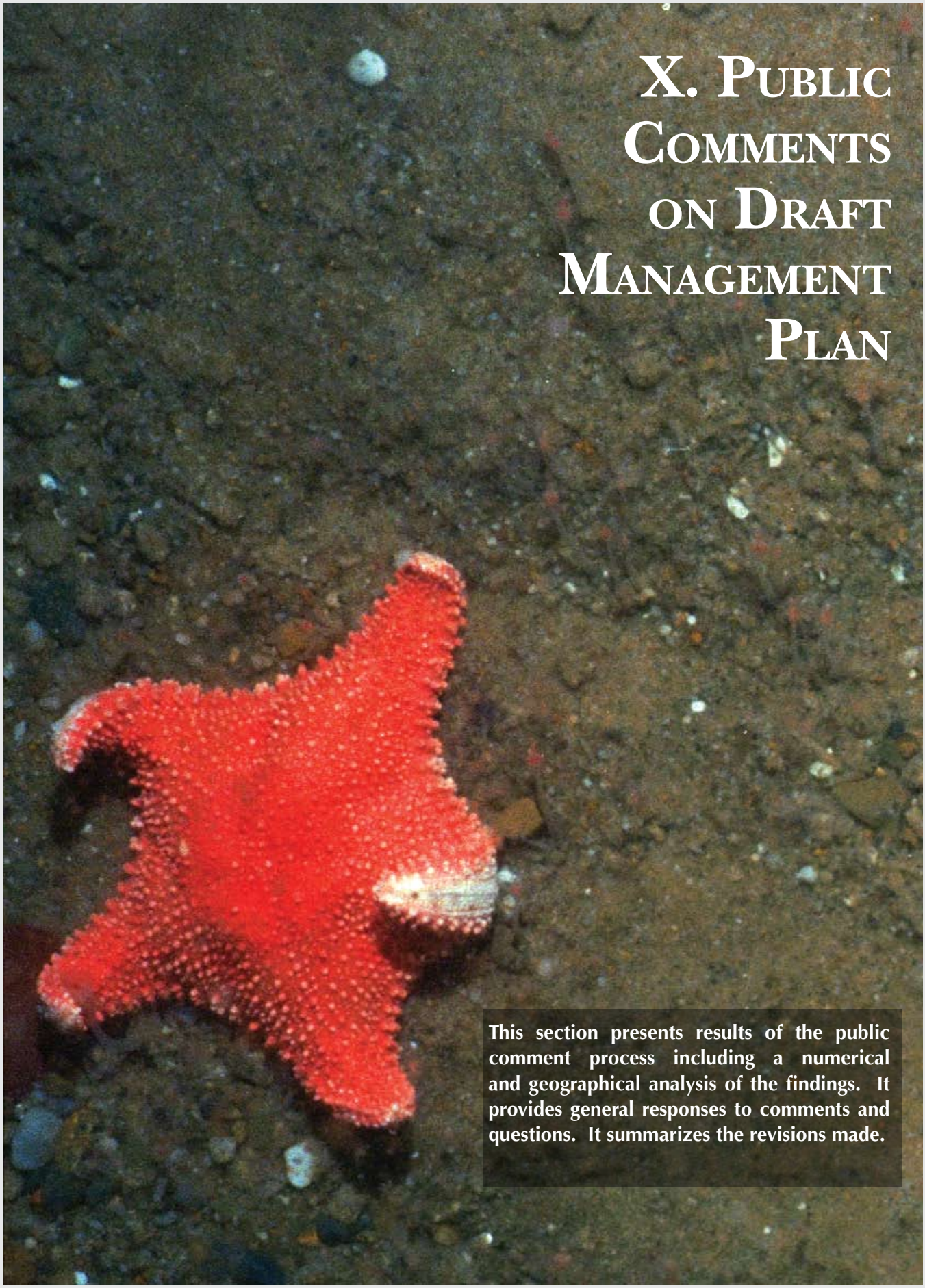


X. Public Comments on Draft Management Plan

This section presents results of the public comment process including a numerical and geographical analysis of the findings. It provides general responses to comments and questions. It summarizes the revisions made.

Background and Analysis

Comment Period and Public Notice

The Draft Management Plan was released for a six-month public review and comment period. The initial comment period was May 6 - August 4, 2008. Eight public meetings in four states were held in June at the following locations throughout New England: Portland, ME; Portsmouth, NH; Wenham, MA; Boston, MA; Plymouth, MA; Hyannis, MA; N. Dartmouth, MA; and, Mystic, CN. A total of 103 people provided comment at these meetings (total attendance was 274). The comment period was extended to October 3, 2008 in response to requests made at these meetings for additional time for the public to complete reviews and submit comments.

