporidae		<i>Callopora</i>	<i>craticula</i>	6
Calloporidae		<i>Callopora</i>	<i>lineata</i>	6
Hincksinidae		<i>Cauloramphus</i>	<i>cymbaeformis</i>	6
Celleporidae		<i>Celleporaria</i>	<i>agglutinans</i>	6
Cribrilinidae		<i>Cribrilina</i>	<i>punctata</i>	6
Bugulidae		<i>Dendrobeania</i>	<i>murrayana</i>	6
Escharellidae		<i>Disporella</i>	<i>sp</i>	6
Escharellidae		<i>Escharella</i>	<i>abyssicola</i>	6
Escharellidae		<i>Escharella</i>	<i>ventricosa</i>	6
Scrupariidae		<i>Eucratea</i>	<i>loricata</i>	6
Hippodiplosia		<i>Hippodiplosia</i>	<i>americana</i>	6
Hippodiplosia		<i>Hippodiplosia</i>	<i>hippopus</i>	6
Hippodiplosia		<i>Hippodiplosia</i>	<i>pertusa</i>	6
Hippoporinidae		<i>Hippomenella</i>	<i>vellicata</i>	6
Retiporidae		<i>Hippoporella</i>	<i>hippopus</i>	6
Hippothoidea		<i>Hippothoa</i>	<i>hyalina</i>	6
Tubuliporidae		<i>Idmirdronea</i>	<i>atlantica</i>	6, 8
Microporellidae		<i>Microporella</i>	<i>ciliata</i>	6
Bryocryptellidae		<i>Palmicellaria</i>	<i>skenei</i>	6
Smittinidae		<i>Palmicellaria</i>	<i>skenei</i>	6
Mucronellidae		<i>Parasmittina</i>	<i>trispinosa</i>	6
Myriaporidae		<i>Porella</i>	<i>reduplicata</i>	6
Myriaporidae		<i>Porella</i>	<i>smitti</i>	6
Smittinidae		<i>Pyripora</i>	<i>catenularia</i>	6
Umbonulidae		<i>Ragionola</i>	<i>rosacea</i>	6
Bryocryptellidae		<i>Rhamphostomella</i>	<i>bilaminata</i>	6
Schizoporellidae		<i>Schizomavella</i>	<i>auriculata</i>	6
Smittinidae		<i>Smittina</i>	<i>bella</i>	6
Stomachetosellidae		<i>Stomachetosella</i>	<i>sinuosa</i>	6

Scrupocellariidae		<i>Tricellaria</i>	<i>gracilis</i>	6
Tubuliporidae		<i>Tubulipora</i>		6, 8
Umbanulidae		<i>Umbonula</i>	<i>arctica</i>	6
PHYLUM: RHYNCHOCOELA (unsegmented worms)				
Tubulanidae		<i>Rhynchochoela</i>	<i>sp.</i>	4
Lineidae		<i>Tubulanus</i>	<i>sp.</i>	4
PHYLUM: MOLLUSCA (molluscs)				
Rissoidae		<i>Alvania</i>	<i>sp.</i>	4
Anomiidae		<i>Anomia</i>	<i>aculeata</i>	6
Anomiidae		<i>Anomia</i>	<i>simplex</i>	6
Anomiidae		<i>Anomia</i>	<i>sp.</i>	6
Anomiidae		<i>Anomia</i>	<i>squamula</i>	1
		<i>Aplacophora</i>	<i>sp.</i>	4
Arcticidae	Ocean quahog	<i>Arctica</i>	<i>islandica</i>	1, 6
Astartidae		<i>Astarte</i>	<i>castanea</i>	1
Astartidae		<i>Astarte</i>	<i>crenata-subequilatera</i>	6
Astartidae		<i>Astarte</i>	<i>elliptica</i>	6
Astartidae		<i>Astarte</i>	<i>quandrans</i>	6
Astartidae		<i>Astarte</i>	<i>undata</i>	1, 4
Octopodidae		<i>Bathypolypus</i>	<i>arcticus</i>	2
Buccinidae	Waved Whelk	<i>Buccinum</i>	<i>undatum</i>	1
Calliostomatidae		<i>Calliostoma</i>	<i>sp.</i>	2
Cardiidae		<i>Cerastoderma</i>	<i>pinnulatum</i>	6
Cardiidae		<i>Clinocardium</i>	<i>ciliatum</i>	4
Buccinidae	Pygmy Whelk	<i>Colus</i>	<i>pygmaeus</i>	1
Flabellinidae	Red-gilled nudibranch	<i>Coryphella</i>	<i>rufibranchialis</i>	1
Mytilidae		<i>Crenella</i>	<i>decussata</i>	4
Cardiidae		<i>Cyclocardia</i>	<i>borealis</i>	6
Dendronotidae		<i>Dendronotus</i>	<i>sp.</i>	1
Onchidorididae		<i>Doris</i>	<i>sp.</i>	1
Solenidae		<i>Ensis</i>	<i>directus</i>	6
Epitoniidae		<i>Epitonium</i>	<i>sp.</i>	2
Hamineidae		<i>Haminoea</i>	<i>solitaria</i>	4
Ommastrephidae	Short fin squid	<i>Illex</i>	<i>illecebrosus</i>	1
Ischnochitonidae	Red Chiton	<i>Ischnochiton</i>	<i>ruber</i>	1
Loliginidae	Long finned squid	<i>Loligo</i>	<i>pealei</i>	1
Naticidae		<i>Lunatia</i>	<i>heros</i>	1
Lyonsiidae		<i>Lyonsia</i>	<i>hyalina</i>	4
Tellinidae		<i>Macoma</i>	<i>balthica</i>	6
Tellinidae		<i>Macoma</i>	<i>calcareo</i>	6
Trochidae	Top Shell	<i>Margarites</i>	<i>sp.</i>	1
Thyasiridae		<i>Mendicula</i>	<i>ferruginosa</i>	6
Mytilidae	Northern Horse Mussel	<i>Modiolus</i>	<i>modiolus</i>	1
Montacutidae		<i>Montacutidae</i>	<i>sp.</i>	4
Myidae		<i>Mya</i>	<i>arenaria</i>	4
Mytilidae		<i>Mytilus</i>	<i>edulis</i>	4
Nassariidae		<i>Nassarius</i>	<i>trivittatus</i>	1
Buccinidae	Ten-Ridged Whelk	<i>Neptunea</i>	<i>lyrata decemcostata</i>	1
Nuculidae		<i>Nucula</i>	<i>delphinodonta</i>	4
Nuculidae		<i>Nucula</i>	<i>proxima</i>	4
Periplomatidae		<i>Periploma</i>	<i>margaritaceum</i>	4

Veneridae		<i>Pitar</i>	<i>morrhuanus</i>	6
Pectinidae	Sea scallop	<i>Placopecten</i>	<i>magellanicus</i>	1
Turridae		<i>Pyrgocythara</i>	<i>plicosa</i>	4
Solenidae		<i>Siliqua</i>	<i>costata</i>	6
Macridae		<i>Spisula</i>	<i>solidissima</i>	6
Macridae		<i>Spisula</i>	<i>solidissima</i>	1
Lottiidae		<i>Tectura</i>	<i>testudinalis</i>	1
Tellinidae		<i>Tellina</i>	<i>agilis</i>	4
Thyasiridae		<i>Thyasira</i>	<i>equalis</i>	6
Thyasiridae		<i>Thyasira</i>	<i>flexuosa</i>	1
Thyasiridae		<i>Thyasira</i>	<i>gouldii</i>	6
Thyasiridae		<i>Thyasira</i>	<i>trisinuata</i>	4
Ischnochitonidae		<i>Tonicella</i>	<i>rubra</i>	1
Nuculanidae		<i>Yoldia</i>	<i>sp.</i>	4
PHYLUM: ANNELIDA (segmented worms)				
Ampharetidae		<i>Ampharete</i>	<i>finmarchica</i>	4
Terebellidae		<i>Amphitrite</i>	<i>sp.</i>	6
Ampharetidae		<i>Anobothrus</i>	<i>gracilis</i>	1
Cirratulidae		<i>Aphelochaeta</i>	<i>sp.</i>	4
Apistobranchidae		<i>Apistobranchus</i>	<i>tullbergi</i>	4
Trochilidae		<i>Archilochus</i>	<i>colubris</i>	2
Paraonidae		<i>Aricidea</i>	<i>quadrilobata</i>	1
Paraonidae		<i>Aricidea</i>	<i>catherinae</i>	4
Paraonidae		<i>Aricidea</i>	<i>cerrutii</i>	4
Paraonidae		<i>Aricidea</i>	<i>quadrilobata</i>	4
Paraonidae		<i>Aricidea</i>	<i>taylori</i>	4
Maldanidae		<i>Asychis</i>	<i>biceps</i>	6
Maldanidae		<i>Axiothella</i>	<i>eatenata</i>	9
Maldanidae		<i>Axiothella</i>	<i>mucosa</i>	4
Capitellidae		<i>Capitella</i>	<i>capitata</i>	4
Cirratulidae		<i>Caulleriella</i>	<i>sp.</i>	4
Chaetopteridae		<i>Chaetopterus</i>	<i>variopedatus</i>	6
Cirratulidae		<i>Chaetozone</i>	<i>setosa</i>	1
Apodidae		<i>Chaetura</i>	<i>pelagica</i>	2
Sabellidae		<i>Chone</i>	<i>infundibuliformis</i>	1
Cirratulidae		<i>Cirratulidae</i>	<i>sp.</i>	4
Cirratulidae		<i>Cirratulus</i>	<i>sp.</i>	6
Paraonidae		<i>Cirrophorus</i>	<i>ilvana</i>	4
Pectinariidae		<i>Cistenides</i>	<i>sp.</i>	6
Maldanidae		<i>Clymenella</i>	<i>sp.</i>	1
Cossuridae		<i>Cossura</i>	<i>longocirrata</i>	1
Cossuridae		<i>Cossura</i>	<i>delta</i>	4
Cossuridae		<i>Cossura</i>	<i>soyeri</i>	4
Fringillidae		<i>Dendroica</i>	<i>coronata</i>	2
Onuphidae	Plumed worm	<i>Diopatria</i>	<i>cupera</i>	1, 6
Spionidae		<i>Diospio</i>	<i>sp.</i>	6
Spionidae		<i>Dipolydora</i>	<i>quadrilobata</i>	4
Spionidae		<i>Dipolydora</i>	<i>socialis</i>	4
Enchytraeidae		<i>Enchytraeidae</i>	<i>sp.</i>	4
Phyllodocidae		<i>Eteone</i>	<i>longa</i>	4
Sabellidae		<i>Euchone</i>	<i>incolor</i>	4
Eunicidae		<i>Eunice</i>	<i>pennata</i>	6
Syllidae		<i>Exogone</i>	<i>hebes</i>	1

Syllidae		<i>Exogone</i>	<i>verugera</i>	1
Serpulidae	Lacy Tube Worm	<i>Filograna</i>	<i>implexa</i>	1, 8
Oweniidae		<i>Galathowenia</i>	<i>oculata</i>	4
Glyceridae		<i>Glyceridae</i>	<i>sp.</i>	4
Goniadidae		<i>Goniada</i>	<i>maculata</i>	4
Goniadidae		<i>Goniadella</i>	<i>sp.</i>	1
Goniadidae		<i>Goniadella</i>	<i>gracilis</i>	4
Polynoidae		<i>Harmothoe</i>	<i>sp.</i>	4
Capitellidae		<i>Heteromastus</i>	<i>filiformis</i>	1
Onuphidae		<i>Hyalinoecia</i>	<i>tubciola</i>	6
Serpulidae		<i>Hydroides</i>	<i>dianthus</i>	1
Muscicapidae		<i>Hylocichla</i>	<i>mustelina</i>	2
Spionidae		<i>Laonice</i>	<i>sp.</i>	6
Orbiniidae		<i>Leitoscoloplos</i>	<i>sp.</i>	4
Paraonidae		<i>Levinsenia</i>	<i>gracilis</i>	4
Lumbrineridae		<i>Lumbrineris</i>	<i>sp.</i>	6
Maldanidae		<i>Maldane</i>	<i>sarsi</i>	1, 9
Maldanidae		<i>Maldane</i>	<i>glebifex</i>	4
Maldanidae		<i>Maldanopsis</i>	<i>elongata</i>	9
Capitellidae		<i>Mediomastus</i>	<i>ambiseta</i>	1
Capitellidae		<i>Mediomastus</i>	<i>californiensis</i>	4
Ampharetidae		<i>Melinna</i>	<i>crystata</i>	6
Hesionidae		<i>Microphthalmus</i>	<i>sp.</i>	4
Cirratulidae		<i>Monticellina</i>	<i>baptisteae</i>	4
Oweniidae		<i>Myriochele</i>	<i>oculata</i>	1
Sabellidae	Fan Worm	<i>Myxicola</i>	<i>infundibulum</i>	1, 11, 8, 9
Nephtyidae		<i>Nephtyidae</i>	<i>sp.</i>	4
Nephtyidae		<i>Nephtys</i>	<i>ciliata</i>	4
Nephtyidae		<i>Nephtys</i>	<i>incisa</i>	4
Nereidae		<i>Nereis</i>	<i>grayi</i>	4
Maldanidae		<i>Nicomache</i>	<i>lumbricalis</i>	1, 9
Lumbrineridae		<i>Ninoe</i>	<i>nigripes</i>	4
Onuphidae		<i>Nothria</i>	<i>conchylega</i>	6
Onuphidae		<i>Onuphis</i>	<i>eremite</i>	6
Onuphidae		<i>Onuphis</i>	<i>opalina</i>	6
Onuphidae		<i>Onuphis</i>	<i>quadricuspis</i>	6
Opheliidae		<i>Ophelia</i>	<i>sp.</i>	1
Opheliidae		<i>Ophelina</i>	<i>acuminata</i>	4
Oweniidae		<i>Owenia</i>	<i>fusiformis</i>	4, 9
Onuphidae		<i>Paradiopatra</i>	<i>sp.</i>	6
Paraonidae		<i>Paraonis</i>	<i>gracilis</i>	1
Syllidae		<i>Parapionosyllis</i>	<i>longicirrata</i>	4
Dorvilleidae		<i>Parougia</i>	<i>caeca</i>	4
Pectinariidae	Trumpet worm	<i>Pectinari</i>	<i>gouldi</i>	1, 7
Pholoidae		<i>Pholoe</i>	<i>minuta</i>	1
Phyllodoceidae		<i>Phyllodoce</i>	<i>maculata</i>	4
Phyllodoceidae		<i>Phyllodoceidae</i>	<i>sp.</i>	4
Terebellidae		<i>Polycirrus</i>	<i>sp.</i>	4
Spionidae		<i>Polydora</i>	<i>cornuta</i>	4
Polygordiidae		<i>Polygordius</i>	<i>sp.</i>	4
Polynoidae		<i>Polynoidae</i>	<i>sp.</i>	4
Sabellidae		<i>Potamilla</i>	<i>sp.</i>	6
Maldanidae		<i>Praxillella</i>	<i>sp.</i>	9

Maldanidae		<i>Praxillura</i>	<i>longissima</i>	1
Spionidae		<i>Prionospio</i>	<i>steenstrupi</i>	1
Dorvilleidae		<i>Protodorvillea</i>	<i>kefersteini</i>	4
Maldanidae		<i>Rhodine</i>	<i>sp.</i>	9
Sabellidae		<i>Sabella</i>	<i>sp.</i>	6
Ampharetidae		<i>Samythella</i>	<i>sp.</i>	4
Scalibregmatidae		<i>Scalibregma</i>	<i>inflatum</i>	4
Lumbrineridae		<i>Scoletoma</i>	<i>fragilis</i>	4
Lumbrineridae		<i>Scoletoma</i>	<i>verrilli</i>	4
Serpulidae		<i>Serpula</i>	<i>sp.</i>	1
Sphaerodoridae		<i>Sphaerodoropsis</i>	<i>minuta</i>	4
Syllidae		<i>Sphaerosyllis</i>	<i>brevifrons</i>	4
Spionidae		<i>Spio</i>	<i>filicornis</i>	1
Spionidae		<i>Spio</i>	<i>pettiboneae</i>	1
Spionidae		<i>Spio</i>	<i>limicola</i>	4
Chaetopteridae		<i>Spiochaetopterus</i>	<i>sp.</i>	6
Spionidae		<i>Spiophanes</i>	<i>bombyx</i>	4
Serpulidae	Spiral Tube Worm	<i>Spirorbis</i>	<i>spirorbis</i>	1
Fringillidae		<i>Spizella</i>	<i>pusilla</i>	2
Sternaspidae		<i>Sternaspis</i>	<i>scutata</i>	1
Terebellidae		<i>Streblosoma</i>	<i>spiralis</i>	1
Spionidae		<i>Streblospio</i>	<i>benedicti</i>	4
Syllidae		<i>Streptosyllis</i>	<i>arenae</i>	4
Syllidae		<i>Syllides</i>	<i>longocirrata</i>	4
Syllidae		<i>Syllis</i>	<i>alosae</i>	4
Trichobranchidae		<i>Terebellides</i>	<i>stroemi</i>	4
Cirratulidae		<i>Tharyx</i>	<i>acutus</i>	4
Terebellidae		<i>Thelepus</i>	<i>cincinnatus</i>	1
Trochochaetidae		<i>Trochochaeta</i>	<i>multisetosa</i>	1
Tubificidae		<i>Tubificidae</i>	<i>sp.</i>	4
PHYLUM: ARTHROPODA (crabs, lobsters, shrimp)				
Aeginellidae		<i>Aeginella</i>	<i>longicornis</i>	4
Caprellidae		<i>Aeginina</i>	<i>longicornis</i>	6
Ampeliscidae		<i>Aeginellidae</i>	<i>sp.</i>	4
Ampeliscidae		<i>Ampelisca</i>	<i>macrocephala</i>	6
Ampeliscidae		<i>Ampelisca</i>	<i>vadorum</i>	4
Eusiridae		<i>Amphithipsis</i>	<i>sp</i>	6
Anthuridae		<i>Anoplodactylus</i>	<i>lentus</i>	4
Axiidae		<i>Axius</i>	<i>serratus</i>	6
Aoridae		<i>Balanus</i>	<i>balanus</i>	4
Aoridae		<i>Balanus</i>	<i>crenatus</i>	4
Balanidae	Rough Barnacle	<i>Balanus</i>	<i>hameri</i>	1
Balanidae		<i>Brisaster</i>	<i>fragilis</i>	1
Ampeliscidae		<i>Byblis</i>	<i>gaimardi</i>	1
Bodotriidae		<i>Calanus</i>	<i>finmarchicus</i>	1
Calliopidae		<i>Calliopius</i>	<i>laeviusculus</i>	6
Axiidae		<i>Calocaris</i>	<i>templemanni</i>	6
Bodotriidae		<i>Campylaspis</i>	<i>rubicunda</i>	6
Calanidae		<i>Cancer</i>	<i>borealis</i>	1
Cancriidae		<i>Cancer</i>	<i>borealis</i>	6
Cancriidae		<i>Cancer</i>	<i>irroratus</i>	6
Portunidae		<i>Carcinus</i>	<i>maenas</i>	6