Two NOAA press releases announcing the public comment period were distributed to national, regional and local media on May 6 at the start of the initial period and on July 24, 2008 at the start of the extended period. Also on May 6, a mass email was sent notifying more than 12,000 recipients on the sanctuary's constituent list and notice of the comment period was posted both on the sanctuary web site and on the Office of National Marine Sanctuaries web site. The Spring 2008 special edition of the sanctuary publication *Stellwagen Banknotes* was dedicated to informing the public about the draft management plan review. The Sanctuary's Advisory Council assisted by notifying affected constituencies of the draft plan's release and the opportunity to comment. Also, a presentation on the draft plan was given to the New England Fisheries Management Council at its June meeting.

The Draft Management Plan was posted on the sanctuary web site during the entire public comment period where it could be viewed or downloaded and printed as either a high or low resolution PDF document. Interested individuals also could request printed copies of the draft plan or electronic versions on CD by contacting the sanctuary office by phone, fax, email or personal visit. More than 300 printed copies of the draft plan were sent to public libraries, academic institutions, sanctuary education partners and government offices in the sanctuary region. A complete listing of those locations was provided on the sanctuary web site to assist public access to the document.

Findings

The sanctuary received a total of 25,529 comments on the draft management plan from all 50 states, two U.S. territories and 48 countries (Figure 128). Obvious duplicates (an identical comment sent multiple times by the same individual) are tallied singularly in this count. Comments were received as letters and email (both individualized and form), signed petitions, testimony at the public meetings and occasional recorded phone messages. Comments came from individuals through the social network *Care 2*, and from environmental interests, recreational fishing interests, commercial fishing interests, recreational diving interests, and other sources including whale watch businesses, academic institutions and government agencies (state and federal). Environmental interests include individuals among the public at large as well as those affiliated with environmental organizations. All comments received were posted on the sanctuary web site for public query and review. Table 59 lists the U.S. territories and countries from which comments were received; they account for 208 of the total number.

Comments came from every state in the nation, but predominantly from the west coast and the eastern third of the country (Figure 129). Comments from environmental interests and the social network came from across the country; comments from user-group interests and others were more regional, tending to come mostly from states in the northeast and from along the eastern seaboard; and, comments from government agencies came from the Washington, DC area and the New England states (Figure 130). Among the New England states (Figure 131), as well as from across the nation (Figure 128), Massachusetts accounted for the highest number of comments received (26% of total). Within Massachusetts, the coastal cities and towns of Gloucester (north shore), the Boston area, Plymouth (south shore) and Amherst (west central) were centers for comment (Figure 132). While not apparent in the figure, Gloucester accounted for most of the comments from commercial fishing interests. The Boston area and Amherst, which host a large number of universities and colleges, accounted for most of the comments from environmental interests. Plymouth accounted for most of the comments from recreational fishing interests.

The vast majority (95%) of the total comments received came from the social network and environmental interests (Figure 133). These comments universally advocated for greater restoration and protection of sanctuary resources. Comments received from user groups were far fewer in number and generally advocated for the *status quo*. Among New England states, the greatest number of comments was received from Massachusetts, especially from environmental interests (Figure 134). Massachusetts also accounted for the highest number of user-group comments. When compared to all states, Massachusetts again displayed the highest number of comments from both environmental and user-group interests (Figure 128). Prohibition of a fishery for sand lance in the sanctuary was the single topic most frequently commented upon and was universally supported.

Conclusions

Management of the Stellwagen Bank National Marine Sanctuary elicits broad national and international interest based on the large number of comments on the draft plan submitted from across the country and from around the world. The vast majority of these comments urged that more be done to restore and protect the sanctuary's resources and indicates that the existence value (i.e., non-market value) of the sanctuary's resources is highly regarded. This overriding expression of interest and concern for this special place validates the sanctuary being designated by Congress as one of the nation's notable marine treasures and denotes strong public

Table 59. List of the 48 countries and two U.S. territories from which comments were received.

Country	Comments Received
United Kingdom	31
Canada	28
France	23
Australia	15
Netherlands	9
Puerto Rico	8
Mexico	7
Spain	7
Germany	6
Italy	5
Scotland	5
Belgium	4
Dominican Rep	4
Switzerland	4
Virgin Islands	4
Brazil	3
China	3
India	3
Columbia	2
Denmark	2
Finland	2
Ireland	2
New Zealand	2
Phillippines	2
Portugal	2
Romania	2
Serbia	2
Argentina	1
Austria	1
Bangladesh	1
Bosnia Herzegovina	1
Bulgaria	1
Costa Rica	1
Croatia	1
Equador	1
Greece	1
Guadeloupe	1
Honduras	1
Hungary	1
Israel	1
Jamaica	1
Japan	1
Lagos	1
Mauritius	1
Nicaragua	1
Russian Federation	1
Singapore	1
Sweden	1
Total	**208**

resolve that the actions recommended in the management plan be implemented.