Hipolytidae		<i>Caridon</i>	<i>gordoni</i>	6
Gammaridae		<i>Casco</i>	<i>bigelowi</i>	6
Cancridae	Jonah Crab	<i>Centropages</i>	<i>typicus</i>	1
Centropagidae		<i>Chiridotea</i>	<i>caeca</i>	1
Chaetiliidae		<i>Corophium</i>	<i>sp.</i>	1
Clausocalanidae		<i>Crangon</i>	<i>septemspinosis</i>	1
Crangonidae		<i>Crangon</i>	<i>septemspinosa</i>	6
Corophiidae		<i>Crassicorophium</i>	<i>crassicorne</i>	1
unknown		<i>Decapoda</i>	<i>crustacea</i>	6
Corophiidae		<i>Desmosomatidae</i>	<i>sp.</i>	4
Crangonidae		<i>Dichelopandalus</i>	<i>leptocerus</i>	1
Pandalidae		<i>Dichelopandalus</i>	<i>pubescens</i>	6
Crangonidae		<i>Dulichia</i>	<i>porrecta</i>	1
Cylindroleberididae		<i>Edotia</i>	<i>montosa</i>	4
Epimeriidae		<i>Epimeria</i>	<i>loricata</i>	6
Desmosomatidae		<i>Erichthonius</i>	<i>difformis</i>	4
Euchaetidae		<i>Erichthonius</i>	<i>sp.</i>	1
Hipolytidae		<i>Eualus</i>	<i>fabricii</i>	6
Hipolytidae		<i>Eualus</i>	<i>pusiolus</i>	6
Euphausiidae		<i>Euchaeta</i>	<i>norvegica</i>	1
Euphausiidae		<i>Eudorella</i>	<i>pusilla</i>	1
Eusiridae		<i>Eusirus</i>	<i>cuspidatus</i>	6
Hippolytidae		<i>Euthemisto</i>	<i>sp.</i>	1
Geryonidae		<i>Geryon</i>	<i>quinquedens</i>	6
Caprellidae		<i>Harloops</i>	<i>tubicola</i>	6
Hyperiididae		<i>Harpinia</i>	<i>propinqua</i>	1
Nephropidae	American Lobster	<i>Homarus</i>	<i>americanus</i>	4
Idoteidae		<i>Hyas</i>	<i>coarctatus</i>	4
Majidae		<i>Hyas</i>	<i>coarctatus</i>	6
Hyperidae		<i>Hyperia</i>	<i>galba</i>	6
Hyperidae		<i>Hyperoche</i>	<i>medusarum</i>	6
Hipolytidae		<i>Lebbeus</i>	<i>groenlandicus</i>	6
Hipolytidae		<i>Lebbeus</i>	<i>polaris</i>	6
Hipolytidae		<i>Lebbeus</i>	<i>zebra</i>	6
Aoridae		<i>Lembos</i>	<i>websteri</i>	6
Isaeidae		<i>Leptocheirus</i>	<i>pinguis</i>	4
Ischyroceridae		<i>Leptocuma</i>	<i>sp.</i>	4
Lithodidae		<i>Lithodes</i>	<i>maja</i>	6
Leuconidae		<i>Lysianassidae</i>	<i>sp.</i>	4
Lithodidae		<i>Meganyctiphanes</i>	<i>norvegica</i>	2
Lysianassidae		<i>Metopella</i>	<i>angusta</i>	4
Majidae	Toad Crab	<i>Metridia</i>	<i>lucens</i>	1
Oedicerotidae		<i>Monoculodes</i>	<i>tuberculatus</i>	6
Nannastacidae		<i>Oithona</i>	<i>sp.</i>	4
Nephropidae		<i>Pagurus</i>	<i>arcuatus</i>	1
Oedicerotidae		<i>Pagurus</i>	<i>asadianus</i>	4
Paguridae		<i>Pagurus</i>	<i>pubescens</i>	6
Pandalidae		<i>Pandalus</i>	<i>montagui</i>	6
Pandalidae		<i>Pandalus</i>	<i>propinquus</i>	6
Pandalidae	Northern pink shrimp	<i>Pandalus</i>	<i>borealis</i>	1
Oedicerotidae		<i>Paroediceros</i>	<i>lynceus</i>	6
Paguridae		<i>Pasiphaea</i>	<i>sp.</i>	1
Pasiphaeidae		<i>Pasiphaea</i>	<i>multidentata</i>	6

Paguridae	Hairy Hermit Crab	<i>Petalosarsia</i>	<i>declivis</i>	1
Pandalidae		<i>Photis</i>	<i>sp.</i>	1
Pandalidae		<i>Phoxocephalus</i>	<i>holbolli</i>	1
Paramunnidae		<i>Pleurogonium</i>	<i>spinosissimum</i>	4
Pleustidae		<i>Pleustes</i>	<i>panoplus</i>	6
Isaeidae		<i>Podoceropsis</i>	<i>nitida</i>	6
Crangonidae		<i>Pontophilus</i>	<i>norvegicus</i>	6
Melitidae		<i>Protomedia</i>	<i>fasciata</i>	6
Phoxichilidiidae	Long-leggedlentic sea spider	<i>Pseudocalanus</i>	<i>mintus</i>	1
Phoxocephalidae		<i>Ptilanthura</i>	<i>tenuis</i>	4
Crangonidae		<i>Sabinea</i>	<i>sarsii</i>	6
Crangonidae		<i>Sabinea</i>	<i>septemcarinata</i>	6
Crangonidae		<i>Sclerocrangon</i>	<i>boreas</i>	6
Phoxocephalidae		<i>Sclerocrangon</i>	<i>boreas</i>	4
Hipolytidae		<i>Spirontocaris</i>	<i>liljeborgii</i>	6
Hipolytidae		<i>Spirontocaris</i>	<i>spinus</i>	6
Pleustidae		<i>Spirontocaris</i>	<i>sp.</i>	4
Pleustidae		<i>Stegocephalus</i>	<i>inflatus</i>	6
Pleustidae		<i>Stenopleustes</i>	<i>sp</i>	6
Podoceridae		<i>Synasterope</i>	<i>cushmani</i>	4
Pseudocumatidae		<i>Temora</i>	<i>longicornis</i>	4
Stenothoidae		<i>Thysanoessa</i>	<i>sp.</i>	4
Corophiidae		<i>Unciola</i>	<i>irrorata</i>	6
Temoridae		<i>Unciola</i>	<i>irrorata</i>	1
PHYLUM: PHORONIDA (marine worms)				
Phoronidae		<i>Phoronis</i>	<i>sp.</i>	4
PHYLUM: ECTOPROCTA (moss animals)				
Bugulidae	Spiral Tufted Bryozoa	<i>Bugula</i>	<i>turrita</i>	1
Scrupocellariidae		<i>Caberea</i>	<i>ellisii</i>	1
Bugulidae		<i>Dendrobeania</i>	<i>murrayana</i>	1
Lichenoporidae		<i>Disporella</i>	<i>hispida</i>	1
Hippothoidae		<i>Hippothoa</i>	<i>hyalina</i>	1
Tubuliporidae		<i>Idmidronea</i>	<i>atlantica</i>	1
Schizoporellidae		<i>Schizomavella</i>	<i>auriculata</i>	1
Tubuliporidae		<i>Tubulipora</i>	<i>lilacea</i>	1
PHYLUM: BRACHIOPODA (lamp shell)				
Cancellothyrididae	Northern Lamp Shell	<i>Terebratulina</i>	<i>septentrionalis</i>	1
PHYLUM: ECHINODERMATA (sea stars, cucumbers, urchins)				
Asteriidae	Northern Sea Star	<i>Asterias</i>	<i>vulgaris</i>	1
		<i>Asteroidea</i>	<i>sp.</i>	4
Amphiuridae		<i>Axiognathus</i>	<i>squamatus</i>	1
Solasteridae	Spiny Sunstar	<i>Crossaster</i>	<i>papposus</i>	1
Porcellanasteridae		<i>Ctenodiscus</i>	<i>crispatus</i>	1
Cucumariidae	Orange Footed Cucumber	<i>Cucumaria</i>	<i>frondosa</i>	1
Echinarachniidae	Common Sand Dollar	<i>Echinarachnius</i>	<i>parma</i>	1
		<i>Echinoidea</i>	<i>sp.</i>	4
Gorgonocephalidae	Northern basket star	<i>Gorgonocephalus</i>	<i>arcticus</i>	1
Antedonidae		<i>Hathrometra</i>	<i>sp.</i>	1
Echinasteridae	Blood Sea Star	<i>Henricia</i>	<i>sanguinolenta</i>	1

Goniasteridae	Horse Star	<i>Hippasteria</i>	<i>phrygiana</i>	1
Asteriidae		<i>Leptasterias</i>	<i>sp.</i>	1
Molpadiidae		<i>Molpadia</i>	<i>oolitica</i>	1
Ophiacanthidae		<i>Ophiacantha</i>	<i>sp.</i>	1
Ophiactidae	Daisy Brittle Star	<i>Ophiopholis</i>	<i>aculeata</i>	1
Ophiuridae		<i>Ophiura</i>	<i>robusta</i>	1
Ophiuridae		<i>Ophiura</i>	<i>sarsi</i>	1
Poraniidae	Badge Star	<i>Porania</i>	<i>insignis</i>	1
Psolidae	Scarlet Cucumber	<i>Psolus</i>	<i>fabricii</i>	1
Psolidae	Psolus sea cucumber	<i>Psolus</i>	<i>fabricii</i>	1
Psolidae		<i>Psolus</i>	<i>phantapus</i>	1
Pterasteridae		<i>Pteraster</i>	<i>militaris</i>	2
Solasteridae	Smooth Sunstar	<i>Solaster</i>	<i>endeca</i>	1
Asteriidae		<i>Stephanasterias</i>	<i>albula</i>	1
Strongylocentrotidae	Green Sea Urchin	<i>Strongylocentrotus</i>	<i>droebachiensis</i>	1
PHYLUM: CHAETOGNATH (arrow worm)				
Eukrohniidae		<i>Eukrohnia</i>	<i>sp.</i>	1
Sagittidae		<i>Sagitta</i>	<i>elegans</i>	1
Sagittidae		<i>Sagitta</i>	<i>lyra</i>	1
PHYLUM: UROCHORDATA (tunicates)				
Polyclinidae	Sea Grape	<i>Aplidium</i>	<i>constellatum</i>	1
Polyclinidae	New York Sea Grape	<i>Aplidium</i>	<i>pallidum</i>	1
Ascididae		<i>Ascidia</i>	<i>callosa</i>	1
Pyuridae		<i>Boltenia</i>	<i>echinata</i>	1
Pyuridae		<i>Boltenia</i>	<i>ovifera</i>	1
Styelidae		<i>Botrylloides</i>	<i>diegensis</i>	1
Cionidae		<i>Ciona</i>	<i>intestinalis</i>	1, 8
Styelidae		<i>Dendrodoa</i>	<i>carnea</i>	1
Didemnidae		<i>Didemnum</i>	<i>albidum</i>	1
Pyuridae		<i>Halocynthia</i>	<i>pyriformis</i>	1
Molgulidae	Northern White Crust	<i>Molgula</i>	<i>citrina</i>	1
Molgulidae		<i>Molgula</i>	<i>manhattensis</i>	1
Styelidae		<i>Styela</i>	<i>sp.</i>	1
Polyclinidae		<i>Synoicum</i>	<i>pulmonaria</i>	1
Didemnidae	Sea Vase	<i>Trididemnum</i>	<i>solidum</i>	1
PHYLUM: CHORDATA—FISHES				
Alopiidae	Thresher shark	<i>Alopias</i>	<i>vulpinus</i>	13
Clupeidae	Blueback herring	<i>Alosa</i>	<i>aestivalis</i>	3
Clupeidae	Alewife	<i>Alosa</i>	<i>pseudoharengus</i>	3
Clupeidae	American shad	<i>Alosa</i>	<i>sapidissima</i>	1, 3
Ammodytidae	American sand lance	<i>Ammodytes</i>	<i>americanus</i>	1, 3
Anarhichadidae	Atlantic Wolfish	<i>Anarhichas</i>	<i>lupus</i>	1, 3
Gasterosteidae	Fourspine stickleback	<i>Apeltes</i>	<i>quadracus</i>	3
Argentinidae	Atlantic argentine	<i>Argentina</i>	<i>silus</i>	3
Ariommatidae	Silver rag	<i>Ariomma</i>	<i>bondi</i>	3
Agonidae	Alligatorfish	<i>Aspidophoroides</i>	<i>monopterygius</i>	1, 3
Clupeidae	Atlantic menhaden	<i>Brevoortia</i>	<i>tyrannus</i>	3
Lotidae	Cusk	<i>Brosme</i>	<i>brosme</i>	1, 3
Carcharhinidae	Sand tiger shark	<i>Carcharias</i>	<i>taurus</i>	13
Carcharhinidae	White shark	<i>Carcharodon</i>	<i>carcharias</i>	13

Serranidae	Black sea bass	<i>Centropristis</i>	<i>striata</i>	1, 3
Cetorhinidae	Basking shark	<i>Cetorhinus</i>	<i>maximus</i>	13
Paralichthyidae	Gulfstream flounder	<i>Citharichthys</i>	<i>arctifrons</i>	3
Clupeidae	Atlantic herring	<i>Clupea</i>	<i>harengus</i>	1, 3
Cryptacanthodidae	Wrymouth	<i>Cryptacanthodes</i>	<i>maculatus</i>	3
Cyclopteridae	Lumpfish	<i>Cyclopterus</i>	<i>lumpus</i>	1, 3
Lotidae	Fourbeard Rockling	<i>Enchelyopus</i>	<i>cimbrius</i>	1, 3
Cyclopteridae	Atlantic spiny lumpsucker	<i>Eumicrotremus</i>	<i>spinus</i>	3
Gadidae	Atlantic Cod	<i>Gadus</i>	<i>morhua</i>	1, 3
Gasterosteidae	Threespine stickleback	<i>Gasterosteus</i>	<i>aculeatus</i>	3
Pleuronectidae	Witch flounder	<i>Glyptocephalus</i>	<i>cynoglossus</i>	1, 3
Scorpaenidae	Blackbelly rosefish	<i>Helicolenus</i>	<i>dactylopterus</i>	3
Hemitripteridae	Sea raven	<i>Hemitripterus</i>	<i>americanus</i>	1, 3
Pleuronectidae	American plaice	<i>Hippoglossoides</i>	<i>platessoides</i>	1, 3
Pleuronectidae	Atlantic Halibut	<i>Hippoglossus</i>	<i>hippoglossus</i>	1, 3
Carcharhinidae	Shortfin mako	<i>Isurus</i>	<i>oxyrinchus</i>	13
Carcharhinidae	Porbeagle	<i>Lamna</i>	<i>nasus</i>	13
Ophidiidae	Fawn cusk eel	<i>Lepophidium</i>	<i>cervinum</i>	3
Lophiidae	Goosefish	<i>Lophias</i>	<i>americanus</i>	1, 3
Stichaeidae	Snakeblenny	<i>Lumpenus</i>	<i>lumpretaeformis</i>	1, 3
Stichaeidae	Daubed shanny	<i>Lumpenus</i>	<i>maulatus</i>	1, 3
Zoarcidae	Wolf eelpout	<i>Lycenchelys</i>	<i>verrilli</i>	3
Zoarcidae	Ocean pout	<i>Macrozoarces</i>	<i>americanus</i>	1, 3
Osmeridae	Capelin	<i>Mallotus</i>	<i>villosis</i>	1
Sternoptychidae	Pearlsides	<i>Maurolieus</i>	<i>muelleri</i>	3
Gadidae	Haddock	<i>Melanogrammus</i>	<i>aeglefinus</i>	1, 3
Zoarcidae	Atlantic soft pout	<i>Melanostigma</i>	<i>atlanticum</i>	3
Atherinopsidae	Atlantic silverside	<i>Menidia</i>	<i>menidia</i>	3
Merlucciidae	Silver hake (Whiting)	<i>Merluccius</i>	<i>bilinearis</i>	1, 3
Gadidae	Tomcod	<i>Microgadus</i>	<i>tomcod</i>	2
Molidae	Ocean sunfish	<i>Mola</i>	<i>mola</i>	1
Moronidae	Striped bass (Rockfish)	<i>Morone</i>	<i>saxatilis</i>	1
Cottidae	Grubby	<i>Myoxocephalus</i>	<i>anaeus</i>	3
Cottidae	Longhorn sculpin	<i>Myoxocephalus</i>	<i>octodecemspinosus</i>	1, 3
Cottidae	Shortnose sculpin	<i>Myoxocephalus</i>	<i>scorpius</i>	3
Myxinidae	Hagfish	<i>Myxine</i>	<i>glutinosa</i>	1, 3
Nemichthyidae	Slender snipe eel	<i>Nemichthys</i>	<i>scolopaceus</i>	3
Paralichthyidae	Summer flounder	<i>Paralichthys</i>	<i>denatus</i>	1
Paralichthyidae	Fourspot flounder	<i>Paralichthis</i>	<i>oblongus</i>	1, 3
Stromateidae	Butterfish	<i>Peprilus</i>	<i>triacanthus</i>	1, 3
Ophichthidae	Snake eel	<i>Ophichthus</i>	<i>cruentifer</i>	3
Pleuronectidae	Winter flounder	<i>Pleuronectes</i>	<i>americanus</i>	1, 3
Pleuronectidae	Yellowtail flounder	<i>Pleuronectes</i>	<i>ferrungineus</i>	3, 4
Gadidae	Pollack	<i>Pollachius</i>	<i>virens</i>	1, 3
Pomatomidae	Bluefish (snapper)	<i>Pomatomus</i>	<i>saltatrix</i>	1
Carcharhinidae	Blue shark	<i>Prionace</i>	<i>glauca</i>	13
Triglidae	Northern Sea robin	<i>Prionotus</i>	<i>carolinus</i>	1, 3
Rajidae	Clearnose skate	<i>Raja</i>	<i>eglanteria</i>	3
Rajidae	Little skate	<i>Raja</i>	<i>erinacea</i>	1, 3
Rajidae	Barndoor skate	<i>Raja</i>	<i>laevis</i>	1
Rajidae	Winter skate	<i>Raja</i>	<i>ocellata</i>	1, 3
Rajidae	Thorny skate	<i>Raja</i>	<i>radiata</i>	3
Rajidae	Smooth skate	<i>Raja</i>	<i>senta</i>	3

Salmonidae	Atlantic salmon	<i>Salmo</i>	<i>salar</i>	3
Scombridae	Atlantic mackerel	<i>Scomber</i>	<i>scombrus</i>	1, 3
Scomberesocidae	Atlantic saury	<i>Scomberesox</i>	<i>saurus</i>	3
Scophthalmidae	Windowpane flounder	<i>Scophthalmus</i>	<i>aquosus</i>	1, 3
Sebastidae	Redfish	<i>Sebastes</i>	<i>fasciatus</i>	1, 3
Squalidae	Spiny dogfish	<i>Squalus</i>	<i>acanthias</i>	1, 3
Sparidae	Scup (Porgy)	<i>Stenotomus</i>	<i>chrysops</i>	1, 3
Syngnathidae	Pipefish	<i>Syngnathus</i>	<i>fuscus</i>	1, 3
Labridae	Cunner	<i>Tautoglabrus</i>	<i>adspersus</i>	1, 3
Scombridae	Bluefin tuna	<i>Thunnus</i>	<i>thynnus</i>	1
Cottidae	Mustache sculpin	<i>Triglops</i>	<i>murrayi</i>	3
Stichaeidae	Radiated shanney	<i>Ulvaria</i>	<i>subbifurcata</i>	3
Phycidae	Red hake	<i>Urophycis</i>	<i>chuss</i>	1, 3
Phycidae	Spotted hake	<i>Urophycis</i>	<i>regia</i>	1, 3
Phycidae	White hake	<i>Urophycis</i>	<i>tenuis</i>	1, 3
PHYLUM: CHORDATA—MARINE REPTILES				
Cheloniidae	Loggerhead turtle	<i>Caretta</i>	<i>caretta</i>	1
Cheloniidae	Green turtle	<i>Chelonia</i>	<i>mydas</i>	1
Dermochelyidae	Leatherback turtle	<i>Dermochelys</i>	<i>coriacea</i>	1
Cheloniidae	Kemp's ridley turtle	<i>Lepidochelys</i>	<i>kempi</i>	1
PHYLUM: CHORDATA—BIRDS				
Alcidae	Razorbill	<i>Alca</i>	<i>torda</i>	5
Alcidae	Dovekie	<i>Alle</i>	<i>alle</i>	5
Anatidae	Common Eider	<i>Ardea</i>	<i>herodias</i>	5
Anatidae	Atlantic Brant	<i>Branta</i>	<i>bernicla</i>	5
Laridae	South Polar Skua	<i>Calidris</i>	<i>minutilla</i>	5
Procellariidae	Cory's Shearwater	<i>Calonectris</i>	<i>diomedea</i>	5
Laridae	South polar skua	<i>Catharacta</i>	<i>maccormickii</i>	5
Laridae	Great skua	<i>Catharacta</i>	<i>skua</i>	5
Alcidae	Black guillemot	<i>Cepphus</i>	<i>grylle</i>	5
Laridae	Black tern	<i>Chlidonias</i>	<i>niger</i>	5
Anatidae	Long-tailed Duck	<i>Clangula</i>	<i>hyemalis</i>	5
Procellariidae	Yellow-nosed albatross	<i>Diomedea</i>	<i>chlororhynchus</i>	5
Procellariidae	Black-browed albatross	<i>Diomedea</i>	<i>meleanophris</i>	5
Falconidae	Peregrine Falcon	<i>Falco</i>	<i>peregrinus</i>	5
Laridae	Atlantic Puffin	<i>Fratercula</i>	<i>arctica</i>	5
Procellariidae	Northern fulmar	<i>Fulmarus</i>	<i>glacialis</i>	5
Gaviidae	Common loon	<i>Gavia</i>	<i>immer</i>	5
Gaviidae	Red-throated loon	<i>Gavia</i>	<i>stellata</i>	5
Laridae	Herring gull	<i>Larus</i>	<i>argentatus</i>	5
Laridae	Laughing gull	<i>Larus</i>	<i>articilla</i>	5
Laridae	Ring-billed gull	<i>Larus</i>	<i>delwarensis</i>	5
Laridae	Iceland gull	<i>Larus</i>	<i>glaucoides</i>	5
Laridae	Glaucous gull	<i>Larus</i>	<i>hyperboreus</i>	5
Laridae	Great Black-backed gull	<i>Larus</i>	<i>marinus</i>	5
Laridae	Bonaparte's gull	<i>Larus</i>	<i>philadelphia</i>	5
Anatidae	White-winged scoter	<i>Melanitta</i>	<i>deglandi</i>	5
Anatidae	Black scoter	<i>Melanitta</i>	<i>negri</i>	5
Anatidae	Surf scoter	<i>Melanitta</i>	<i>perspicillata</i>	5
Sulidae	Northern Gannet	<i>Morus</i>	<i>bassanus</i>	5
Hydrobatidae	Wilson's Storm-Petrel	<i>Oceanites</i>	<i>oceanicus</i>	5