Responses to Comments and Questions

Review of Management Plan

1. Why is the sanctuary management plan being reviewed now?

The Office of National Marine Sanctuaries (ONMS) is required by the National Marine Sanctuaries Act (NMSA) to review sanctuary management plans to evaluate substantive progress toward implementing the management plan and goals; evaluate the effectiveness of site specific management techniques and strategies; determine necessary revisions to the management plan and regulations; prioritize management objectives, and otherwise meet the requirements of the NMSA. Since the sanctuary's 1992 designation, significant innovations in science, technology, and marine resource management techniques have been made, while challenging new resource management issues have emerged. In addition to updating the sanctuary's now obsolete 1993 management plan, the process provides a vehicle for the ONMS to integrate new tools and practices into site management.

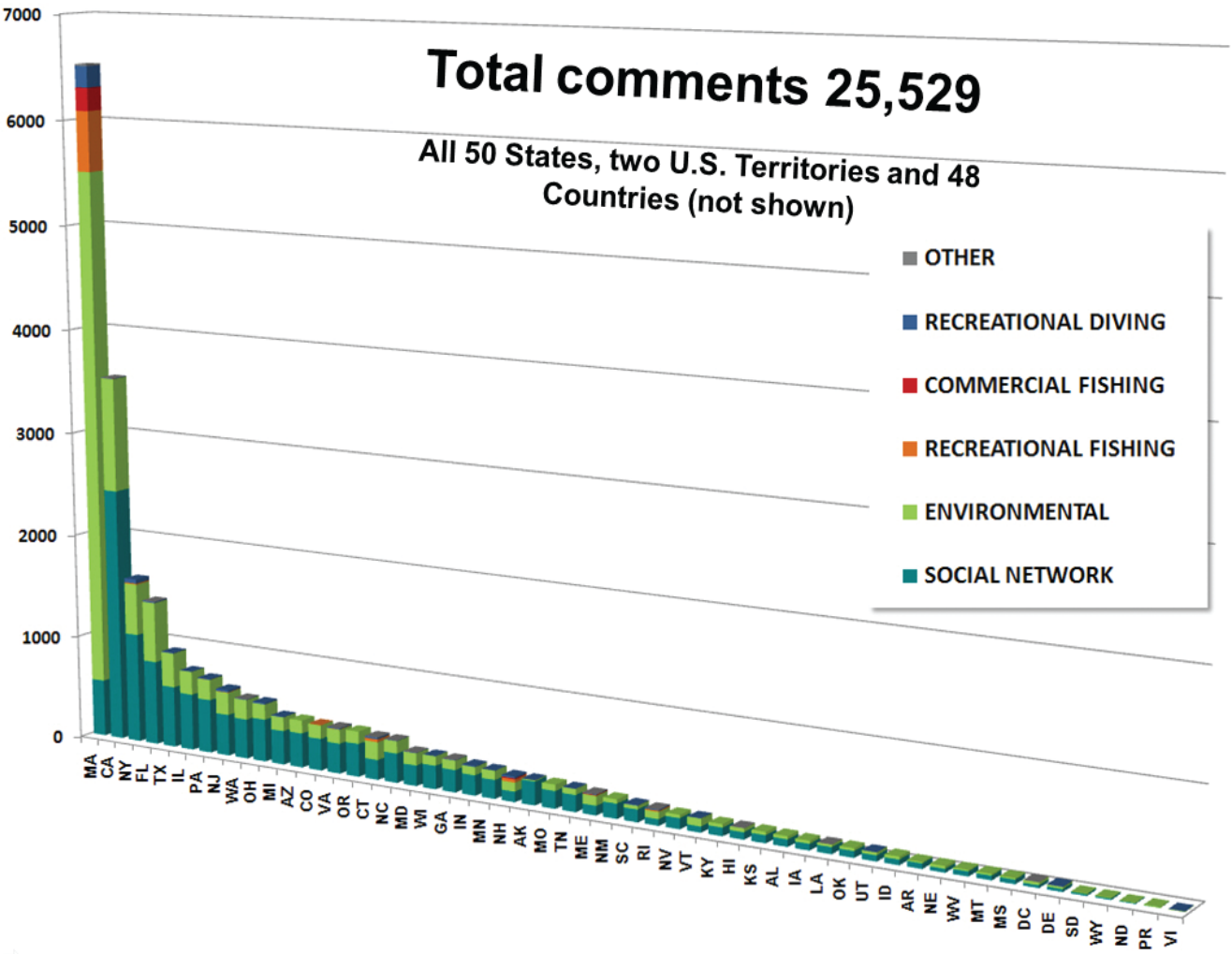
2. Has the management plan been peer-reviewed by scientists?

The recommendations in the management plan are based on the best available information and science including over 800 publications cited, most of which appeared in peer reviewed professional journals. Many of the scientific studies used to develop the plan's findings and recommendations were authored and peer-reviewed by scientists from NOAA, including NOAA Fisheries Service, SBNMS, other federal and state agencies, and researchers from academic institutions. The document, in whole or part, was reviewed by the SBNMS, Office of National Marine Sanctuaries headquarters science and policy staff, NOAA National Centers for Coastal Ocean Science, NOAA Fisheries Service (Office of Protected Resources, Northeast Regional Office, and Northeast Fisheries Science Center), NOAA/National Ocean Service General Counsel, and the U.S Marine Mammal Commission in consultation with its Committee of Scientific Advisors on Marine Mammals. Much of the data used in this management plan were provided by NOAA's Northeast Fisheries Science Center and only after the data had been processed for quality control and assurance.

3. Future management plan review processes should be conducted in a more expedited fashion that takes advantage of stakeholder involvement and ensures that the resultant product is timely and relevant.

Active and informed public participation is a key requirement of sanctuary management, particularly during management plan review. SBNMS recognizes the public as a key management partner and values its input in helping shape and manage sanctuary uses and resources. SBNMS constantly strives to build community awareness of key

Figure 128. Frequency distribution of comments by state and source category across all 50 states and two U.S. Territories.



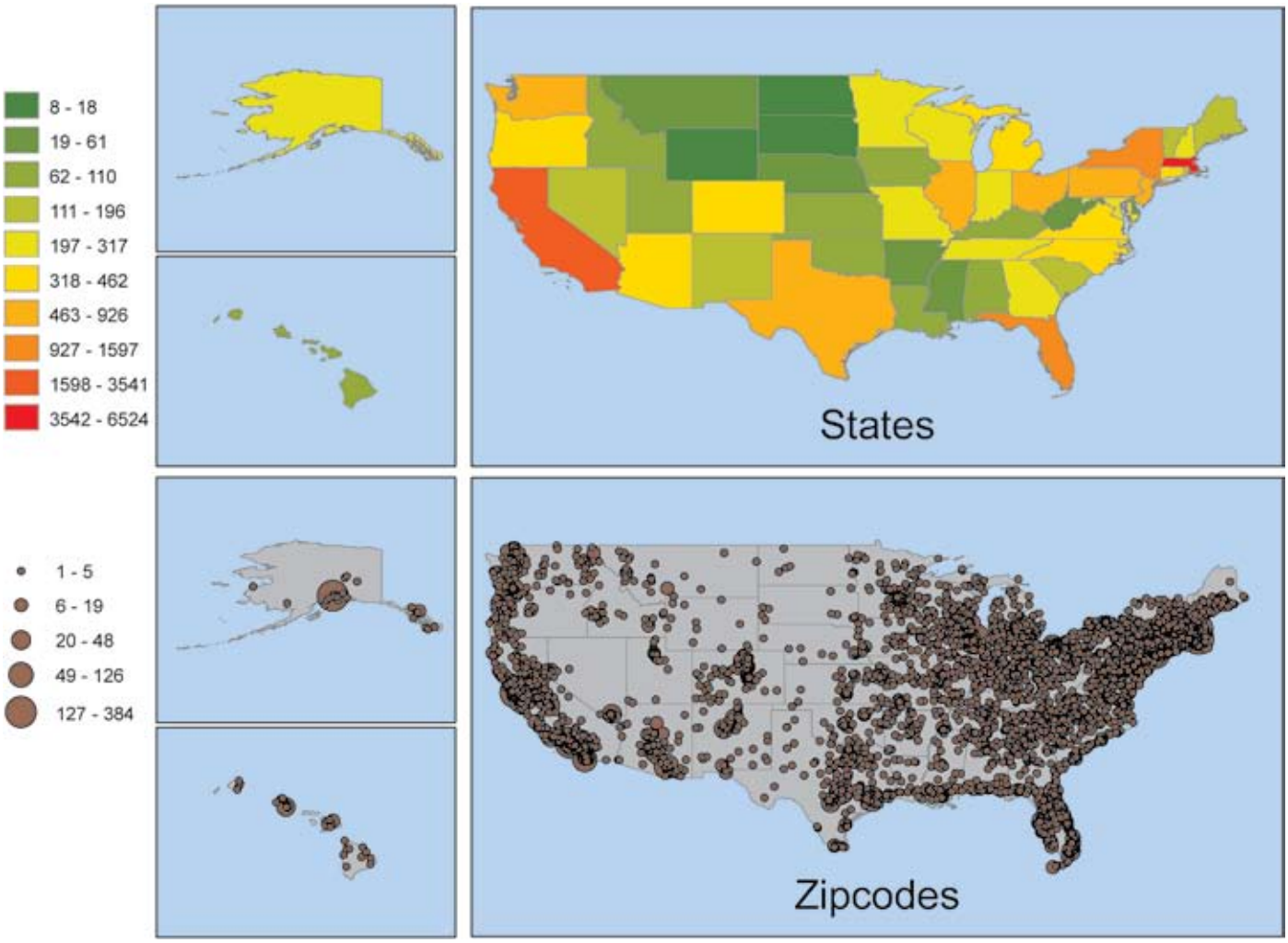
issues and actively engages user and interest groups, agencies and the public in an open dialogue about how best to shape the future direction and management of the sanctuary. The public has had and will continue to have numerous opportunities to participate in the management of the SBNMS.