Hydrobatidae	Leach's Storm-Petrel	<i>Oceanodroma</i>	<i>leucorhoa</i>	5
Phalacrocoracidae	Double-crested cormorant	<i>Phalacrocorax</i>	<i>auritus</i>	5
Phalacrocoracidae	Great cormorant	<i>Phalacrocorax</i>	<i>carbo</i>	5
Scolopacidae	Red Phalarope	<i>Phalaropus</i>	<i>fulicaria</i>	5
Scolopacidae	Red-necked phalarope	<i>Phalaropus</i>	<i>lobatus</i>	5
Procellariidae	Greater Shearwater	<i>Puffinus</i>	<i>gravis</i>	5
Procellariidae	Sooty Shearwater	<i>Puffinus</i>	<i>griseus</i>	5
Procellariidae	Manx Shearwater	<i>Puffinus</i>	<i>puffinus</i>	5
Laridae	Black-legged kittiwake	<i>Rissa</i>	<i>tridactyla</i>	5
Anatidae	Red-breasted merganser	<i>Somateria</i>	<i>mollissima</i>	5
Laridae	Long-tailed jaeger	<i>Stercorarius</i>	<i>longicaudus</i>	5
Laridae	Parasitic jaeger	<i>Stercorarius</i>	<i>parasiticus</i>	5
Laridae	Pomarine jaeger	<i>Stercorarius</i>	<i>pomarinus</i>	5
Laridae	Least tern	<i>Sterna</i>	<i>albifrons</i>	5
Laridae	Roseate tern	<i>Sterna</i>	<i>dougalii</i>	5
Laridae	Forster's Tern	<i>Sterna</i>	<i>forsteri</i>	5
Laridae	Common tern	<i>Sterna</i>	<i>hirundo</i>	5
Laridae	Royal tern	<i>Sterna</i>	<i>maxima</i>	5
Laridae	Arctic tern	<i>Sterna</i>	<i>paradisaea</i>	5
Alcidae	Common Murre	<i>Uria</i>	<i>aalge</i>	5
Alcidae	Thin-billed murre	<i>Uria</i>	<i>lomvia</i>	5
Laridae	Sabine's gull	<i>Xema</i>	<i>sabini</i>	5
PHYLUM CHORDATA—MARINE MAMMALS				
Balaenopteridae	Minke whales	<i>Balaenoptera</i>	<i>acutorostrata</i>	1
Balaenopteridae	Sei whales	<i>Balaenoptera</i>	<i>borealis</i>	1
Balaenopteridae	Blue whales	<i>Balaenoptera</i>	<i>musculus</i>	1
Balaenopteridae	Fin whales	<i>Balaenoptera</i>	<i>physalus</i>	1
Delphinidae	Common dolphins	<i>Delphinus</i>	<i>delphis</i>	1
Balaenidae	Northern right whales	<i>Eubalaena</i>	<i>glacialis</i>	1
Delphinidae	Short-Finned Pilot whales	<i>Globicephala</i>	<i>macrorhynchus</i>	1
Delphinidae	Long-Finned Pilot whales	<i>Globicephala</i>	<i>melaena</i>	1
Physeteridae	Sperm whale	<i>Physeter</i>	<i>macrocephalus</i>	
Delphinidae	Risso's dolphin	<i>Grampus</i>	<i>griseus</i>	1
Phocidae	Gray seal	<i>Halichoerus</i>	<i>grypus</i>	1
Delphinidae	White-sided dolphins	<i>Lagenorhynchus</i>	<i>actutus</i>	1
Delphinidae	White-beaked dolphins	<i>Lagenorhynchus</i>	<i>albirostris</i>	1
Balaenopteridae	Humpback whales	<i>Megaptera</i>	<i>novaeangliae</i>	1
Delphinidae	Orca whales	<i>Orcinus</i>	<i>orca</i>	1
Phocidae	Harbor seal	<i>Phoca</i>	<i>vitulina</i>	1
Phocidae	Hooded seal	<i>Cystophora</i>	<i>cristata</i>	
Phocidae	Ringed seal	<i>Pusa</i>	<i>hispida</i>	
Phocidae	Harp seal	<i>Phoca</i>	<i>groenlandica</i>	1
Phocoenidae	Harbor porpoises	<i>Phocoena</i>	<i>phocoena</i>	1
Delphinidae	Striped dolphins	<i>Stenella</i>	<i>coeruleoalba</i>	1
Delphinidae	Bottlenose dolphins	<i>Tursiops</i>	<i>truncatus</i>	1

References for Species List

1. National Oceanic and Atmospheric Administration, 1993. Final Environmental Impact Statement/Management Plan, Volumes I and II: Sanctuaries and Reserves Division, July 1993, Silver Spring, MD.
2. National Oceanic and Atmospheric Administration, Stellwagen Bank National Marine Sanctuary, 2006. SBNMS Seafloor Habitat Recovery Monitoring Program (SHRMP) Database.
3. Auster, P.J., 2002. Representation of biological diversity of the Gulf of Maine Region at Stellwagen Bank National Marine Sanctuary (Northwest Atlantic): Patterns of Fish Diversity and Assemblage Composition. *Managing Protected Areas in a Changing World*. S. Bondrup-Nielson *et al.*, eds., Science and Management of Protected Areas Association, Wolfville, NS, Canada, 1096-1125.
4. National Oceanic and Atmospheric Administration, National Centers for Coastal Ocean Science (NCCOS), 2006. An Ecological Characterization of the Stellwagen Bank National Marine Sanctuary Region: Oceanographic, Biogeographic, and Contaminants Assessment. Prepared by NCCOS's Biogeography Team in cooperation with the National Marine Sanctuary Program. Silver Spring, MD. NOAA Technical Memorandum NCCOS 45. 356 pp.
5. Petersen, W.R. Massachusetts Audubon Society, Massachusetts Important Bird Areas (IBA) Program. http://www.massaudubon.org/Birds_&_Beyond/IBAs/index.php.
6. Theroux, R.B. and R.L. Wigley, 1998. Quantitative Composition and Distribution of the Macrobenthic Invertebrate Fauna of the Continental Shelf Ecosystems of the Northeastern United States, United States Department of Commerce, NOAA Technical Report, NMFS 140. 240 pp.
7. Ward, N.F.R., 1995. *Stellwagen Bank: A Guide to the Whales, Sea Birds, and Marine Life of the Stellwagen Bank National Marine Sanctuary*. Down East Books, Camden, ME. 232 pp.
8. McNaught, D., in preparation. *Boulder and Gravel Invertebrate Epifauna in Stellwagen Bank National Marine Sanctuary*.
9. Grannis, B.M., 2005. *Impacts of mobile fishing gear and a buried fiber-optic cable on soft-sediment benthic community structure*. Master's Thesis, University of Maine, Orono, ME.
10. Gosner, K.L., 1971. *Guide to Identification of Marine and Estuarine Invertebrates*. New York: Wiley-Interscience, Division of John Wiley & Sons, Inc.
11. Auster, P.J., R.J. Malatesta, S.C. LaRosa, R.A. Cooper, and L.L. Stewart, L.L., 1991. Microhabitat utilization by the mega-faunal assemblage at a low relief outer continental shelf site – Middle Atlantic Bight, USA. *Journal of Northwest Atlantic Fisheries Science*, 11, 59-69.
12. Langton, R.W., E.W. Langton, R.B. Theroux, and J.R. Uzmann, 1990. Distribution, Behavior and Abundance of Sea Pens, *Pennatula aculeata*, in the Gulf of Maine. *Marine Biology*, 107, 463-469.
13. Skomal, G. MDMF, personal communication, 2007.

APPENDIX K. DESCRIPTION OF TYPICAL WASTE DISCHARGES IN THE STELLWAGEN BANK SANCTUARY

Black water, gray water, bilge water, ballast water, hazardous materials and solid waste are the significant types of vessel discharge in the sanctuary. This appendix explains what the wastes are produced from, what they include, how much is produced, and indicates principal regulations pertaining to each type of discharge. The information provided is based on typical cruise ship operations, but these types of discharges are not limited to that class of vessel and can vary in degree and kind.

Black Water

Produced from: vessel sewage. It is more concentrated than land-based sources since it is diluted with less water (3 qts/flush vs. 3-5 gal/flush).

Includes: bacteria, viruses, nutrients, chemicals and deodorants (chlorine, ammonia, formaldehyde).

Production: typical cruise ship produces an est. 210,000 gal/week; no data on other vessels.

Regulations: Federal regulations under the Clean Water Act (CWA) classify sewage as a pollutant. Cruise ships are not subject to the National Pollutant Discharge Elimination System (NPDES) permitting program, which requires land-based facilities to obtain permits for discharges. Section 312 of CWA regulates black water (sewage) from cruise ships where vessels are required to possess a U.S. Coast Guard certified marine sanitation device (MSD).

Specifics:

- requires the use of MSDs for all vessels within 3 nautical miles of the coast.
- vessels over 65 feet must have a type II or type III MSD (type II = standard of 200 fecal coliform per per 100 ml of water discharged; type III unit is to contain sewage until it can be disposed of [i.e., a holding tank]).
- CWA can be applied to any discharge beyond the 3-mile limit that affects water quality within that limit.
- raw sewage can be legally discharged beyond 3 nautical miles.

Gray Water

Produced from: wastewater from sinks, showers, laundry and galleys.

Includes: suspended solids, oil, grease, ammonia, nitrogen, phosphates, copper, lead, mercury, nickel, silver, zinc, detergents, cleaners, other metals, pesticides, medical and dental waste.

Production: typical cruise ship produces an estimated 1,000,000 gal/week; no data on other vessels.

Regulations: Federal regulations do not prohibit discharge in state or U.S. waters, except for the Great Lakes and state waters of Alaska.

Bilge Water

Produced from: fuel, oil, and wastewater from engines and machinery that collects at the bottom of a ships hull, from spills, leaks, routine operations and condensation.

Includes: fuel, oil, fresh and salt water, rags, cleaning agents, paint, metal shavings and live organisms.

Production: typical cruise ship produces an estimated 25,000 gal/week; estimated up to 2 million gallons per day released in U.S. by all vessels.

Regulations: Section 311 of CWA states:

- discharge of oil content < 15 parts oil per one million parts water (ppm) <= 12 nautical miles is prohibited,
- discharges with oil content > 100ppm > 12 nautical miles is prohibited.
- Also discharge of oily waste is addressed under MARPOL and under the Act to Prevent Pollution from Ships (APPS).

Ballast Water

Produced from: Ballast water is used for trim, safety and stabilization of vessels and adapted to loads and sea conditions. The International Maritime Organization, the USCG, Canada and several other countries and states have either voluntary guidance or legislation requiring ballast water management. Because of the lack of alternative treatments, the preferred interim treatment is ballast water exchange in mid-ocean for vessels entering the U.S. Exclusive Economic Zone (EEZ). Unfortunately, it is difficult to access the level of voluntary compliance, even with the mandatory reporting forms. The USCG has a report to Congress that says compliance is very low (NBIC, 2001). In New England, only about 35% of the vessels submit forms, an insufficient number to draw conclusions. Moreover, coastal vessels do not have to report ballast water exchange or submit forms.

Studies indicate that ballast water is one of the major vectors for exotic species introductions. Over 80% of the world's goods are transported by ships that globally discharge approximately 10 billion metric tons of ballast water each year. Over 3,000-7,000 species are carried in ballast tanks daily, and though few become established and fewer become invasive, those that do may cause economic and ecological harm. The greatest concern has been focused on coastal areas where introduced species have dramatically impacted nearshore ecosystems, aquaculture and harbor and port infrastructure.

Unfortunately, once marine organisms are established, it is virtually impossible to remove them. Thus, prevention is the best option for managing introduced species. Current efforts in the northeast are focusing on a regional ballast water management plan as other efforts at the international and national levels move forward. These efforts include

identification of scientifically based alternative ballast water exchange zones, actions for ports and harbors, and increased pressures for compliance with current voluntary ballast water management efforts.

Includes: thousands of marine species including larvae, fish eggs, microorganisms.

Production: typical cruise ship uses millions of gallons.

Regulations: Ballast water discharge is prohibited in the SBNMS by sanctuary regulation.

Hazardous Materials

Produced from: by-products of dry cleaning and photo processing operations, paints and solvents, batteries, fluorescent light bulbs containing mercury, and print shop wastes from cruise ships and metals, oil, solvents and a variety of other materials from other vessels.

Includes: chemicals and dry cleaning agents, photo processing chemicals, paints and solvents, mercury, and inks and dyes from printing processes.

Production: typical cruise ship produces an est. 110 gal/week photo processing chemicals, 5 gal/week of dry cleaning wastes, 10 gal/week of used paint; unknown amounts for other vessels (Royal Caribbean, 2000).

Regulations: RCRA requires hazardous substances be offloaded to land-based treatment or disposal facilities for all cruise ships and other vessels that generate or transport such materials.

Solid Waste

Produced from: normal vessel operations.

Includes: food waste, cans, glass, wood, cardboard, paper and plastic. Also ash of incinerated wastes is discharged at sea. Other waste is disposed on shore and/or recycled on shore. Solid waste can take from weeks to years to dissolve in the ocean depending on the material.

Production: typical cruise ship produces an est. 8 tons/week; no data on other vessels.

Regulations: APPS and CWA. Marine Plastic Pollution and Control Act regulates the disposal of plastic and garbage.

Specifics:

- disposal of plastics is prohibited in any waters
- floating dunnage and packing materials are prohibited in navigable water within 25 nautical miles from land
- other garbage (paper, glass, rags, metal and similar material) is prohibited within 12 nautical miles from shore (unless it is macerated, where it can be disposed of beyond land)

APPENDIX L. CETACEAN AND PINNIPED SPECIES DESCRIPTIONS

BALEEN WHALES

Blue whales (*Balaenoptera musculus*), the largest animal on earth measuring up to 100 ft. (33 m), are rarely seen in the sanctuary. Like other mysticetes, blue whales tend to travel alone or in small, short-lived groups. The distribution of blue whales in the western North Atlantic ranges from the Arctic to at least mid-latitude waters (NOAA, 2005a). Small, periodic concentrations of krill on Stellwagen Bank may support a stray blue as it moves to its primary feeding grounds further north, to the Gulf of St. Lawrence during spring and summer. Blue whales are pelagic, primarily found in deep, offshore waters, and are rare in shallow waters. The current minimum estimate for the western North Atlantic stock is 308 whales (NOAA, 2005b).

Fin whales (*Balenoptera physalus*), second to the blue whale in size, are sighted year-round in the sanctuary. They occur widely in the mid-Atlantic throughout the year, with concentrations from Cape Cod north in summer and from Cape Cod south in winter. The GoM and New England coast is a major feeding ground for fin whales from spring to fall. Relatively little is known about the movements and behavior of fin whales: they travel quickly and individuals are difficult to identify in the field, making research a challenge. Photo-identification of fin whales (Agler *et al.*, 1993) has begun to clarify their natural history.

The fin whale's unique asymmetrical pigmentation on its lower jaw — black on the left, white on the right — is diagnostic at close range. Most individuals have a “blaze” (swirls) on the right side of the head and a V-shaped chevron across the back behind the blowholes. The pattern of these markings, together with the shape of the dorsal fin, is often used to identify individuals. Tagging and photo-identification studies suggest considerable site fidelity on feeding grounds (NOAA 2006). Segregations seem to occur at least in summer, with larger mature whales arriving at feeding areas earlier, and departing later, than the smaller individuals. Within the GoM, lactating females and their calves primarily occupy, or at times are the only ones occupying, this southern portion of their summer feeding range (Agler *et al.*, 1993).

Although fin whales appear to be migratory, their overall broad latitudinal range is confusing and likely complex (Christensen *et al.*, 1992). Regular mass movements along well-defined migratory corridors, with specific end-points, have not been documented by sightings. However, acoustic recordings from passive-listening hydrophone arrays indicate a southward “flow pattern” in the fall from Labrador-Newfoundland region, south past Bermuda, and into the West Indies (Clark, 1995). It is assumed that fin whales breed in the middle North Atlantic, with mating and calving occurring from November to March; however, the location of their wintering grounds is poorly known (NOAA, 2006).

The best population estimate for this species in the western North Atlantic is 2,814 individuals (Waring *et al.*, 2001).

Humpback whales (*Megaptera noavaeangliae*) are highly migratory animals, spending spring through fall on feeding grounds in mid- or high-latitude waters, and wintering on calving grounds in the tropics. As with other baleen species in the sanctuary, the abundance of humpbacks may be tied to the abundance of their preferred food, sand lance. In years of low regional sand lance productivity humpbacks may bypass the sanctuary area for more productive areas further north or offshore.

Individual humpbacks are identified by the black and white pigmentation patterns and scars on the underside of their flukes (tails). Photographs of these natural markings have allowed researchers to monitor the movements, health and behavior of individual humpbacks in the GoM since the early 1970s. Photo-identification studies have demonstrated that North Atlantic humpback whales return each spring to specific feeding grounds, such as the GoM (including the sanctuary), Gulf of St. Lawrence, Newfoundland, Labrador, Greenland, Iceland and Norway. The GoM (including sanctuary waters) was identified as a discrete feeding population based on high rates of annual return and low rates of exchange with other oceanic feeding grounds (Katona and Beard, 1990; Katona and Beard, 1991). These data also confirmed exchange between the GoM feeding ground and the West Indies breeding ground (Katona and Beard, 1990).

The study of humpback whales in the sanctuary and the GoM is one of the longest contiguous studies of a baleen whale population anywhere in the world. In the GoM, whale watching data demonstrated that the high return rates of calves to the GoM region reflect maternally-directed site fidelity (Clapham and Mayo, 1987). Despite site fidelity, whales from all feeding grounds migrate to common breeding areas in the West Indies, where they mate and calve (Katona and Beard, 1990). The largest breeding population of North Atlantic humpbacks is found on Silver Bank in the Dominican Republic. NOAA and the Santuario de Mamíferos Marinos de la Republica Dominicana (SMMRD) have collaborated to establish a sister sanctuary relationship between the Stellwagen Bank sanctuary and the SMMRD to protect this resource on both ends of its migratory range.

GoM whale watching data have provided observations on humpback whale reproductive behavior, based upon longitudinal studies of known females (Robbins, 2000). The number of years between successive calves (calving interval) was determined for humpback whales (as well as fin whales and northern right whales) from GoM sightings. Other findings include gross annual rates of calf production in the population, and prediction of discrete events such as weaning. Annual resightings of GoM humpback whales permitted the slow accumulation of information on the age of first reproduction (Robbins, 2000). The North Atlantic humpback whale population has been estimated at 10,400 animals (Smith *et al.*, 1999). It is estimated that there are fewer than 7,000 humpbacks in U.S. waters. The

best population estimate for the GoM stock is a minimum of 647 whales (NOAA, 2005c).

Sei whales (*Balaenoptera borealis*) have been observed sporadically in the sanctuary in late summer or autumn and are likely related to prey abundance. They have been dubbed “switch hitters” as they have been observed with right whales skim feeding on euphasids and copepods as well as feeding on small fish close to humpback and finbacks. Presence of sei whales may be a good indicator of cyclical changes on Stellwagen Bank. For example, during the summer of 1986 (Schilling *et al.*, 1992), whale-watchers were surprised by the fact that very few humpback whales were present on Stellwagen Bank. The population of sand lance, the small fish that makes up the bulk of the humpback’s diet there, was exceptionally low. Numbers of copepods, the main source of food for sand lance, exploded in their absence, creating a temporary hot spot for feeding sei and right whales. Perhaps coincidentally, one of the few sightings of a blue whale, another planktivorous species, came from this year as well. The population size of the sei whale in U.S. North Atlantic waters is unknown. In the spring and summer, sei whales occur in the southern end of their range, which includes the GoM and Georges Bank (NOAA, 2006b).