The management plan revision occurred during the ideal timeframe for study integration (mid-1990s to mid-2000s), taking advantage of the convergence of major research initiatives and assessments, conducted within or overlapping with the sanctuary area, that provided a substantive foundation for analysis. During that timeframe, multiple monitoring programs and projects were in place by a variety of agencies, compiling data records to determine short- and long-term trends in human uses and important environmental variables within the sanctuary. Expanding on that timeframe, historical baselines on the scale of decades to a century became available to enable comparison with current ecosystem conditions and to assess change. Since 2006, funding support for the kinds of analyses and work reported in this document has become less available.

The formal process of sanctuary management plan review also requires multiple agency and multi-level agency review. This was the first formal revision of the management plan since publication of the original plan in 1993 one year after the sanctuary was designated. Much about the sanctuary changed over that lengthy time frame, which required extensive scientific and historical research and policy review to document and accurately characterize the status of sanctuary resources, to ascertain the sanctuary's mandated role and authority in the GoM, and to give appropriate due diligence to data sources. Furthermore, peer-reviewed science can take up to one to two years from time of submission to publication for journals representing conservation and applied ecology (Kareiva *et al.,* 2002).

The multiple interacting authorities and numerous critical issues involved in the management of the sanctuary required a comprehensive approach. The plan's review was purposively exhaustive to establish scientific and historical baselines, complete an environmental audit of sanctuary resource conditions, and request and process extensive input from interested agencies, affected stakeholders

Figure 129. Geographic analysis by state and zip code of number of comments from across the United States.



and the general public throughout the entire management plan review process. This management plan is intended to address priority sanctuary activities over the next five years. Its extensive development lays a firm foundation to guide and help expedite future reviews.

Administrative Capacity

4. Is the SBNMS fully staffed to fulfill its stated mission?

Sanctuary staffing and funding was sufficient to fulfill the stated mandates of the National Marine Sanctuaries Act under terms of the 1993 SBNMS initial management plan, but not today nearly two decades later. The capability of SBNMS to implement the activities presented within this revised management plan necessitates an increase in staffing over the next five years. The Administrative Capacity and Infrastructure Action Plan (Objective ADMIN.1) addresses the need and requirements to hire additional staff. Sanctuary management is not a static activity and site capabilities need to develop in order to deal effectively with the growing complexity and mix of priority issues, the increasing administrative and technical requirements for operations and research, and the demand to keep the public fully appraised and informed about the status of sanctuary resources and activities.

Relationship with Other Agencies and Authorities

5. SBNMS should involve commercial and recreational fishermen in proposed research and management efforts. SBNMS should work cooperatively with the New England Fishery Management Council, NOAA Fisheries Service and the fishing industry to explore alternative resource management strategies.

SBNMS regularly consults with and informs commercial and recreational fishermen in many areas of sanctuary activities involving ecosystem-based sanctuary management, predator-prey studies, ecosystem alteration, marine mammal behavioral disturbance, and gear entanglement among others. SBNMS has routinely written letters of support for collaborative research proposals for projects conducted in the sanctuary by fishermen and their academic partners and has directly collaborated with fishermen on projects

Figure 130. Geographic analysis by state and source category of number of comments from across the United States.