Minke whales (*Balaenoptera acutorostrata*), the smallest baleen whale, are commonly seen in the sanctuary and the GoM in spring and summer. During the fall, there are fewer minke whales in New England waters, while during winter the species appears to be largely absent. The number of minke whales that use the sanctuary changes from year to year and calves are rarely observed (Murphy, 1995). Minke whales usually travel alone or in very loose groups, generally don’t create a spout when at the surface and often change direction quickly. All of these characteristics make them a challenge to observe or to individually identify.

Minke whales off the eastern coast of the U.S. are considered to be part of the Canadian East Coast stock. Studies of minkes in other areas indicate that their diet may be more diverse than other local baleen whales, their diet including copepods, krill, capelin, herring, sand lance and squid. The total number of minke whales in the Canadian East Coast population is unknown but a minimum population estimate is 3,113 (NOAA, 2005d).

North Atlantic right whales (*Eubalaena glacialis*) are critically endangered with a total population estimate between 300 to 350 individuals. Individual right whales are identified by callosities, the rough, light-colored areas found on the top of the head, around the blowholes, chin, jawline and above the eyes. These callosity patterns do not change over the lifetime of the individual.

Seasonal movements are generally between rich summer feeding grounds and warm winter calving grounds with peak migration periods in November/December and March/April. From late winter to early fall, North Atlantic right whale distribution tends to correlate with the location of their preferred copepod prey, *Calanus finmarchicus*. Primary GoM feeding grounds in the spring and early summer,

where particularly dense patches of prey occur, include designated critical habitats of Cape Cod Bay and portions of Stellwagen Bank (late winter) and Great South Channel (spring). While whales have been sighted year round in Cape Cod Bay, the peak period of feeding in that area is January to May.

During summer and fall most of the population feeds on different banks in Southeast Canada such as the Bay of Fundy. “Courtship groups” are also seen at this time. Typically, pregnant females, females with young calves, and juveniles, as well as a few atypical individuals migrate seasonally along the eastern seaboard of the U.S. and Canada between calving grounds in the south and feeding areas in the north, generally via near shore waters in the mid-Atlantic. Right whales spend about one-third of their time surface feeding in the Cape Cod/Massachusetts Bay and GoM areas, which may increase ship strike and entanglement risk from buoy line and surface fishing line systems (NOAA, 2006a). It is unknown where the bulk of the non-calving population spends the winter.

TOOTHED WHALES

Sperm whales (*Physeter macrocephalus*), the largest of the toothed whales, grow up to 18 m (60 ft.) in length. Among cetaceans, this species displays the greatest difference in size between males and females. They are usually seen in deep, offshore waters, but they can occur near shore, where the continental shelf is narrow and the water deep, well away from the relatively shallow waters of Stellwagen Bank. Sightings in our area are extremely rare, usually amounting to a stranding of lone individuals along our beaches.

Belugas (*Delphinapterus leucas*) have been sighted in the sanctuary area on occasion. Individuals from the St. Lawrence, Canada, population may follow cold water currents south (as far south as Long Island, NY). In 1971, a medium-sized, white whale with no dorsal fin was spotted inside the Cape Cod Canal. Another sighting occurred in Massachusetts Bay a few years ago.

Orcas (*Orcinus orca*) are the largest delphinid (dolphin). Up to 9 m (30 ft.) in length, these massive predators use the sanctuary and surrounding waters only rarely. Over the years most sightings of orca in our area have occurred in August and September, perhaps tied to the end of the northward run of bluefin tuna. Different social groups of these whales may specialize on different prey items in the GoM, including herring and cod. Almost nothing is known about the North Atlantic orca populations, including where they come from, general movements, social structure, etc. Sightings of orca are sporadic at best; many years may pass between sightings.

Long-finned pilot whales (*Globicephala melaena*) are seasonal residents of the sanctuary area but, like most other toothed whales, their abundance from year to year depends upon the presence of their favored prey. These whales are sexually dimorphic in size and, to some extent, shape. Males tend to be larger than females, growing up to 6 m (20 ft.), and develop a more pronounced ‘pothead’ and more

rounded dorsal fin. They are all black (hence the common name 'blackfish') except for a light anchor patch on the belly between the flippers. Some individuals may have faint gray markings behind the eyes or behind the dorsal fin. As schooling fish migrate inshore during the late summer and fall, so do the squid and pilot whales. Adult female pilot whales may direct the tight knit pods, numbering from less than a dozen to over a hundred, to the changeable feeding grounds. In some populations, pilot whale calves may remain in their maternal pods. To reduce inbreeding, many pods may form massive herds, especially in early summer.

Sightings of pilot whales in the sanctuary can occur throughout the year with a peak in fall. As pilot whales head inshore to forage they can be sighted from land. Such sightings often preclude a mass stranding where entire pods come ashore. Records show that such strandings have occurred throughout history but reactions toward these strandings have changed. Until the 1920s, Cape Cod communities would actively herd pilot whales toward shore or take advantage of strandings for meat and oil. Large-scale human efforts today work at returning the whales to sea or reducing the amount of suffering.

DOLPHINS AND PORPOISES

White-beaked dolphins (*Lagenorhynchus albirostris*) are closely related to the white-sided dolphins and, like them, are found only in the North Atlantic. Little is known about this species as sightings and strandings are quite rare on this side of the Atlantic. Pods tend to be smaller in number than in the white-sided dolphin, and they have been seen moving in echelon formation (side-by-side as a front). Their diet seems to be more tied to squid than fish and sightings may be correlated to the abundance of these invertebrates.

Atlantic white-sided dolphins (*Lagenorhynchus acutus*) were relatively uncommon in our area prior to the late 1970s, and white-beaked dolphins were common. Both of these related species have a somewhat varied diet but differ in their preferences: white-beaked tends to favor squid while white-sides favor small, schooling fish. About two decades ago, sand lance populations exploded in the sanctuary and sightings of white-beaked became rare while white-sides increased.

Pod structure seems to be based upon closely related females, accompanied by calves of all ages and a few unrelated males. These highly mobile groups are not permanent residents of the sanctuary. They range widely throughout the GoM and are sighted where food, such as herring and sand lance, are most abundant. Pods may also join other species of whales during feeding, such as humpbacks and pilot whales. New calves are most commonly seen in May, June and July. Migration is still poorly understood and may be characterized as inshore for winter, offshore for summer. In early fall (August) a few scattered pods may be sighted becoming more common through late fall and winter. By mid-April most pods leave the area, perhaps to more offshore and northern feeding grounds. Mass strandings are most common in fall and spring.

Common dolphins (*Delphinus delphis*) are a more offshore species, preferring the warmer, deeper waters south and east of Georges Bank. It has been dubbed saddle back dolphin due to their dark, saddle-shaped marking on its mid-back. Only a few individuals have been sighted over the years in the sanctuary area, especially during the summer months. Stranded individuals may come ashore during the winter.

Bottlenose dolphins (*Tursiops truncatus*) are large, robust dolphins found in cool water habitats further to the south of the sanctuary. At least two forms of bottlenose exist: the larger offshore populations and the smaller, more familiar inshore populations. It is not clear whether the few live sightings of individuals in the sanctuary area are of the offshore or inshore forms. Both forms occasionally strand along the coasts of Massachusetts Bay and Cape Cod Bay.

Risso's dolphins (*Grampus griseus*) are animals of warmer, deeper waters to the south of the sanctuary. They are believed to be squid hunters and the few sightings of live individuals may represent strays during warm water episodes or during northward movements of their favored prey. A few individuals have been found stranded on Cape Cod beaches.

Harbor porpoises (*Phocoena phocoena*) are among the smallest cetaceans in the world reaching 1.7 m (6 ft.) and 63 kg (140 pounds) in weight. These are coastal animals and are only rarely found transiting the sanctuary area. More often they are spotted around harbors by observers heading out for whale watches or research cruises. They tend to be shy, inconspicuous animals that are difficult to spot. Despite their size and more coastal affinities, harbor porpoises are prodigious divers, reaching down to 230 m (760 ft.) in search of prey. Like most marine mammals, porpoises are opportunistic feeders, taking advantage of whatever is locally abundant. Yet the distribution and movements of porpoises in the GoM seems to be intimately tied to the annual movements of different species of herring. As herring move toward spawning rivers in spring and early summer, harbor porpoises are likely to follow. As the young herring head out to sea so do the porpoises (sightings of porpoises in the GoM are very rare during the winter).

As coastal animals tied to a relatively restricted diet, harbor porpoise populations are susceptible to a variety of human disturbances. Some of the highest concentrations of industrial pollutants have been found in tissue samples of porpoise, including large loads of PCB's and heavy metals. Entanglements in gillnets pose a serious threat to the population throughout the GoM.

SEALS

Harbor seals (*Phoca vitulina*) are the most abundant pinniped species in eastern U.S. waters. They are widely distributed along the coast, preferring sheltered and undisturbed rocky ledge haul-out areas in bays and estuaries from Maine south to Cape Cod, Massachusetts. During the first half of the 20th century, harbor seals bred as far south as Cape Cod Bay, but currently are only seasonal residents in the sanctuary and southern New England (from late September until

late May). Breeding occurs from late April until late June, exclusively north of Massachusetts.

Since passage of the Marine Mammal Protection Act in 1972, harbor seal abundance in New England has increased nearly five-fold (NOAA, 2001). NOAA Fisheries Service has not identified harbor seals as a “strategic stock” because the known human-caused mortality and serious injury is below that level thought to inhibit the recovery of the species (n=1,859). In the shallower waters adjacent to Cape Cod, and within the sanctuary, harbor seals feed almost exclusively on sand lance. Data from the NOAA Fisheries Service Observer Program demonstrate that harbor seals are caught and killed in the sanctuary by the sink gillnet fishery, but the total number is not currently known.

Gray seal (*Halichoerus grypus*) occurring in the sanctuary are part of an abundant (143,000) and increasing population that has a distribution from New England to Labrador and is centered on the Sable Island area of Nova Scotia, Canada. NOAA Fisheries Service has not designated gray seals as a “strategic stock” (NOAA, 2001) and no gray seals “takes” were documented in the sanctuary by the NOAA Fisheries Service Observer Program in the years 2000-2002.

Harp seals (*Pagophilus groenlandica*), Hooded seals (*Cystophora cristata*) and Ring seals (*Pusa hispida*) are ice seals that are generally distributed in and around the pack ice of the North Atlantic Ocean. In late spring after the

breeding season, both species migrate north to summer feeding grounds, following the receding ice edge. They share much of their range and habitat in the North Atlantic, although hooded seals tend to live farther offshore and feed in deeper water. Because of this, the hooded and harp species only gather together in the same areas during part of their breeding season (Lavingne and Kovacs, 1988). Over the past decade, there has been an increase of extralimital occurrences of harp and hooded species, extending their range south of their historic northern range along the east coast of North America. It has not been determined, however, whether these occurrences are due to an increase in population abundance or to a shift in habitat use. Sightings of ring seals are rare in the sanctuary.

Go to the following URLs for additional species information:

IUCN Redlist:

<http://www.iucnredlist.org/search/search-basic>

NMFS Stock Assessment:

<http://www.nmfs.noaa.gov/pr/sars/>

APPENDIX M. NORTHEAST REGION WHALE WATCH GUIDELINES INCLUDING THE STELLWAGEN BANK SANCTUARY

All whales, dolphins and porpoises in the northeast region are federally protected by the Marine Mammal Protection Act (MMPA) and most large whales in the area are further protected under the Endangered Species Act (ESA). Under these Acts, it is illegal to “harass, hunt, capture or kill” any marine mammal. Prohibited conduct includes any “negligent or intentional act which results in the disturbing or molesting of marine mammals.” The following operational procedures are intended to avoid harassment and possible injury to large whales, particularly the finbacks, humpbacks and minke whales commonly seen by vessels engaged in whale watching. Following the guidelines can help protect both you and the whale you wish to watch and keep you from accidentally violating federal law.

****The right whale is protected by separate State and Federal regulations** that prohibit approach within 500 yards of this species. Any vessel finding itself within the 500 yard buffer zone created by a surfacing right whale must depart immediately at a safe slow speed. The only vessels allowed to remain within 500 yards of a right whale are vessels with appropriate research permits, commercial fishing vessels in the act of hauling back or towing gear, or any vessel given prior approval by NOAA Fisheries Service to investigate a potential entanglement.

OPERATIONAL GUIDELINES WHEN IN SIGHT OF WHALES:

2 miles to 1 mile away:

- Reduce speed to 13 knots.
- Post a dedicated lookout to assist the vessel operator in monitoring the location of all marine mammals.
- Avoid sudden changes in speed and direction.
- Aircrafts should maintain a minimum altitude of 1,000 feet over water.

1 mile to ½ mile away:

- Reduce speed to 10 knots.

½ mile or less:

- Reduce speed to 7 knots.
- Maneuver to avoid head-on approach.

CLOSE APPROACH PROCEDURE:

600 feet or closer:

- Parallel the course and speed of moving whales up to the designated speed limit within that distance.
- Do not attempt a head-on approach to whales.
- Approach and leave stationary whales at no more than idle or “no wake” speed, **not to exceed 7 knots**.

- Do not intentionally drift down on whales.
- Vessels in multi-vessel approaches should maintain communication with each other (via VHF channels 9, 13, or 16 for hailing) to coordinate viewing.
- Take into account the presence of obstacles (vessels, structures, fishing gear, or the shoreline). All vessels in close approach must stay to the side or behind the whales so they do not box in the whales or cut off their path.

STAND-BY ZONE 300 feet to 600 feet away:

- Two vessel limit within the 300- to 600-foot Stand-By Zone at any one time.

CLOSE APPROACH ZONE 100 feet to 300 feet away:

- One vessel limit.
- Other vessels stand off (up to two vessels in Stand-By Zone – others outside 600 feet).
- If more than one vessel is within 600 feet, the vessel within 300 feet should limit its time to 15 minutes in close approach to whales.

NO INTENTIONAL APPROACH WITHIN 100 FEET.

- Do not approach within 100 feet of whales. If whales approach within 100 feet of your vessel, put engines in neutral and do not re-engage propulsion until whales are observed clear of harm’s way from your vessel.

DEPARTURE PROCEDURE

All vessels should leave the whales following the same speed and distance procedures described above.

- In order for vessels to be clear of whales before dark, vessels should cease whale watching and begin their return to port 15 minutes before sunset.

Penalties: A violation of the Marine Mammal Protection Act may result in fines or civil penalties of up to \$10,000 or criminal penalties of up to \$20,000 plus IMPRISONMENT and/or SEIZURE OF VESSEL and other personal property. A violation of the Endangered Species Act may result in fines or civil penalties of up to \$25,000 or criminal penalties of up to \$50,000 plus IMPRISONMENT and/or SEIZURE OF VESSEL and other personal property.

CONTACT NUMBERS

Whale Watching Information For more information on the whale watching guidelines or laws pertaining to marine mammals, call: NOAA Fisheries Service, Protected Resources Division: **978-281-9300 x-6505**

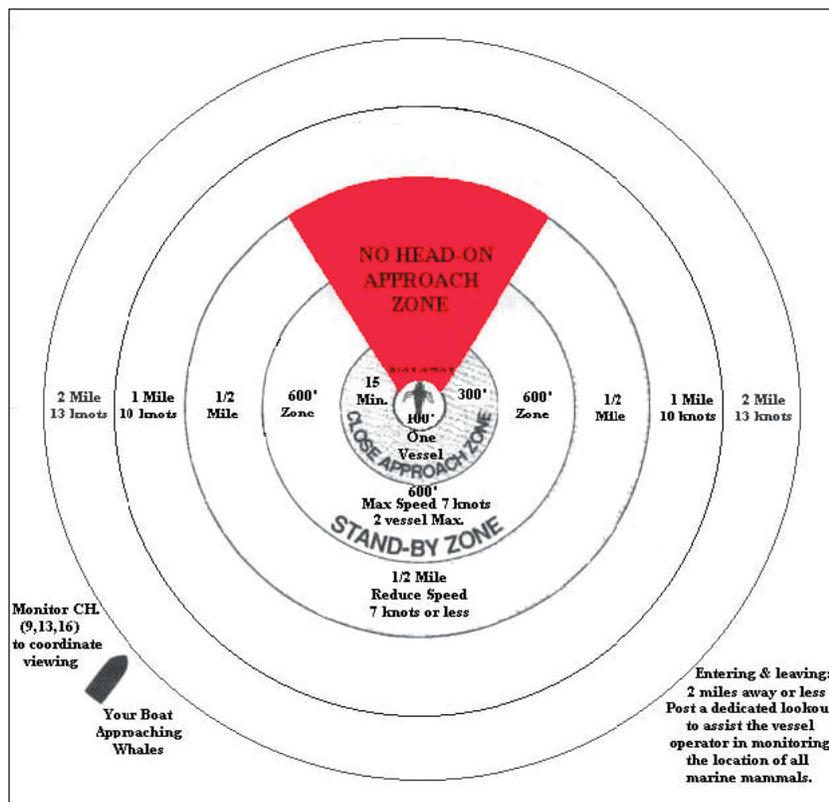
Right Whale Sighting All sightings of a right whale should be called in to the NOAA Fisheries Service Sighting Advisory System: **978-585-8473 (pager)**

Entangled Whale Any sighting of an entangled whale should be reported. Vessels should stand-by and keep the whale in sight until help arrives (an estimated 45 min. or more) or arrange for another vessel to maintain contact with the whale. Disentanglement HOTLINE (weekdays): **800-900-3622** or Disentanglement pager: **508-307-5300** or NOAA Fisheries Service Stranding & Entanglement HOTLINE: **978-281-9351** or USCG on VHF **CH-16**

Entangled Right Whale Maintain 500 yards. To report or get authorization to approach, call: Disentanglement Hotline (weekdays): **800-900-3622** or Disentanglement pager: **508-307-5300** or NOAA Fisheries Service Stranding & Entanglement Hotline: **978-281-9351**

Dead Whale Any sighting of a dead whale should be reported to the NOAA Fisheries Service Stranding & Entanglement Hotline: **978-281-9351**

Potential Violations Any activity that appears to be an intentional or negligent action leading to a collision or harassment incident should be reported to the NOAA Enforcement HOTLINE: **800-853-1964**



APPENDIX N. FEDERAL REGULATIONS ON APPROACH TO ENDANGERED NORTH ATLANTIC RIGHT WHALES

[The following regulations are excerpted from 50 CFR, subpart F, §224.103. For the latest version of these regulations including their coordinates refer to <http://www.nmfs.noaa.gov/pr/species/mammals/cetaceans/rightwhale.htm>]

(c) *Approaching right whales*

(1) *Prohibitions.* Except as provided under paragraph (c)(3) of this section, it is unlawful for any person subject to the jurisdiction of the United States to commit, attempt to commit, to solicit another to commit, or cause to be committed any of the following acts:

(i) Approach (including by interception) within 500 yards (460 m) of a right whale by vessel, aircraft, or any other means;

(ii) Fail to undertake required right whale avoidance measures specified under paragraph (c)(2) of this section.

(2) *Right whale avoidance measures.* Except as provided under paragraph (c)(3) of this section, the following avoidance measures must be taken if within 500 yards (460 m) of a right whale:

(i) If underway, a vessel must steer a course away from the right whale and immediately leave the area at a slow safe speed.

(ii) An aircraft must take a course away from the right whale and immediately leave the area at a constant airspeed.

(3) *Exceptions.* The following exceptions apply to this section, but any person who claims the applicability of an exception has the burden of proving that the exception applies:

(i) Paragraphs (c)(1) and (c)(2) of this section do not apply if a right whale approach is authorized by the National Marine Fisheries Service through a permit issued under part 222, subpart C, of this chapter (General Permit Procedures) or through a similar authorization.

(ii) Paragraphs (c)(1) and (c)(2) of this section do not apply where compliance would create an imminent and serious threat to a person, vessel, or aircraft.

(iii) Paragraphs (c)(1) and (c)(2) of this section do not apply when approaching to investigate a right whale entanglement or injury, or to assist in the disentanglement or rescue of a right whale, provided that permission is received from the National Marine Fisheries Service or designee prior to the approach.

(iv) Paragraphs (c)(1) and (c)(2) of this section do not apply to an aircraft unless the aircraft is conducting whale watch activities.

(v) Paragraph (c)(2) of this section does not apply to the extent that a vessel is restricted in her ability to maneuver and, because of the restriction, cannot comply with paragraph (c)(2) of this section.

APPENDIX O. PRIORITIZED STRATEGY IMPLEMENTATION BASED ON FUNDING SCENARIOS

Action Plan/Objective	Strategy	Strategy Prioritization	Partner Requirement	Strategy implementation based on funding			
				Scenario I [1]	Scenario II [2]	Scenario III [3]	
CAPACITY BUILDING							
Administrative Capacity and Infrastructure (ADMIN)							
ADMIN.1 Strengthen Site Staffing and Program Support Capabilities	(1.1) Integrate staff capabilities with changing program needs.	H	O	●	●	●	
	(1.2) Hire additional staff and streamline organizational structure.	H	O	●	■	○	
	(1.3) Enhance operation of the sanctuary advisory council.	H	O	●	●	○	
	(2.1) Maintain and acquire vessels as necessary.	H	■	●	■	○	
	(2.2) Work with ONMS headquarters to develop and implement a SBNMS long-range facilities plan that prioritizes partnering opportunities with the town of Scituate.	H	●	●	■	○	
ADMIN.2 Maintain and Further Develop Site Infrastructure	(2.3) Maintain a database for sanctuary permitting.	H	O	●	●	●	
	(2.4) Meet the equipment needs of an expanded SBNMS diving program.	H	O	●	■	○	
	(2.5) Develop an effective enforcement program.	H	●	●	■	○	
	(3.1) Develop a SBNMS volunteer program.	H	●	●	■	○	
	(3.2) Maintain and expand SBNMS volunteer diver corps activities.	H	●	●	■	○	
ADMIN.3 Develop a SBNMS Volunteer Program That Leverages Program Implementation and Increases Site Visibility	(3.3) Develop and support international exchange of volunteers between SBNMS and other MPAs.	L	■	●	○	○	
	Interagency Cooperation (IC)						
	IC.1 Facilitate Cooperation and Coordination Between Agencies	(1.1) Initiate discussions regarding a Memorandum of Understanding (MOU) between SBNMS and NOAA Fisheries Service to facilitate cooperation and coordination.	H	■	●	●	●
		(1.2) Coordinate proposed activities with NOAA Fisheries Service NERO.	H	■	●	●	●
		(1.3) Facilitate cooperative research and outreach between SBNMS and NOAA Fisheries Service Northeast Fisheries Science Center (NEFSC).	H	■	●	●	●
(1.4) Evaluate the Memorandum of Agreement (MOA) between the U.S. Army Corps of Engineers (USACE) and NOAA Fisheries Service for commenting on proposed activities occurring at the Massachusetts Bay Disposal Site (MBDS).		H	■	●	●	●	
IC.2 Establish Mechanisms for Improved Information Sharing Between Agencies	(2.1) Provide information via the web on the responsibilities and activities of multiple agencies that have roles pertinent to the SBNMS.	M	■	●	●	●	
	(2.2) Provide regular updates to the USCG Area Contingency Plans.	M	■	●	●	●	
	(2.3) Establish a mechanism for informal consultation with the EPA, NIEFMC, Massachusetts Water Resources Authority (MWRA), Massachusetts Department of Environmental Protection (MADEP) and Massachusetts Office of Coastal Zone Management (MACZM) on water quality issues.	M	■	●	●	○	
<p>BUDGET SCENARIOS for PROGRAMMATIC COSTS AVERAGED over YEARS 1-5:</p> <p>[1] Scenario I (full funding: \$2.83M not including federal salaries and supplemental costs)</p> <p>[2] Scenario II (20% increase from level funding)</p> <p>[3] Scenario III (level funding: \$0.64M not including federal salaries and supplemental costs)</p>							

Action Plan/Objective	Strategy	Strategy Prioritization	Partner Requirement	Strategy implementation based on funding		
				Scenario I [1]	Scenario II [2]	Scenario III [3]
IC.2 Establish Mechanisms for Improving Information Sharing, continued	(2.4) Update and continue to implement the Sanctuary Cooperative Enforcement Program.	H	●	■	○	
	(2.5) Support continued meetings of the sanctuary advisory council's Interagency Cooperation Working Group (WG).	L	■	●	●	
	(2.6) Participate in the Gulf of Maine (GoM) Council and other regional initiatives.	M	■	●	●	
	(2.7) Participate on relevant advisory panels of the NEFMC.	H	■	●	●	
	(2.8) Depict sanctuary boundaries in fishery management plans and related documents.	H	●	●	●	
	Public Outreach and Education (POE)					
	(1.1) Produce public outreach products and programs that best address sanctuary visibility needs.	H	■	●	●	●
	(1.2) Develop and implement outreach programs with stakeholder groups to increase sanctuary visibility and promote sanctuary stewardship.	H	■	●	■	○
POE.1 Build Capacity for Outreach Programs that Increase Sanctuary Visibility, Awareness and Stewardship	(1.3) Work with ONMS headquarters to develop and implement a SBNMS long-range facilities plan that prioritizes partnering opportunities with interpretive centers and articulates federal funding needs.	H	■	●	○	
	(1.4) Establish a Media Outreach Program.	H	■	●	○	
	(2.1) Develop an action plan for establishing education partnerships and identify the types of programs and objectives that would best be achieved.	H	■	●	○	
	(2.2) Support K-12 Educational Programming.	M	■	■	○	
POE.2 Build Capacity for Formal and Informal Education Programs That Support Sanctuary Management Goals	(2.3) Support Undergraduate and Graduate Education Programming.	M	■	■	○	
	(2.4) Support Adult Education Programming.	H	■	■	○	
Compatibility Determination (CD)						
CD.1 Develop a Framework for Sanctuary Compatibility Determination.	(1.1) Demonstrate the application of S-CAP.	H	■	●	○	
	(1.2) Refine S-CAP by incorporating results of ongoing sanctuary monitoring.	M	■	■	○	
ECOSYSTEM PROTECTION						
Ecosystem-based Sanctuary Management (EBSM)						
EBSM.1 Establish a Science Review Framework	(1.1) Work with the advisory council to establish a science advisory working group.	H	●	●	○	
	(1.2) Convene a sanctuary science symposium.	H	■	●	○	
	(1.3) Form a science consortium.	L	●	●	○	
EBSM.2 Establish an Information Management System	(2.1) Design and implement an information management system.	H	○	■	■	
	(2.2) Design and implement a web portal for public access to databases.	L	○	■	○	
BUDGET SCENARIOS for PROGRAMMATIC COSTS AVERAGED over YEARS 1-5: [1] Scenario I (full funding: \$2.83M not including federal salaries and supplemental costs) [2] Scenario II (20% increase from level funding) [3] Scenario III (level funding: \$0.64M not including federal salaries and supplemental costs)						

Action Plan/Objective	Strategy	Strategy Prioritization	Partner Requirement	Strategy implementation based on funding		
				Scenario I [1]	Scenario II [2]	Scenario III [3]
EBSM.3 Understand Ecosystem Structure and Function	(3.1) Define and operationalize the term ecological integrity.	H	■	●	■	■
	(3.2) Develop programs to monitor and evaluate ecological integrity within the sanctuary.	H	■	●	■	■
	(3.3) Establish research programs directed at informing EBSM.	H	■	●	■	■
	(3.4) Develop models that provide a predictive capability to better understand sanctuary dynamics and to guide EBSM.	M	■	●	■	○
	(4.1) Continue to convene the zoning working group of the advisory council established in 2004 to: (1) evaluate the adequacy of existing zoning schemes in SBNMS, (2) address the scientific requirements to meet the goals of EBSM and, if needed (3) develop a modified zoning scheme including consideration of fully protected reserves.	H	●	●	●	●
EBSM.4 Protect Ecological Integrity	(5.1) Evaluate the need and feasibility of modifying the sanctuary boundary to be more effective in achieving EBSM. The purpose of this strategy is to determine whether said or pertinent other modifications in the sanctuary boundary are warranted to better achieve ecosystem-based sanctuary management.	L	■	●	○	○
Ecosystem Alteration (EA)						
EA.1 Reduce Ecological Impacts from the Laying of Submarine Cables and Pipelines	(1.1) Establish minimum criteria for authorizations special use permit applications for the laying of cables and pipelines.	L	○	●	○	○
	(2.1) Develop a process to establish reference areas that serve as benchmarks for discerning human and natural impacts on habitat.	H	■	●	●	●
	(2.2) Develop a science plan to assess and mitigate benthic habitat alteration.	H	■	●	●	○
EA.2 Reduce Alteration of Benthic Habitat by Mobile Fishing	(3.1) Minimize bycatch and discard of all species, in all fisheries (commercial and recreational), by all gear types.	H	■	●	■	■
	(3.2) Determine the effects of biomass removal of targeted species by commercial and recreational fishing on the ecological integrity of the sanctuary.	H	■	●	■	○
	(3.3) Develop a management strategy with NOAA Fisheries Service and the NEFMC to evaluate and protect an optimal forage base to maintain the ecological integrity of the sanctuary.	H	■	●	●	●
Water Quality (WQ)						
WQ.1 Assess Water Quality and Circulation	(1.1) Develop and implement a water quality monitoring plan.	H	■	●	■	○
	(1.2) Characterize the contaminant loading to the sanctuary from sources.	L	■	●	○	○
	(1.3) Encourage research of endocrine disrupters and their effects on sanctuary resources.	L	■	●	○	○
BUDGET SCENARIOS for PROGRAMMATIC COSTS AVERAGED over YEARS 1-5: [1] Scenario I (full funding: \$2.83M not including federal salaries and supplemental costs) [2] Scenario II (20% increase from level funding) [3] Scenario III (level funding: \$0.64M not including federal salaries and supplemental costs)						

● Full ■ Partial ○ None

Action Plan/Objective	Strategy	Strategy Prioritization	Partner Requirement	Strategy implementation based on funding		
				Scenario I [1]	Scenario II [2]	Scenario III [3]
WQ.2 Reduce Pollutant Discharges and Waste Streams that Affect the Sanctuary	(2.1) Reduce threats to sanctuary water quality from vessel wastewater discharges (other than ballast water).	H	■	●	■	○
	(2.2) Reduce ballast water exchanges in the sanctuary.	H	■	●	■	○
	(2.3) Reduce impacts of municipal and other shore-based waste water streams.	L	■	●	○	○
	(2.4) Develop contingency plans to address actions and responsibilities to remediate catastrophic water quality events in the sanctuary and support programs that prevent water pollution events.	M	■	●	■	○
MARINE MAMMAL PROTECTION						
Marine Mammal Behavioral Disturbance (MMBS)						
MMBD.1 Reduce Marine Mammal Behavioral Disturbance and Harassment by Vessels	(1.1) Develop and implement management measures that mitigate behavioral disturbance and risk to whales due to vessel speed and close approach.	H	■	●	●	■
	(1.2) Develop a process to consider prohibiting vessels from transiting through humpback whale bubble clouds and/or nets.	H	■	●	●	■
	(1.3) Conduct risk assessment on other activities that could disturb marine mammals.	L	■	●	○	○
	(1.4) Develop a research program to better understand vessel interactions with whales.	H	■	●	■	○
MMBD.2 Reduce Marine Mammal Behavioral Disturbance and Harassment by Noise	(2.1) Establish a Marine Noise Consortium to identify noise sources and possible effects.	H	■	●	●	●
	(2.2) Develop a marine acoustics research program to establish baseline noise levels and long-term noise budgets.	H	■	●	●	■
	(2.3) Develop a policy framework for investigating and mitigating noise impacts within the sanctuary.	H	■	●	●	●
MMBD.3 Reduce Marine Mammal Behavioral Disturbance and Harassment by Aircraft	(3.1) Identify information gaps and gather data on overflight activities to determine whether they disturb marine mammals.	L	■	●	○	○
	(3.2) Develop outreach materials or messages with NOAA Fisheries Service to inform the aviation community regarding overflight in proximity to whales.	L	●	●	■	○
Marine Mammal Vessel Strike (MMVS)						
MMVS.1 Reduce Risk of Vessel Strike between Large Commercial Ships and Whales	(1.1) Continue to consult with NOAA Fisheries Service on their strategy to reduce ship strikes to North Atlantic right whales and evaluate how such measures affect the sanctuary.	H	●	●	●	●
	(1.2) Develop, demonstrate and evaluate the SBNMS Information and Reporting Center.	H	■	●	■	■
	(1.3) Determine the conservation benefit of reconfiguring the existing Traffic Separation Scheme (TSS) within the sanctuary to reduce the risk of ship strike to whales.	H	■	●	●	●
BUDGET SCENARIOS for PROGRAMMATIC COSTS AVERAGED over YEARS 1-5: [1] Scenario I (full funding: \$2.83M not including federal salaries and supplemental costs) [2] Scenario II (20% increase from level funding) [3] Scenario III (level funding: \$0.64M not including federal salaries and supplemental costs)						

Action Plan/Objective	Strategy	Strategy Prioritization	Partner Requirement	Strategy implementation based on funding		
				Scenario I [1]	Scenario II [2]	Scenario III [3]
MHR.2 Inventory, Assess, and Characterize Historical Resources, continued	(2.3) Assess historical resources for their NRHP eligibility and nominate appropriate sites to the NRHP.	H	■	●	●	■
	(2.4) Characterize historical resources within the SBNMS.	H	○	●	●	■
	(3.1) Implement a management system that protects historical resources while allowing for uses compatible with resource protection.	H	○	●	●	■
	(3.2) Implement an assessment protocol to assign sanctuary historical resources to the appropriate category.	H	■	●	●	■
	(3.3) Identify partnerships and relationships for site monitoring and compliance of historical resource permits and regulations.	M	●	●	■	○
	(3.4) Develop and implement an interpretive enforcement program.	H	●	●	■	○
	(3.5) Develop and implement a mooring system on historic sites in collaboration with affected parties, regional recreational SCUBA diving organizations and regional SCUBA diving charter operators.	M	■	●	■	○
MHR.3 Protect and Manage Historical Resources	(3.6) Implement the ONMS Permitting Guidelines for archaeological research (i.e., survey and inventory permit and archaeological research permit).	H	○	●	●	■
	(3.7) Develop and implement collection and conservation policies for artifacts previously recovered from SBNMS before and after designation.	L	■	●	○	○
	(4.1) Identify and partner with regional organizations to conduct MH exhibits and other outreach programs.	H	●	●	■	○
	(4.2) Develop and implement an artifact documentation and curation program through partnerships and relationships with local or regional maritime museums.	L	●	●	■	○
	(5.1) Establish an inventory of shipwrecks and submerged objects, inside and outside of SBNMS boundaries that may pose environmental threats to resources.	M	■	●	■	○
	(5.2) Coordinate information exchanges pertaining to shipwrecks and other submerged objects as environmental threats with NOAA's Emergency Response Division and the ONMS for the development of the SHIELDS and RUST database systems.	M	■	●	■	○
	(5.3) Identify shipwrecks and other submerged objects to be examined with remote sensing technology and report findings to state and federal trustees.	M	■	●	■	○
MHR.5 Assess Shipwrecks and Other Submerged Objects for Potential Hazards	(5.4) Establish a monitoring program for shipwrecks and submerged objects that have been located and are considered a threat to SBNMS.	M	■	●	■	○
	(6.1) Disseminate information about modern shipwrecks.	H	■	●	●	●
MHR.6 Facilitate Access to Modern Shipwrecks	(6.2) Develop and implement a mooring system on modern shipwrecks in collaboration with affected parties, regional recreational SCUBA diving organizations and regional SCUBA diving charter operators.	H	■	●	■	■
BUDGET SCENARIOS for PROGRAMMATIC COSTS AVERAGED over YEARS 1-5: [1] Scenario I (full funding: \$2.83M not including federal salaries and supplemental costs) [2] Scenario II (20% increase from level funding) [3] Scenario III (level funding: \$0-.64M not including federal salaries and supplemental costs)						

APPENDIX P. STELLWAGEN BANK SANCTUARY ANNEX TO AREA CONTINGENCY PLAN

STELLWAGEN BANK NATIONAL MARINE SANCTUARY ANNEX PLYMOUTH TO SALISBURY, MA AREA CONTINGENCY PLAN

INTRODUCTION

The National Marine Sanctuaries Act (also known as Title III of the Marine Protection, Research, and Sanctuaries Act of 1972; or NMSA) authorizes the Secretary of Commerce to designate and manage areas of the marine environment with special national significance due to their conservation, recreational, ecological, historical, scientific, cultural, archeological, educational or esthetic qualities as National Marine Sanctuaries (NMS). The primary objective of the NMSA is to protect marine resources, such as coral reefs, sunken historical vessels or unique habitats. Sanctuaries are managed according to site-specific plans prepared by the National Oceanic and Atmospheric Administration's (NOAA) Office of National Marine Sanctuaries (ONMS), within NOAA's Ocean Service.

The Gerry E. Studds Stellwagen Bank National Marine Sanctuary (SBNMS) was designated in 1992. SBNMS is located between Cape Ann and Cape Cod, in the southwest corner of the Gulf of Maine, in Massachusetts Bay. Stellwagen Bank is the centerpiece of SBNMS, which encompasses a total of 638 square nm. SBNMS also includes

all of Tillies Bank (situated to the northeast of Stellwagen Bank) and southern portions of Jeffreys Ledge (situated to the north). The western boundary line of SBNMS is approximately 25 miles east of Boston; the southern boundary is three miles from Provincetown, MA while the northwestern boundary is three miles from Gloucester, MA.

The SBNMS boundary occurs entirely within Federal waters (beyond the three-mile limit of Commonwealth jurisdiction). The southern border follows a line tangential to the seaward limit of Commonwealth jurisdiction adjacent to the Commonwealth-designated Cape Cod Bay Ocean Sanctuary; and is also tangential to waters designated by the Commonwealth as the Cape Cod Ocean Sanctuary. The northwest border of the sanctuary coincides with the Commonwealth-designated North Shore Ocean Sanctuary



Boundary coordinates for SBNMS (15 FR 922, Appendix A to Subpart N).		
Point	Latitude	Longitude
NE	42 deg 45' 59.83" N	70 deg 13' 01.77" W
SE	42 deg 05' 35.51" N	70 deg 02' 08.14" W
SW	42 deg 07' 44.89" N	70 deg 28' 15.44" W
WNW	42 deg 32' 53.52" N	70 deg 35' 52.38" W
NNW	42 deg 39' 04.08" N	70 deg 30' 11.29" W

COMMAND

As described in the NCP, on-scene coordinators (OSCs) are responsible for organizing a response that utilizes the Incident Command System (ICS). It is incumbent upon NMS staff and their partners to understand, be trained and familiar with ICS, as well as understand how they will best fit into the system during various types of events.

NOAA typically works within the ICS /UC system through the NOS Office of Response and Restoration (ORR), Emergency Response Division's (ERD) Scientific Support Coordinators (SSCs) that are co-located in each of the USCG Districts around the country. The SSC leads the scientific team on the FOSC's staff and is responsible for providing mission-critical scientific information to the response. As such, in many instances the SSC will present NMS concerns and positions to the Unified Command and for the response, in general. However, this does not preclude the NMS staff being actively involved within the Environmental Section and, should it be deemed appropriate by the Federal On-Scene Coordinator (FOSC), direct involvement with the UC.

The NOAA SSC is responsible for all response-related NOAA personnel on scene. This does not include NOAA Trustees or NOS ORR Assessment and Restoration Division (ARD) personnel. SBNMS is required to coordinate with the SSC or the SSC staff when coming on scene in order that proper safety information can be conveyed, mission assignments made and field operations coordinated.

In addition, the Department of Commerce (DOC) and NOAA representative to the Regional Response Teams (RRTs) are the designated representatives for NOAA trustee resources during oil and hazardous materials incidents. It is these individuals who are responsible for coordinating and articulating NOAA policy position during a response, particularly with respect to the use of advanced response technologies such as dispersants, *in-situ* burning and bioremediation. This does not preclude SBNMS from speaking on issues of internal sanctuary policy.