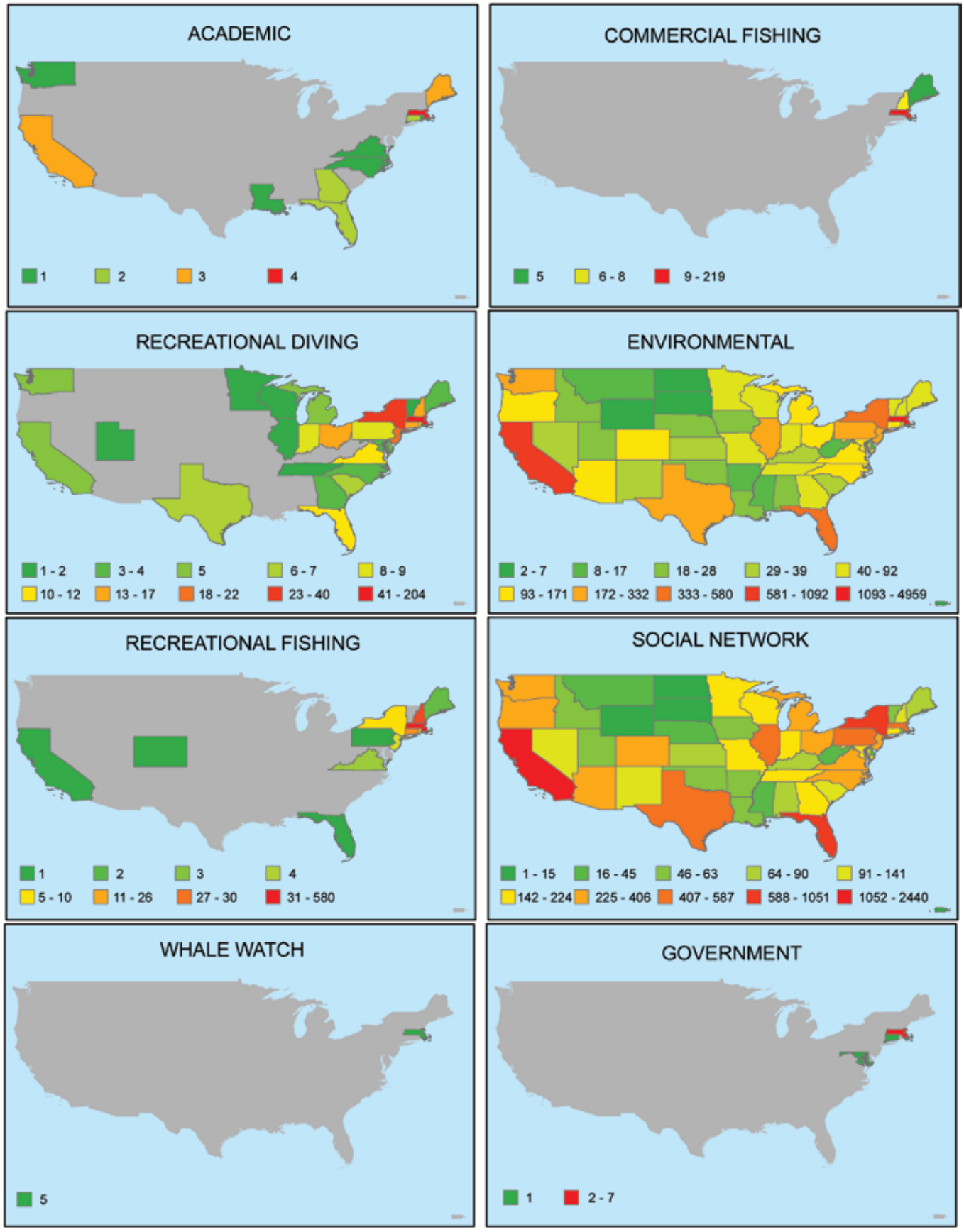
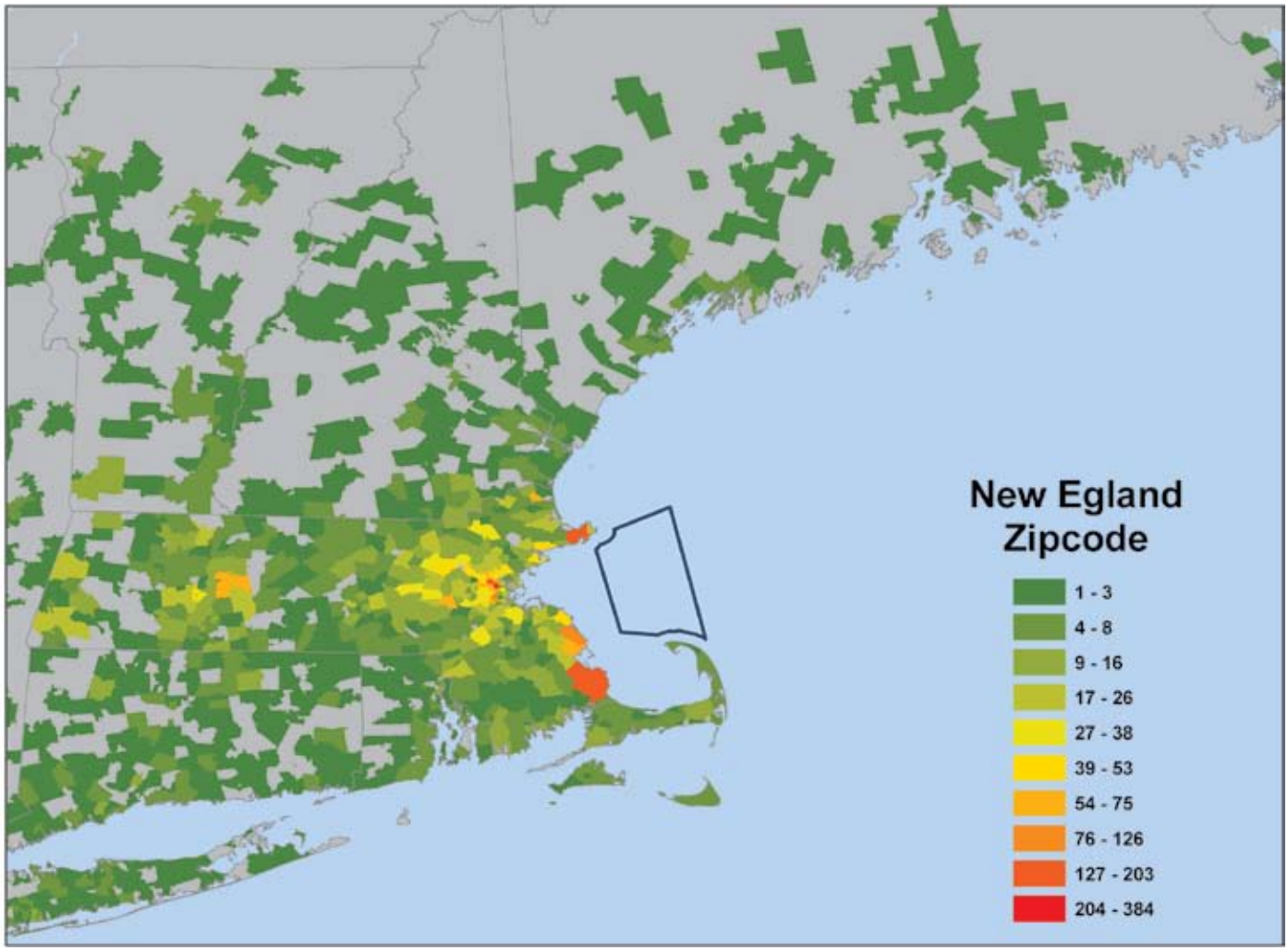