ROLE OF SBNMS STAFF IN ICS

Depending on the type of response event, it is generally expected that SBNMS will provide staff and resources in the following areas:

- *Planning Section/Environmental Unit:*
NMS staff will be relied upon to provide the best available information about sanctuary resources that are at risk, provide baseline characterizations, assess and suggest response options, and provide trained wildlife observers. Additionally, NMS staff will participate in such issues as consultation and permitting issues (e.g., NMSA, NHPA, ESA, MMPA).
- *Operations Section:*
NMS staff may be requested to provide access to and coordinate deployment of planes, boats, equipment, divers, vehicles, facilities, field-trained staff and wildlife observers.
- *Finance Section:*
NMS staff will be responsible to ensure that the FOSC or its designee has approved all expenditures, and that appropriate documentation of NMS costs occurs. Staff will coordinate closely with NMS Headquarters and ORR/ERD Finance staff in these activities. ORR/ ERD Finance staff will estimate, track and report SBNMS hours through the SSC, or if appropriate, directly to the USCG officer in charge of response cost tracking.
- *Information Officer / Joint Information Center:*
NMS staff will be asked to provide outreach materials and resources as needed, particularly information about NMS resources and the NMS System. All information about an incident must be coordinated and released through the JIC.
- *Command:*
The NCP states that FOSCs have discretion to include resource managers in the Incident Command, should they deem it appropriate. Inclusion is not a given.

CONTACTS

The following contacts may be involved in some aspects of a response.

SBNMS Contact	Title	Phone
SBNMS Office (bus. hrs)		(781) 545-8026
Craig MacDonald	Superintendent	(781) 545-8026 x202
Benjamin Cowie-Haskell	Deputy Superintendent	(781) 545-8026 x207

Primary emergency contact personnel indicated in **BOLD**

RESOURCES AT RISK

The Sanctuary encompasses within its boundaries each of the five major seafloor habitat types – rocky outcrop, piled boulder, gravel, sand and mud - found in the Gulf of Maine. These habitats are spread across the series of banks and deep basins that make the Sanctuary the diverse topographic area that it is. This unique seafloor topography combines with tidal currents, seasonal mixing and annual circulation patterns to support a diverse array of species, from microscopic phytoplankton to large marine mammals.

Some of these species are vulnerable to oil and other hazardous materials. The species below spend all or part of their time on the surface making them particularly vulnerable to fouling by hazardous materials.

SEA BIRDS

Species	Occurrences				
	Vulnerability	Winter	Spring	Summer	Fall
Cory's Shearwater	H			R	O
Greater Shearwater	H		O	U	U
Sooty Shearwater	H		C	C	U
Manx Shearwater	H		O	U	U
Leach's Storm Petrel	H		O	R	O
Wilson's Storm Petrel	H		U	C	O
Northern Gannet	H	C	C	O	C
Common Eider	H	C	U		U
Black Scoter	H				U
Surf Scoter	H				C
White-winged Scoter	H	O			C
Dovekie	H	O			R
Common Murre	H		U	C	C
Thick-billed Murre	H	O			
Razorbill	H	C	R		U
Black Guillemot	H	R			
Atlantic Puffin	H	O			R
Common Loon	M	O	U		U
Northern Fulmar	M	U	O		U
Great Cormorant	M	U	O		O
Double-crested Cormorant	M		C	C	C
Oldsquaw	M	U	O		O
Red-necked Phalarope	M		O	O	U
Parasitic Jaeger	M		O	O	U
Iceland Gull	M	U			O
Lesser Black-backed Gull	M	R	R		R
Glaucous Gull	M	O	R		R
Great Black-backed Gull	M	A	A	A	A
Black-legged Kittiwake	M	A	O		U
Sabine's Gull	M			R	R
Roseate Tern*	M			O	O
Pomarine Jaeger	L		R	O	U
Long-tailed Jaeger	L				R
Laughing Gull	L		O	U	U
Bonaparte's Gull	L				O
Ring-billed Gull	L	R	R	R	R
Herring Gull	L	A	A	A	A
Common Tern	L		U	C	C

*State & Federal Endangered Species

A = abundant	Species should be expected on 100 percent of visits	WINTER: December-March SPRING: April-May SUMMER: June-August FALL: September-November
C = common	Species should be expected on 50-99 percent of visits	
U = uncommon	Species should be expected on 25-49 percent of visits	
O = occasional	Species should be expected on 1-24 percent of visits	
R = rare	Species should not be expected on most visits	

References:

Ward, Nathalie, Center for Coastal Studies. *Stellwagen Bank, A Guide to the Whales, Sea Birds, and Marine Life of the Stellwagen Bank National Marine Sanctuary*, 1995.

RPI, Inc. & NOAA, et al. *Natural Resources Response Guide: Marine Birds*, 1988.

RESPONSE CONSIDERATIONS: SEA BIRDS

1. The responsibility for management and protection of sea birds in the SBNMS is that of the US Fish and Wildlife Service.
2. SBNMS will provide, as appropriate, data and trained observers to assist the USFWS in assessing, hazing and otherwise protecting vulnerable sea birds within the Sanctuary.

MARINE MAMMALS

WHALES, DOLPHINS, AND PORPOISES (CETACEANS)

Right*	frequents the SBNMS and skim feeds along surface on copepods.
Humpback*	very abundant from May – November.
Finback*	frequently sighted from April – October.
Minke	common
Sei*	occasional visitor
Blue*	occasional visitor
Pilot	present May – October.
Harbor porpoise	present during late spring, early summer.
Orca (“killer whale”)	infrequent visitor
White-sided dolphin	present all year
* Federally Endangered Species	

RESPONSE CONSIDERATIONS: WHALES, DOLPHINS, AND PORPOISES

1. Any encounter or disturbance of a federally endangered species (right, humpback, finback, sei or blue whales) as a result of federal actions is subject to the consultation requirements of section 7 of the Endangered Species Act and the subsequent MOU between DOI, NOAA and USCG. Response measures that, in any way might fall under these provisions should be reviewed by the applicable federal natural resource trustee or agency subject-matter experts.
2. All non-conventional response techniques (chemical dispersants, *in-situ* burning, etc.) require separate approval during certain times of the years (see below).
3. Activities in and around the Stellwagen Bank National Marine Sanctuary during times of large cetacean activity should include input (preferable on-scene) of a NOAA cetacean biologist. This action is for the protection of the animals as well as the safety of response personnel in small boats.
4. Cetaceans observed or suspected to be oiled or found dead within the Sanctuary should be reported to the Unified Command and the Environmental Unit. Direct action regarding these animals (even dead animals) may be coordinated with Sanctuary staff, but all actions MUST be following consultation with the NOAA National Marine Fisheries Services, Office of Protected Resources or an authorized representative (see Marine Mammal Protection Act, 1972). Contact information below.

SEALS (PINNIPEDS)

Harbor (*Phoca vitulina*)

Gray (*Halichoerus grypus*)

Occurrence	Both species are more common in the winter to spring months (October through May)
Pupping	The harbor seal pup (gives birth to young) mid-April to mid-June off the Maine and New Brunswick coasts. Gray seals pup from mid-December to early February in eastern Canada. There is no pupping in the Sanctuary.
Haul Outs:	Seals “haul out” on to exposed sandy or rocky areas in order to rest and to pup. As no such exposed areas exist within the Sanctuary, even at low tide, no hauling out occurs.

Reference:

1. Katona, Steven, *et al.* A Field Guide to Whales, Porpoises, and Seals, 1993
2. Ward, Nathalie, Center for Coastal Studies. Stellwagen Bank, A Guide to the Whales, Sea Birds, and Marine Life of the Stellwagen Bank National Marine Sanctuary, 1995

RESPONSE CONSIDERATIONS: SEALS

1. Pinnipeds are vulnerable to oil through dermal (skin) exposure, inhalation and ingestion. It is not uncommon to witness impacts from behavioral changes to mortality in pinnipeds during certain types of spills, most regularly with lighter, more volatile and more toxic refined oils such as gasoline, diesel and home heating oil.
2. Pinnipeds observed or suspected to be oiled within the Sanctuary should be reported to the Unified Command and the Environmental Unit. Direct action regarding these animals may be coordinated with Sanctuary staff, but all actions **MUST** be following consultation with the NOAA National Marine Fisheries Services, Office of Protected Resources or an authorized representative (see Marine Mammal Protection Act, 1972).

MARINE MAMMAL CONTACT INFORMATION

Governmental Units	
Protected Resources Division NMFS Northeast Region One Blackburn Drive Gloucester, MA 01930-2298 (508) 281-9328	Protected Species Branch NMFS Northeast Fisheries Science Center 166 Water Street Woods Hole, MA 02543-1026 (508) 495-2000

Authorized Non-governmental Units	
New England Aquarium Central Wharf Boston, MA 02110 Hotline: (617) 973-5247	Cape Cod Stranding Network PO Box 287 Buzzards Bay, MA 02532 Hotline: 508-301-7859

FIN FISH

These fish frequently school or feed at the surface.

Herring	primary prey for finback whales and important prey for many fish
Sand Lance	primary prey of humpback whales and important prey for many fish
Tuna	feed at surface on schools of herring, sand lance, and bluefish
Bluefish	present during warmer months
Striped Bass	present during warmer months
Basking Sharks	skim feed on zooplankton from May – Oct.
Ocean Sunfish	feed on jellies from May – Oct.
Herring	primary prey for finback whales and important prey for many fish

RESPONSE CONSIDERATIONS: FIN FISH

1. Fisheries management decisions (closing, opening, etc.) in the SBNMS will be the responsibility of the NOAA National Marine Fisheries Service, under the Magnuson-Stevens Fisheries Conservation & Management Act of 1976, 2000, with a level of Sanctuary consultation they feel is appropriate.
2. Fish landing management, generally reserved for taint and contamination issues during a spill, will be the responsibility of the state of Massachusetts.

SEA TURTLES

These turtles spend a significant amount of time at the surface.

Leatherback	regular summer visitor, feeds on jellies
Atlantic ridley	regular summer visitor, feeds on jellies

Response Considerations: Sea Turtles

1. In general, the greatest vulnerability to sea turtles from oil is during nesting. As sea turtles do not nest anywhere in New England, there is reduced threat to these animals.
2. Sea turtles sometimes experience “cold shock” during the early winter months if individuals migrate late. This can cause the animal to become disoriented and come ashore. In this rare event, NOAA National Marine Fisheries Service or the Department of the Interior (both share trust responsibilities for sea turtles), or the marine mammal stranding network should be contacted (see above).

INVERTEBRATES

Zooplankton school in surface waters during certain times of the day. Zooplankton production begins along coastal waters of Massachusetts north of Cape Ann during March. Production continues to expand throughout the southern Gulf of Maine and the Sanctuary throughout April, peaking by the end of May.

Copepods	Year Round, heaviest production during the spring
Euphausiids	Year Round, heaviest production during the spring

Response Considerations: Invertebrates

As the invertebrates occupying surface waters in the SBNMS are planktonic (free floating), mitigation of impact to these organisms is virtually impossible.

HUMAN USES

WHALE WATCHING

Historically important as a fishing ground, Stellwagen Bank is now one of the premiere whalewatching destinations in the world. Whalewatch vessel entry to the Sanctuary comes primarily from eight ports along the coast of Massachusetts Bay, but occasionally also from New Hampshire and southern Maine. Since the mid-1970s, whalewatching has become an economically and educationally significant activity in the Sanctuary. In fact, over 90% of all New England regional whalewatching effort occurs within the Sanctuary boundaries.

In 1997, the most recent data year, direct gross sales revenues in the New England region for whalewatching were estimated at around \$21 million. At least 10 million people went whalewatching in the Sanctuary between 1975 and 1993. An estimated 864,000 individuals went whalewatching there during the 1996 season alone. On an annual basis, these numbers are generally believed to have remained about the same.

COMMERCIAL FISHING

Historically, the yield from groundfish, invertebrate, and pelagic fisheries was a singularly important commercial resource for the New England region beginning in the Colonial Period. Today, commercial fishing remains among the more important sources of revenue for the New England coastal states. Precise estimates of the fishing effort, and associated landings, applied to the Sanctuary on a seasonal and annual basis are presented in the SBNMS Final Management Plan (2010).

RECREATIONAL FISHING AND BOATING

The Sanctuary is a popular destination for recreational fishing boats, sailboats and powerboats. Recreational fishing, from party boats, charters and private boats, is regularly directed at fish from cod to bluefin tuna inside the Sanctuary. There are 65 small boat harbors and over 80 boating and yacht clubs sited along the Massachusetts coast giving access to the Sanctuary. Recreational boaters typically transit the Sanctuary going to and from Boston, coming from the Cape Cod Canal or Cape Cod Bay, and from Provincetown or Cape Anne. Recreational boaters are most numerous and often aggregate within the Sanctuary during the whalewatching season from May to September. On a calm summer day, recreational boats can number in the hundreds over Stellwagen Bank.

COMMERCIAL SHIPPING, FERRIES AND CRUISE SHIPS

The Sanctuary area can be described as the “gateway” to maritime commerce of Massachusetts. As one of the busiest ports in the country, Boston sustains great amounts of commercial shipping traffic. Shipping lanes designated for entry and exit to and from the Port cross the Sanctuary, with vessels plying natural gas, cars from Europe and the Far East, and regional freight, for example. Ferries cross the Sanctuary in route to Provincetown from Boston and Plymouth, and ferry service between Portsmouth (NH) and Provincetown, that would cross the Sanctuary, is proposed. Some of these ferries operate at high speeds in excess of 30 knots. Cruise ship activity has been increasing and is heavily promoted for the Port of Boston.

RESPONSE CONSIDERATIONS

Chemical Dispersants Use Policy in Stellwagen Bank National Marine Sanctuary Massachusetts/ Rhode Island Dispersant Pre-Authorization Policy, RRT-1, 1997				
Agreement Area and Date Approved	OSC Decision Zone	Expedited Decision Zone	Trial Application Zone	Special Consideration Areas
MA / RI 1997	> 2nm from coast & > 40 feet deep	N/A	N/A	Applicable: April 01-November 15 (Consultation with National Marine Fisheries Service and the SBNMS Superintendent or designee required) Craig MacDonald (primary) Ben Cowie-Haskell (secondary)

In-Situ Burning Policy in Stellwagen Bank National Marine Sanctuary RRT-1 MOU 1997				
Agreement Area and Date Approved	OSC Decision Zone	Expedited Decision Zone	Trial Application Zone	Special Consideration Areas
Region I 1997	> 6 mi	1-6 mi: decision of OSC and State OSC within Unified Command	Remainder of agreement area (inside 1 mile) decision is that of OSC and State OSC in consultation with DOI/NOAA trustees, and involving other parties as defined by state (i.e. fire chiefs, air quality boards, etc.)	Applicable: Year Round (Consultation with National Marine Fisheries Service and the SBNMS Superintendent or designee required) Craig MacDonald (primary) Ben Cowie-Haskell (secondary)

Salvage

As practical, salvage operations (surface and subsurface) within the boundary of the Stellwagen Bank National Marine Sanctuary or such operations that could reasonably be expected to have negative consequences on the Sanctuary, but are outside the Sanctuary will be coordinated with SBNMS staff by the US Coast Guard.

ARCHEOLOGICAL RESOURCES

The SBNMS has within its boundary numerous historic ship wrecks including four sites listed on the National Register of Historic Places. Marine archeological sites are considered to be national trust resources and, as such, are under the protection of the NOAA Trustee. Any activity that potentially impacts such a resource should be done with the consultation of the NOAA Trustee and SBNMS staff.

NOTIFICATION

The SBNMS will be notified by the USCG Marine Safety Office, or their representative, of pollution events or potential pollution events within their boundary or potentially affecting the Sanctuary. While there is no specified threshold size that

triggers notification, the Sanctuary may not be notified of very small releases or releases of very short duration (e.g.: 100 gallons of diesel fuel in high winds). However, the USCG will attempt to err on the conservative side.

The SBNMS will identify two primary points of contact (see Response Contacts above), either of whom will be empowered to act for the SBNMS in the event of an emergency. These contacts will be updated by the Sanctuary as necessary and will include an after-hours telephone or pager number.

DATA

The SBNMS will make available all relevant data, maps, charts, soundings, photographs, etc. to the USCG FOSC in the event of a spill or marine casualty. These data will be used by the Environmental Unit or other unit of the Unified Command to better mitigate, cleanup or respond to the emergency. (See SBNMS's list of available data below).

SINKING OR NON-BUOYANT OILS AND OIL PRODUCTS

It is very rare that an oil or oil product will sink in open water such as the SBNMS. However, if such an event occurs and the SBNMS boundary represents greater than fifty percent of the impact area, the FOSC will consider making the superintendent of the SBNMS a part of the Unified Command.

LIGHTERING WITHIN THE SBNMS

Lightering in the SBNMS is prohibited. A permit will be necessary to conduct this activity.

SBNMS RESOURCES

VESSEL:

R/V *Auk*

50 foot, foil-assisted catamaran.

DATA:

A wide array of environmental data, mostly specially referenced on a geographic information system (GIS), including bathymetric imagery and mapping, resource distribution mapping and sea floor sedimentation mapping.

APPENDIX Q. STELLWAGEN BANK SANCTUARY COOPERATIVE ENFORCEMENT PLAN

I. PHILOSOPHY

The Stellwagen Bank sanctuary's enforcement philosophy is to prevent damage to sanctuary resources through public education and voluntary compliance, as well as through prosecution of violations of the National Marine Sanctuaries Act and its implementing regulations, and other regulations that are applicable.

II. Mission

The mission of sanctuary enforcement is to ensure compliance with the National Marine Sanctuaries Act (16 USC §1431 et seq.), the regulations of the sanctuary (15 CFR §922), and other applicable regulations.

III. Approach

The sanctuary is committed to various law enforcement techniques with an emphasis on Community Oriented Policing and Problem Solving. The sanctuary strives for voluntary compliance of regulations through public outreach and education. A consistent high visibility presence on the water and proactive contacts with users are the hallmarks of this strategy.

IV. Authority

Section 307 of the National Marine Sanctuaries Act (NMSA) authorizes the Secretary of Commerce to conduct enforcement activities for carrying out the Act, specifies civil penalties, powers of authorized officers, use of the personnel, services, and facilities of State and other Federal agencies on a reimbursable or non-reimbursable basis, and provides for the recovery of penalties by the Secretary. The Secretary has delegated enforcement authority to the Administrator of the National Oceanic and Atmospheric Administration (NOAA), who assigned the NOAA Office of Law Enforcement (OLE) with responsibility to conduct enforcement actions.

V. Cooperating Agencies

A successful enforcement program requires cooperation between State and Federal agencies. The primary agencies involved in this enforcement plan are the Stellwagen Bank National Marine Sanctuary and the NOAA OLE. NOAA OLE and the Sanctuary regularly consult with NOAA's PRD staff to share strategic insight regarding overlapping priorities. The United States Coast Guard and the Massachusetts Environmental Police may become part of the enforcement program depending on their resources, priorities, and the development of a memorandum of understanding. Additionally, the U.S. Coast Guard auxiliary and the sanctuary volunteers can assist with the outreach component of the interpretive enforcement program.

VI. Needs

The Stellwagen Bank sanctuary needs the following enforcement capabilities:

- Regular patrol of the sanctuary waters including distribution of enforcement educational outreach packages
- Detection, investigation, and prosecution of violations
- Twenty-four hour response capability (sea or air)
- Routine training by OLE on legal updates and issues
- Inter/intra-agency coordination and coordination of enforcement assets
- Administrative, legal and technical support
- Enforcement outreach to affected commercial and recreational users

VII. Strategy

The above needs will be met via the following plan elements:

A. Planning

The Sanctuary Superintendent and designee of the Special Agent in Charge (SAC) shall confer no later than July 31 each year on the effectiveness of current enforcement efforts and programs within the sanctuary and shall identify desired funding initiatives for the next fiscal year.

An annual strategic enforcement plan shall be developed by April 1 of each year by the Superintendent, Sanctuary Protected Resources Enforcement Coordinator (EC), Sanctuary Enforcement Liaison (SEL), PRD liaison, MEP liaison and NOAA OLE. This plan will describe enforcement objectives for the year and how they will be met. The plan will include an outreach component.

Regular patrol schedules shall be established jointly between the SEL, EC and the MEP liaison for each month by no later than the 10th day of the preceding month. Patrol schedules will be subject to change, and all changes shall be coordinated through the SEL.

Tactical planning sessions may be convened ad hoc or conducted during monthly patrol planning sessions described in item c. of this section. Tactical planning sessions shall be directed by the EC and the SEL and will be the forum for production of most response action plans. All enforcement plans and strategies should be approved by NOAA OLE, since NOAA OLE will be prosecuting the cases and is familiar with legal requirements.

B. Management

Overall supervision of the Stellwagen Bank sanctuary Enforcement Program will be the joint responsibility of the sanctuary Superintendent, the EC and NOAA OLE

Daily management of the sanctuary Enforcement Program will require close coordination between NOAA OLE, the SEL, the EC and the NMFS PRD liaison.

The EC will provide technical and logistical insight on the tactical assets employed for general patrol, surveillance, investigations, inspection and field interaction with the public. The overall supervision of the law enforcement personnel conducting the actual enforcement work inside the sanctuary will be the responsibility of the law enforcement agency completing the mission. The scope of assistance and authority of MEP performing Federal enforcement action in support of the sanctuary will be defined in a Memorandum of Understanding and Cooperative Enforcement Agreement between the sanctuary, NMFS, NOAA OLE and the MEP (see section D).

C. Personnel and Duties

1. Sanctuary Superintendent

- Supervises the Sanctuary Enforcement Liaison.
- Reviews overall implementation of the sanctuary Enforcement Program and directs/recommends changes as appropriate.
- Identifies short and long-term threats to sanctuary resources that may require enforcement action.
- Coordinates with the DSAC and EC to ensure that sanctuary enforcement and outreach concerns are addressed.
- Meets with the NOAA General Counsel for Enforcement and Litigation (GCEL), NMFS NE PRD and DSAC on an as needed basis to ensure adequate legal support for sanctuary/NMFS NE PRD case management.
- Reviews/recommends candidates for Sanctuary Enforcement Agent (SEA).
- Approves sanctuary enforcement expenditures.
- Approves MOU development or revisions and annual strategic enforcement plans.

2. EC

- Reports to DSAC.
- Coordinates with the Sanctuary Superintendent to ensure that sanctuary enforcement concerns are addressed.
- Supervises the Sanctuary Enforcement Agent(s) (SEA).
- Supervises daily coordination of sanctuary enforcement efforts between the State, NOAA including OLE and PRD, and the U.S. Coast Guard (USCG).
- Reviews overall sanctuary Enforcement Program and directs/recommends changes as appropriate.
- Develops and manages enforcement program budget.
- Oversees agreements and serves as COTR on all enforcement contracts.
- Works in partnership with SEL and MEP liaison to jointly develop patrol schedules, response action plans and interpretive enforcement programs.
- Manages enforcement MOU development, revision and implementation.
- Coordinates deputization training for SEOs.

- Supervises investigation of potential sanctuary violations.
- Meets with the Sanctuary Superintendent, NMFS NE PRD and GCEL on an as needed basis to ensure adequate legal support for sanctuary/PRD case management.
- Attends Protected Resources Enforcement Team meetings as required.
- Primary responsibility for responding to government and public inquiries about the sanctuary Enforcement Program in coordination with SEL.

3. SEL

- Reports to the Sanctuary Superintendent on the status of the EP and concerns.
- Maintains coordination / communication link between SEA, Sanctuary Superintendent, and the Education Coordinator.
- Responds to government and public inquiries about the sanctuary Enforcement Program.
- Provides coordination for administrative and technical support for enforcement activities (e.g., data gathering, logistics, field support, fiscal management).
- Attends Protected Resources Enforcement Team meetings as required.
- Assists the EC with training of SEO's.

4. SEA(s)

- Reports to the EC.
- Conducts duties directly related to sanctuary enforcement priorities and NMFS NE PRD enforcement priorities.
- Monitors and inspects activities permitted by the sanctuary.
- Primary responsibility for conducting presentations/briefings describing the sanctuary Enforcement Program in coordination with SEL.
- Coordinates with NOAA GCEL concerning case development and penalty recovery.
- Prepares enforcement program status reports.
- Conducts surveillance activities.
- Receives Enforcement Action Reports and Offense Investigation Reports from SEOs and the Coast Guard, conducts investigations, and coordinates with NOAA GCEL concerning case development and prosecution.
- Attends Protected Resources Enforcement Team meetings as required.
- Assists with the development of the sanctuary Summary Settlement Schedule

5. SEO(s)

- Reports to the MEP liaison
- Conducts duties directly related to sanctuary enforcement priorities.

- Conducts routine patrols and surveillance.
- Conducts on-the-water outreach activities.

6. PRD liaison

- Meets regularly with EC and SEL
- Contributes to development of annual enforcement plan
- Provides technical assistance to EC for protected resources cases

7. MEP liaison

- Coordinates with EC on patrols
- Contributes to development of annual enforcement plan
- Participates in tactical planning meetings

D. Agency agreements

MEP

A MOU will be developed between MEP, NOS, NMFS and the USCG that enables MEP and the USCG to enforce the Endangered Species Act and Marine Mammal Protection Act in the sanctuary.

VIII. Acronyms

COTR	Contracting Officer Technical Representative
DSAC	Deputy Special Agent In Charge
EC	Sanctuary Protected Resources Enforcement Coordinator
GCEL	General Council for Enforcement and Litigation
MEP	Massachusetts Environmental Police
MOU	Memorandum of Understanding
NMFS	National Marine Fisheries Service
NMSA	National Marine Sanctuaries Act
NOVA	Notice of Violation and Assessment
OLE	Office of Law Enforcement
PRD	NMFS Protected Resources Division
SAC	Special Agent in Charge
Sanctuary	Stellwagen Bank National Marine Sanctuary
SEA	Sanctuary Enforcement Agent (NMFS)
SEL	Sanctuary Enforcement Liaison
SEO	Sanctuary Enforcement Officer (usually state MEP officer)
SEP	Sanctuary Enforcement Plan
USCG	United States Coast Guard

APPENDIX R. STELLWAGEN BANK SANCTUARY ZONING WORKING GROUP CHARGE AND LIST OF MEMBERS

This appendix describes the establishment of a Zoning Working Group pursuant to the proposed Ecosystem-Based Sanctuary Management Action Plan, as approved by the Sanctuary Advisory Council on October 20, 2004.

NOTE: Given the context of this activity in the Ecosystem-Based Sanctuary Management Action Plan, the intent of this working group is to focus on habitat zoning and ecological function. The bounds are relatively narrow and do not extend to all aspects of potential sanctuary zoning. Other action plans recommend activities to address different zoning considerations (e.g., Marine Mammal Vessel Strike –vessel traffic, approach distance; Water Quality – no discharge).

Origination

Activity 5.1 from the Ecosystem-Based Management Action Plan: Establish a Zoning Working Group (ZWG) to evaluate the adequacy of existing zoning schemes in Stellwagen Bank National Marine Sanctuary to satisfy the scientific requirements and meet the goals of Ecosystem-Based Sanctuary Management (EBSM) as defined by the Ecosystem-Based Management Working Group (EBM WG) in 2004, and if needed, develop a modified zoning scheme (including a consideration of fully protected reserves) to meet those goals and requirements.

Purpose

The ZWG was established by the Sanctuary Advisory Council at its November 2004 meeting for the purpose of reviewing and evaluating data and information as it becomes available through various venues (e.g., New England Fishery Management Council Omnibus Essential Fish Habitat Amendment process, other sanctuary efforts) and making a

recommendation to the SAC and ultimately to the sanctuary superintendent. The membership of the ZWG shall be of representative stakeholder groups similar to the EBM WG. The ZWG shall begin meeting in January 2005 in order to efficiently utilize the time that the final management plan is in preparation.

The ZWG shall develop metrics for zone performance based on the objectives of the various zones as determined by the WG. These metrics shall form the foundation of a monitoring program designed to determine the efficacy of the zoning scheme and recommend any needed changes to accomplish the goals of the zoning scheme and EBSM.

The ZWG shall make recommendations to the SAC regarding the zoning scheme within two years of the implementation of the final management plan as defined by the publication date for the Federal Register Notice notifying the public of the availability of the final management plan.

Process

1. ZWG convenes and assigns a subgroup to come up with 2-3 operational definitions of ecological integrity with measurable parameters.
2. Subgroup makes recommendation on definition of ecological integrity appropriate for the sanctuary.
3. ZWG evaluates existing zoning scheme based on agreed upon criteria associated with the scientific requirements and goals of EBSM.
4. ZWG makes recommendation to SAC on adequacy of existing zoning scheme.
5. SAC makes recommendation to superintendent on adequacy of existing zoning scheme and future of the ZWG.
6. If necessary, the ZWG continues deliberations to develop a modified zoning scheme (including a consideration of fully protected reserves) for the purpose of meeting the scientific requirements and goals of EBSM within 2 years of final management plan implementation.

Membership

Chair (1)	John Williamson
Team Lead (1)	Ben Cowie-Haskell
Academics (3)	Les Kaufman, Boston University Larry Madin, Woods Hole Oceanographic Institute Lew Incze, University of Southern Maine
Fishing Industry (3)	
a. Bottom Mobile Gear	Ed Barrett, Massachusetts Fishermen's Partnership
b. Bottom Fixed Gear	Dave Casoni, Massachusetts Lobstermen's Association
c. Midwater	Mary Beth Tooley, East Coast Pelagics
Recreational Fishing (2)	
a. Charter	Tom DePersia, Stellwagen Bank Charter Fishermen's Association
b. Private	Charles Casella
Conservation (3)	Priscilla Brooks, Conservation Law Foundation Susan Farady, The Ocean Conservancy Peter Borelli, Provincetown Center for Coastal Studies
At-large (1)	Deborah Cramer, Science Writer
National Marine Fisheries Service (2)	Brian Hopper, Protected Species Susan Murphy, Sustainable Fisheries
Mass. Division of Marine Fisheries (1)	David Pierce
Mass. Coastal Zone Management (1)	Kate Killerlain Morrison
Total membership (18)	

APPENDIX S. EXISTING MARINE RESOURCE MANAGEMENT ZONES THAT OVERLAP THE STELLWAGEN BANK SANCTUARY

A. CAPE COD CRITICAL HABITAT FOR THE NORTH ATLANTIC RIGHT WHALE

[For coordinates for this area refer to <http://www.nero.noaa.gov/nero/regs/>]

A critical habitat designation does not set up a preserve or refuge—it merely establishes a geographic area that is critical to the survival of an endangered species. Within this designated critical habitat, Federal agencies must ensure that any actions they authorize (permit), fund, or carry out are not likely to jeopardize the continued existence of a listed species, or destroy or adversely modify its designated critical habitat.

B. WESTERN GOM ESSENTIAL FISH HABITAT CLOSURE AREA

[The following regulations are excerpted from 50 CFR, subpart F, §648.81. For the latest version of these regulations including their coordinates refer to <http://www.nero.noaa.gov/nero/regs/>]

No fishing vessel or person on a fishing vessel with bottom tending mobile gear on board the vessel may enter, fish in, or be in the Essential Fish Habitat Closure Areas described below, unless otherwise specified.

C. INSHORE RESTRICTED ROLLER GEAR AREA

[The following regulations are excerpted from 50 CFR, subpart F, §648.81. For the latest version of these regulations including their coordinates refer to <http://www.nero.noaa.gov/nero/regs/>]

Rockhopper and roller gear restrictions. For all trawl vessels fishing in the GOM/GB Inshore Restricted Roller Gear Area, the diameter of any part of the trawl footrope, including discs, rollers, or rockhoppers, must not exceed 12 inches (30.5 cm).

D.-G. GOM ROLLING CLOSURE AREAS

[The following regulations are excerpted from 50 CFR, subpart F, §648.81. For the latest version of these regulations including their coordinates refer to <http://www.nero.noaa.gov/nero/regs/>]

No fishing vessel or person on a fishing vessel may enter, fish in, or be in; and no fishing gear capable of catching NE multispecies, unless otherwise allowed in this part, may be in, or on board a vessel in GOM Rolling Closure Areas I through V, as described below, for the times specified, except as specified below and or under the transiting provisions.

Exceptions to Rolling Closures - Paragraph (1) above does not apply to persons aboard fishing vessels or fishing vessels:

- That have not been issued a multispecies permit and that are fishing exclusively in state waters;
- That are fishing with or using exempted gear as defined under this part, subject to the restrictions on midwater trawl gear, and excluding pelagic gillnet gear capable of catching multispecies, except for vessels fishing with a single pelagic gillnet not longer than 300 ft and not greater than 6 ft deep, with a maximum mesh size of 3 inches, provided:
- The net is attached to the boat and fished in the upper two-thirds of the water column;
- The net is marked with the owner's name and vessel identification number;
- There is no retention of regulated species; and
- There is no other gear on board capable of catching NE multispecies;
- That are fishing under charter/party or recreational regulations, provided that:

For vessels fishing under charter/party regulations in a Rolling Closure Area described above, provided it has on board a letter of authorization issued by the Regional Administrator, which is valid from the date of enrollment through the duration of the closure or 3 months duration, whichever is greater; for vessels fishing under charter/party regulations in the Cashes Ledge Closure Area or Western GOM Area Closure, described above, provided it has on board a letter of authorization issued by the Regional Administrator, which is valid from the date of enrollment until the end of the fishing year;

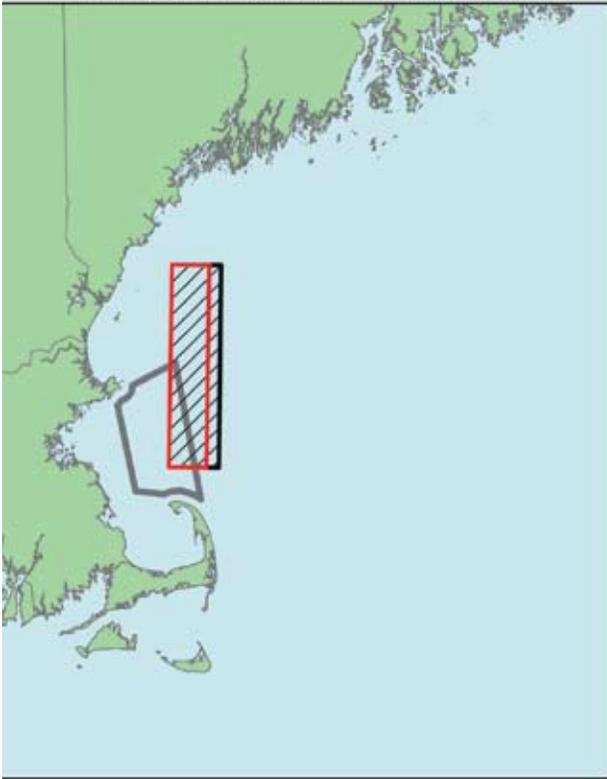
- With the exception of tuna, fish harvested or possessed by the vessel are not sold or intended for trade, barter or sale, regardless of where the regulated species are caught;
- The vessel has no gear other than rod and reel or handline on board; and
- The vessel does not use any NE multispecies DAS during the entire period for which the letter of authorization is valid;
- That are fishing with or using scallop dredge gear when fishing under a scallop DAS or when lawfully fishing in the Scallop Dredge Fishery Exemption Area, provided the vessel does not retain any regulated NE multispecies during a trip, or on any part of a trip; or
- That are fishing in the Raised Footrope Trawl Exempted Whiting Fishery,, and in the GOM Rolling Closure Area V.

Exempted Gear - With respect to the NE multispecies fishery, means gear that is deemed to be not capable of catching NE multispecies and includes: Pelagic hook and line, pelagic longline, spears, rakes, diving gear, cast nets, tongs, harpoons, weirs, dipnets, stop nets, pound nets, pelagic

gillnets, pots and traps, purse seines, shrimp trawls (with a properly configured grate as defined under this part), surfclam and ocean quahog dredges, and midwater trawls.

Midwater Trawl Gear - Trawl gear that is designed to fish for, is capable of fishing for, or is being used to fish for pelagic species, no portion of which is designed to be or is operated in contact with the bottom at any time.

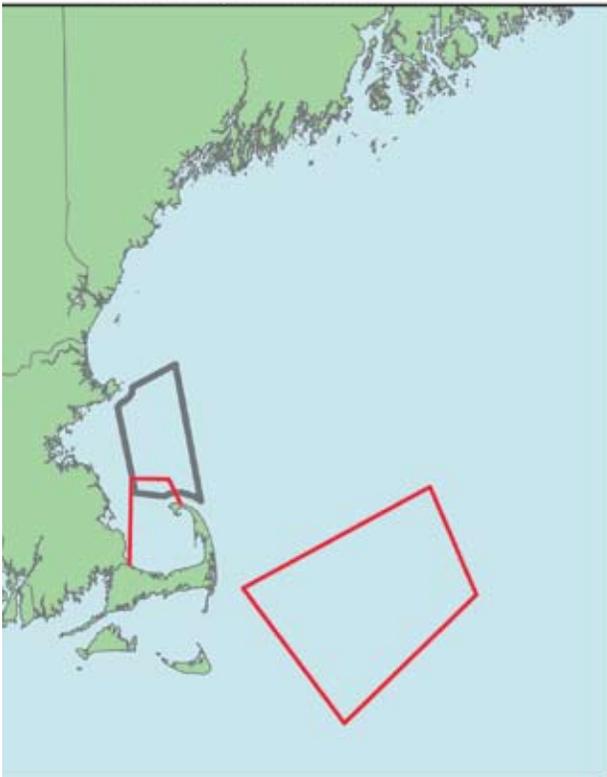
a. Western Gulf of Maine Closure Area & Habitat Closure Area (shown in red) Year Round



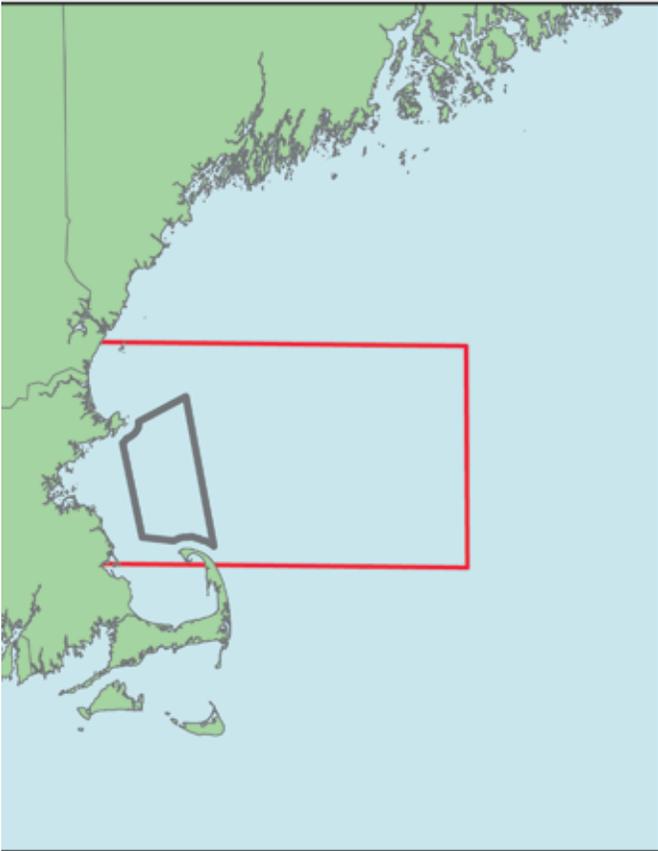
b. Inshore Restricted Roller Gear May 1 – May 31



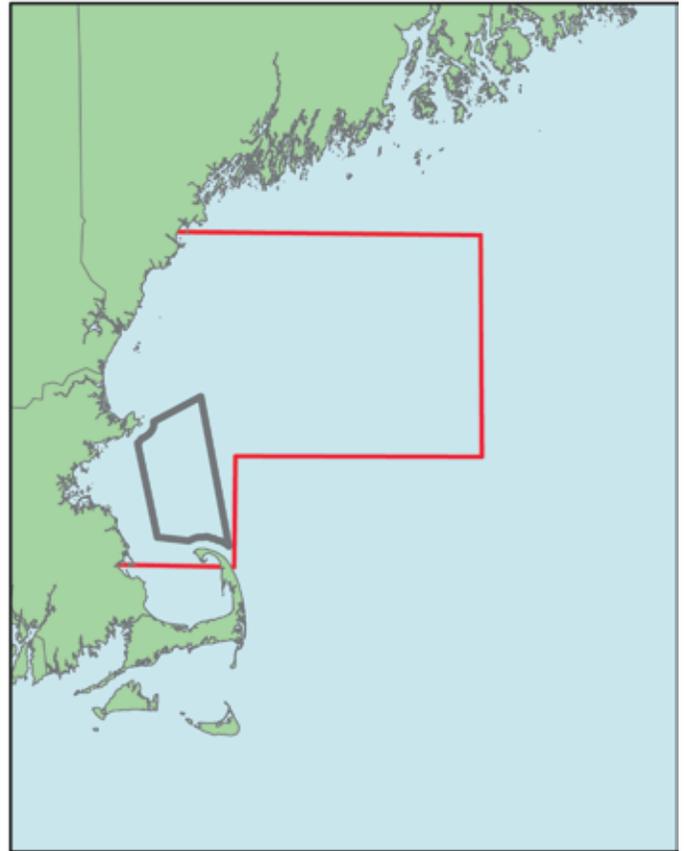
c. Northern Right Whale Critical Habitat Areas



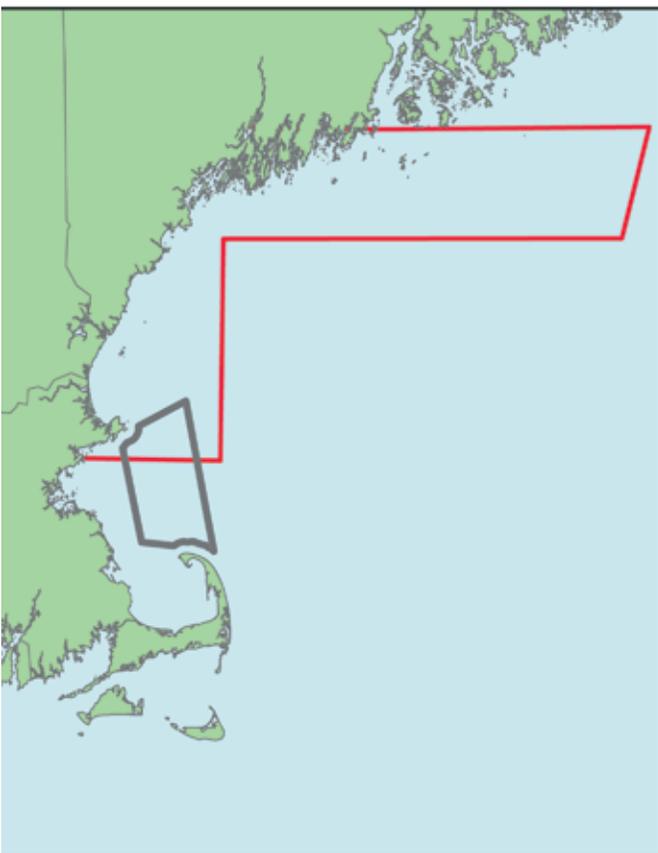
d. Rolling Closure Area 2
April 1 - April 30



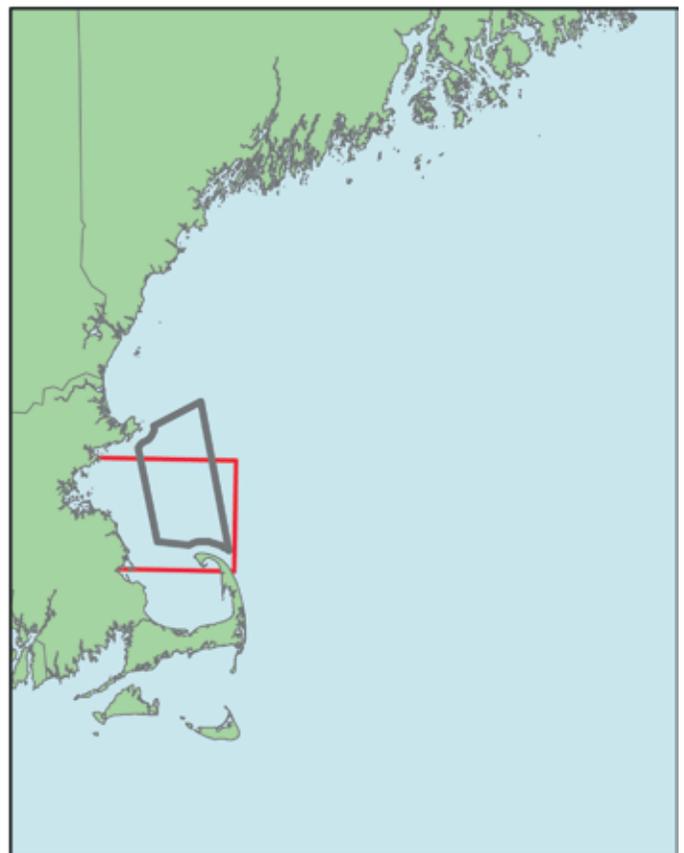
e. Rolling Closure Area 3
May 1 - May 31



f. Rolling Closure Area 4
June 1 - June 30



g. Rolling Closure Area 5
October 1 - November 30



APPENDIX T. LIST OF ACRONYMS

Acronym Meaning

A

ACRU..... Atlantic Cetacean Research Center
 ACTVNY Activities New York
 ADMIN Administrative Capacity and Infrastructure
 AIS Automatic Identification System
 ALWTRP Atlantic Large Whale Take Reduction Plan
 AP Action Plan
 ARU Automatic Recording Units
 ASMFC..... Atlantic States Marine Fisheries Council

B

BEM Bays Eutrophication Model
 BHNIP..... Boston Harbor Navigation Improvement Project

C

CD Compatibility Determination
 CERCLA..... Comprehensive Environmental Response, Compensation, and Liability Act
 COST Continental Offshore Stratigraphic Test
 CRU Cetacean Research Unit
 CSO Combined Sewer Overflows
 CWA Clean Water Act

D

DAM Dynamic Area Management
 DAMOS..... Disposal Area Monitoring System
 DAS..... Days at Sea
 DWPA..... Deep Water Port Act

E

EA Ecosystem Alteration
 EBM Ecosystem Based Management
 EBSM..... Ecosystem-Based Sanctuary Management
 ECNASAP East Coast of North America Strategic Assessment Project
 EFH Essential Fish Habitat
 EPA..... Environmental Protection Agency
 ESA..... Endangered Species Act
 EIS..... Environmental Impact Statement

F

FAA Federal Aviation Administration
 FADS..... Foul Area Disposal Site
 FERC Federal Energy Regulatory Commission
 FMC Fishery Management Council
 FMP..... Fishery Management Plan
 FWPCA..... Federal Water Pollution Control Act

G

GIS..... Geographic Information System
 GLOBEC Program..... Global Ocean Ecosystems Dynamics Program
 GoM..... Gulf of Maine
 GoMLME..... Gulf of Maine Large Marine Ecosystem

GoMOOS..... Gulf of Maine Ocean Observing System
 GoMMPAS Gulf of Maine Marine Protected Areas
 GPS..... Global Positioning System

H

HAB Harmful Algal Blooms
 HAZMAT..... Hazardous Materials
 HMS..... Highly Migratory Species
 HPTRP..... Harbor Porpoise Take Reduction Plan

I

ICCAT..... International Commission for the Conservation of Atlantic Tuna
 IC Interagency Cooperation
 IMO International Maritime Organization
 IWS Industrial Waste Site

J

JEA Joint Enforcement Agreement

L

LME..... Large Marine Ecosystem
 LNG Liquefied Natural Gas

M

MACZM Massachusetts Coastal Zone Management
 MAFMC..... Mid-Atlantic Fisheries Management Council
 MARPOL International Convention for the Prevention of Pollution from Ships
 MARAD..... Maritime Administration
 MBDS..... Massachusetts Bay Disposal Site
 Massport..... Massachusetts Port Authority
 MEP..... Massachusetts Environmental Police
 MFCMA..... Magnuson Fishery Conservation and Management Act
 MFP..... Massachusetts Fishermen's Partnership
 MGD..... Massachusetts Water per Day
 MHR Maritime Heritage Resources
 MOU..... Memorandum of Understanding
 MOA Memorandum of Agreement
 MITSG..... Massachusetts Institute of Technology Sea Grant
 MMBD Marine Mammals Behavioral Disturbance
 MME Marine Mammal Entanglement
 MMIRC..... Marine Mammal Information and Reporting Center
 MMRA..... Marine Mammal Research Association
 MMS Mineral Management Service
 MMPA Marine Mammal Protection Act
 MMVS..... Marine Mammal Vessel Strikes
 MOSA Massachusetts Ocean Sanctuaries Act
 MPPRCA..... Marine Plastic Pollution Research and Control Act
 MPRSA Marine Protection, Research and Sanctuaries Act
 MPR Management Plan Review
 MSD..... Marine Sanitation Devices
 MSO..... Marine Safety Office

MWRA.....	Massachusetts Water Resources Authority	RUST.....	Resource Under-Sea Threat Database System
N			
NAO.....	North Atlantic Oscillation	RV.....	Research Vessel
NDZ.....	No Discharge Zone	S	
NEAQ.....	New England Aquarium	SAC.....	Sanctuary Advisory Council
NEFSC.....	Northeast Fisheries Science Center	SBNMS.....	Stellwagen Bank National Marine Sanctuary
NEFMC.....	New England Fishery Management Council	S-CAP.....	Sanctuary Compatibility Analysis Process
NEPA.....	National Environmental Policy Act	SCUBA.....	Self-Contained Underwater Breathing Apparatus
NERO.....	Northeast Regional Office (NOAA)	SD.....	Standard Deviation
NHPA.....	National Historic Preservation Act	SHIELDS.....	Sanctuaries Hazardous Incident Emergency Logistics Database System
NMFS.....	National Marine Fisheries Service	SHRMP.....	Seafloor Habitat Recovery Monitoring Program
NMSF.....	National Marine Sanctuary Foundation	SMP.....	Saba Marine Park
NMSA.....	National Marine Sanctuaries Act	SUP.....	Special Use Permit
NMS.....	National Marine Sanctuary	T	
NMSP.....	National Marine Sanctuary Program	TRT.....	Take Reduction Team
NOAA.....	National Oceanic and Atmospheric Administration	TSS.....	Traffic Separation Scheme
NOAA's ARCH.....	NOAA's Archaeological Database	U	
NOS.....	National Ocean Service	UNH.....	University of New Hampshire
NGO.....	Nongovernmental Organization	UHI.....	University of Hawaii
NPDES.....	National Pollutant Discharge Elimination System	UCONN.....	University of Connecticut
NRHP.....	National Register of Historic Places	UMaine.....	University of Maine
NSF.....	National Science Foundation	USCG.....	United States Coast Guard
NURC UCONN.....	National Undersea Research Center at the University of Connecticut	USGS.....	United States Geological Survey
O			
OMSAP.....	Outfall Monitoring Science Advisory Panel	USACE.....	United States Army Corps of Engineers
OPA.....	Oil Pollution Act	USDOC.....	United States Department of Commerce
OPCA.....	Oil Pollution Control Act	USDOD.....	United States Department of Defense
OCS.....	Office Coast Survey	USFWS.....	United States Fish and Wildlife Service
OCSLA.....	Outer Continental Shelf Lands Act	V	
OLE.....	Office of Law Enforcement	VERP.....	Visitor Experience Resource Protection
P			
PAH.....	Polynuclear Aromatic Hydrocarbons	VMS.....	Vessel Monitoring System
PCB.....	Polychlorinated Biphenyls	VTR.....	Vessel Trip Report
PCCS.....	Provincetown Center for Coastal Studies	VTSS.....	Vessel Transportation Separation scheme
POE.....	Public Outreach and Education	W	
POTW.....	Publicly Owned Treatment Works	WWAG.....	Whale Watch Advisory Group
PWC.....	Personal Water Craft	WCI.....	Whale Conservation Institute
R			
RAS.....	Rapid Assessment Survey	WCNE.....	Whale Center of New England
RFA.....	Recreational Fishing Alliance	WG.....	Working Group
ROV.....	Remote Operated Vehicle	WGomCA.....	Western Gulf of Maine Closure Area
		WQ.....	Water Quality
		WWF.....	World Wildlife Fund

APPENDIX U. GLOSSARY

A

Anadromous speciesis an animal that spawns in freshwater and lives its life in salt water.

Autotrophic.....ability to produce complex organic compounds from simple molecules and an external source of energy, such as light or chemical reactions of inorganic compounds. Autotrophs are considered producers in a food chain.

B

Bacteriophage.....is a virus that attacks bacteria as the primary host

Bathymetrywater depth measurement information used to produce depth-contoured charts

Benthosis the layer of the ocean that is near and/ or at the bottom, only a few feet above the sediment. This is also known as the Benthic Zone.

Biodiversity.....the variability among living organisms from all sources including inter alia, terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are a part. This is also known as Biological diversity.

Bioinvaderis a species and organisms that have moved into as areas outside of their natural geographic range.

Biomassis the mass of living material in a given area or volume of habitat.

Bioprospectingthe process by which new, useful applications and products are developed form the natural environment through scientific discovery and research.

C

Catadromous Species.....A fish species that spawns in saltwater but feeds and spends most of its life in estuarine or fresh water

Coccolithophores.....are small algae covered by calcium carbonate hubcap-like disks called coccoliths. Chalk is made of billions of coccoliths that lithify into rock.

Cryptophyta.....are small biflagellated protoctistids also known as cryptomonads, some of which are autotrophs, others heterotrophs.

Cyclonic storms systemsa windstorm with a violent whirling movement; a system of rotating winds over a vast area, spinning inward to a low pressure center (counterclockwise in the northern hemisphere) generally causing stormy weather

D

Diatoms.....are a major group of eukaryotic algae, and are one of the most common types of phytoplankton. Most diatoms are unicellular, although some form chains or simple colonies. A characteristic feature of diatom cells is that they are encased within a unique cell wall made of silica.

E

Ecological IntegrityDRAFT definition provided by Zoning working group (Aug.24, 2006): Ecological integrity is defined as the degree to which the system is structurally intact and functionally resilient within the context of historical baselines. Structurally intact means the native parts of the system are maintained as well as their interrelationships. Functional resilience is the system's ability to resist changes caused by human or environmental perturbations, or should change occur, to recover over time.

Ekman spirala theoretical model of the effect on water of wind blowing over the ocean. The surface layer is expected to drift at an angle of 45* to the right of the wind in the Northern Hemisphere and 45* to the left in the Southern Hemisphere. Water at successively lower layers drifts progressively to the right (N), or left (S), though not a swiftly as the surface flow.

Ekman transportthe net transportation of water, the sum of layer movement, due to the Ekman spiral. Theoretical Ekman transport in the Northern Hemisphere is 90* to the right of the wind direction

Endangered speciesis a species that is in danger of becoming extinct, that is protected by the Endangered Species Act (ESA).

Endemicis restricted to or native to a particular area or region.

Eutrophicationthe process by which nutrient-rich waters bring about a high level of biological productivity that may ultimately lead to reduced dissolved oxygen levels

F

Fauna.....animal life of a particular region

Floraplant life of a particular region

Foraminifera.....are large amoeboid protists with often beautiful shells (tests) constructed of calcium carbonate. Benthic foraminifera live on the seafloor.

G

Glaciationthe processes by which glaciers are formed and reformed to create various geological structures.

H

Haloclinethe zone of the ocean in which salinity increases rapidly with depth.

Heterotrophicability to derive nutrition either by eating other things or by photosynthesizing. For plankton, often means absorbing dissolved organic matter directly.

Holozooplanktonspecies will spend their entire life suspended in the water.

Hydrographyis the study, description, and mapping of oceans, lakes, and rivers with an emphasis on navigation.

I

Infaunalorganisms that live buried in sediments, including a variety of polychaetes, burrowing crustaceans, and mollusks

K

Keystone speciesa single species whose activities determine community structure; a species whose presence is critical to that community

L

Lighteringis the process of transferring fuel from one transportation unit (barge or ship) to a smaller vessel. This is useful when having to deliver oil and gas products to harbors with shallow channels that would not be able to handle a larger tanker vessel.

Local extinctionis the eradication of any geographically discrete population of individuals while others of the same species or subspecies survive elsewhere.

M

Macrophytesrefers to large, fleshy plants like seaweeds or seagrasses.

Microhabitatrefers to both the physical substratum (e.g., sand waves, cobbles, boulders) and any associated structure-forming taxa (e.g., anemones, sponges, amphipod tubes). In addition to the organisms that form them, microhabitats are critical for a variety of fish species at different life history stages.

Micticrefers to the mixing of organisms

N

Nanoplankton.....is the fraction of plankton (small eukaryotic protists) composed of cells between 2-20 μm

Nektonichighly motile organisms, such as fishes and squids that live in, or above, the seagrass canopy

Nonpoint source pollutantthose pollutant discharges not associated with a specific location (e.g., urban and agricultural pesticide runoff)

Nertic Zooplanktonare larval stages of various benthic organisms, such as barnacles, worms, bivalve and gastropod mollusks, decapod crustaceans and echinoderms, that spend a short time suspended in the water.

- Nor'easter (Northeaster)is any energetic extra-tropical cyclone that sweeps the eastern seaboard of North America in winter.
- North Atlantic Oscillationis a large scale mode of climate variability that has important impacts on the weather and climate of the North Atlantic Region and surrounding continents. It has a significant effect on both temperature and precipitation, this causes a major impact on marine ecosystems. These impacts include sea surface temperature, mixed layer depth, upper ocean heat content, surface Ekman transport, sea ice cover, uptake of gases, altered nutrient balances and primary production. These changes can have a direct impact on the dispersion and growth of marine life
- Nutrient mixingthis is the process of transferring and mixing, of those constituents required by organism for maintenance and growth, of nutrients between the components of a food web.

P

- Pelagicthe realm of open water--also known as the pelagic zone.
- Phytoplankton.....are photosynthetic planktonic algae
- Physical Oceanographyis the aspects of the physical Ocean environment that affects living organisms, such as light, salinity, or temperature.
- Picoplankton.....is the fraction of plankton composed by cells between 0.2 and 2 μm that can be either photosynthetic or heterotrophic
- Planktonicorganisms dependent on water movement and currents as their means of transportation, including phytoplankton, zooplankton, and ichthyoplankton
- Point source pollutantthe discharges of pollutants from a distinct and identifiable source, such as a sewer or industrial pipe
- Protists.....are a diverse group of organisms, comprising those eukaryotes that are not animals, plants, or fungi. They are usually treated as the kingdom Protista or Protoctista. The protists are a paraphyletic grade, rather than a natural (monophyletic) group, and do not have much in common besides a relatively simple organization (unicellular, or multicellular without highly specialized tissues). Essentially, the Kingdom Protoctista is made up of organisms which cannot be classified into any other kingdom.

S

- Salinitya measure of the dissolved solids in seawater, usually expressed in grams per kilogram or part per thousand by weight. Standard seawater has a salinity of 35 0/00 at 0°C (32°F)
- Stratificationis the presence of different and distinct respective horizons within the water column. This is the layering of different factors, such as any physical or biological effects, within the water.
- “Strategic Stock”This means that the average annual fishing related mortality and serious injury exceeds the number of animals that can be removed from the stock without inhibiting recovery.

T

- Thermoclinethe zone of the ocean in which temperature decreases rapidly with depth.
- Taxathe shortened form of Taxonomic group. It also is a more general term than species when identifying animals.
- Threatened speciesplant or animal species believed likely to move into the endangered category in the near future if causal factors at work continue to persist

U

- Upwellinga circulation pattern in which deep, cold, usually nutrient-laden water moves toward the surface. Upwelling can be caused by winds blowing parallel to shore or offshore.

APPENDIX V. METRIC CONVERSION TABLE

Linear Measurement	Area Measurement
<p>1 foot = 0.3048 meter</p> <p>1 meter = 3.28084 feet = 0.001 kilometer</p> <p>1 kilometer = 1,000 meters = 0.621371 statute mile</p> <p>1 statute mile = 5,280 feet = 1.60934 kilometers = 0.8689 nautical mile</p> <p>1 nautical mile = 6,076.12 feet = 1.852 kilometers = 1.15078 statute miles</p>	<p>1 acre = 43,560 square feet = 4,046.86 square meters = 0.404684 hectare = 0.0015625 square statute mile</p> <p>1 hectare = 2.47105 acres = 10,000 square meters = 0.01 square kilometer = 0,003861 square statute mile</p> <p>1 square kilometer = 247.105 acres = 100 hectares = 0.386102 square statute mile</p> <p>1 square statute mile = 640 acres = 258,999 hectares = 2.58999 square kilometers = 0,755 square nautical mile</p> <p>1 square nautical mile = 847.5443 acres = 3.43 square kilometers = 1.324288 square statute miles</p>
Mass Measurement	Unit Abbreviations
<p>1 pound = 0.002 ton = 0.453592 kilogram</p> <p>1 ton = 2,000 pounds = 0.907185 metric ton</p> <p>1 kilogram = 2.20462 pounds = 0.001 metric ton</p>	<p>Foot-(ft) Hectare-(ha) Kilometer-(km) Meter-(m) Nautical mile- (nmi) Pound-(lb) Square kilometer-(km²) Square meter-(m²) Square nautical mile-(nmi²) Square statute mile-(mi²) Statute mile-(m)</p>