Figure 131. Geographic analysis by zip code of comments from the New England states.

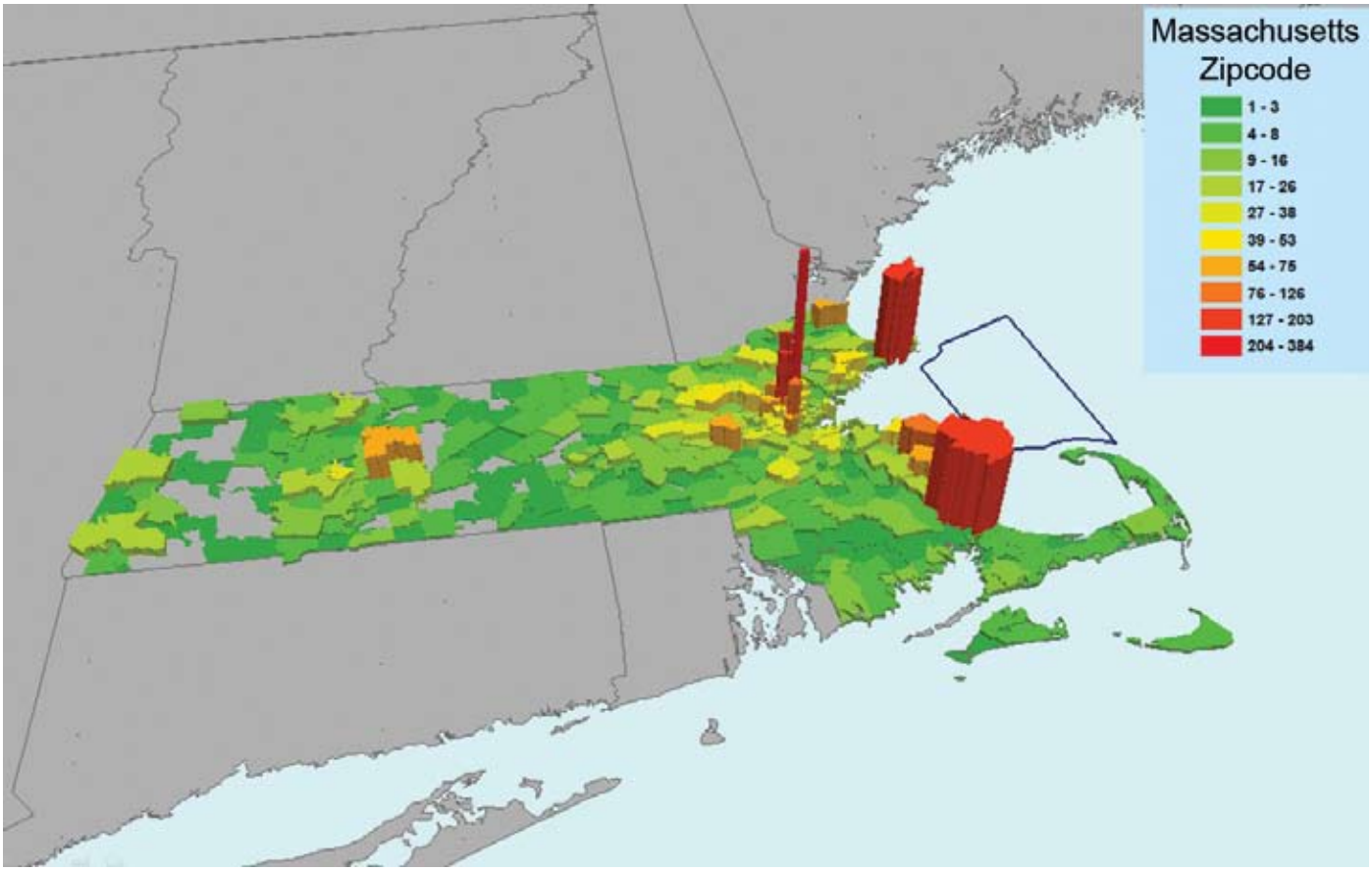


to remove marine debris from the sanctuary. Representatives from the fishing community are directly involved in the sanctuary's Advisory Council; and there are many opportunities for fishermen to participate in open dialogue with sanctuary personnel individually, at public meetings and in working groups. The sanctuary regularly exhibits at the Massachusetts Lobstermen's Association's Annual Weekend and Lobster Tradeshow as well as Fish Expo. SBNMS also regularly meets with regional and national representatives from NOAA Fisheries Service and the New England Fishery Management Council (NEFMC) to discuss fisheries management and other issues directly affecting fishermen, including strategies to aid both fishermen and fish to create a viable, environmentally sustainable fishery within the sanctuary and the greater Gulf of Maine (GoM).

6. **SBNMS should actively utilize other avenues outside of the Management Plan Review (MPR) process and Sanctuary-specific regulations to advance the sanctuary's objectives, including working with NOAA's Atlantic Large Whale Take Reduction Team and actively engaging in the NEFMC actions and development of fishery management plans.**

Comprehensive protection of sanctuary resources requires that the SBNMS work with many partners, locally, regionally, nationally and internationally. For example at the regional level, the sanctuary works closely with the NOAA Fisheries Service to ensure protection of whales and the sustainable harvest of fishery resources. Sanctuary staff are long-standing members of the Atlantic Large Whale Take Reduction Team and the NEFMC Habitat Advisory Panel. At the international level, SBNMS has developed the first-ever sister sanctuary agreement with the Dominican Republic to improve protection of humpback whales in their Caribbean breeding ground as well as in the sanctuary which serves as a major feeding and nursery area. Several strategies in the Interagency Cooperation Action Plan address the need for

Figure 132. Geographic analysis by zip code of number of comments from Massachusetts.



increased cooperation which NOAA intends on implementing.

Education and Outreach

7. The outreach program must be expanded to include local libraries and more displays throughout the state.

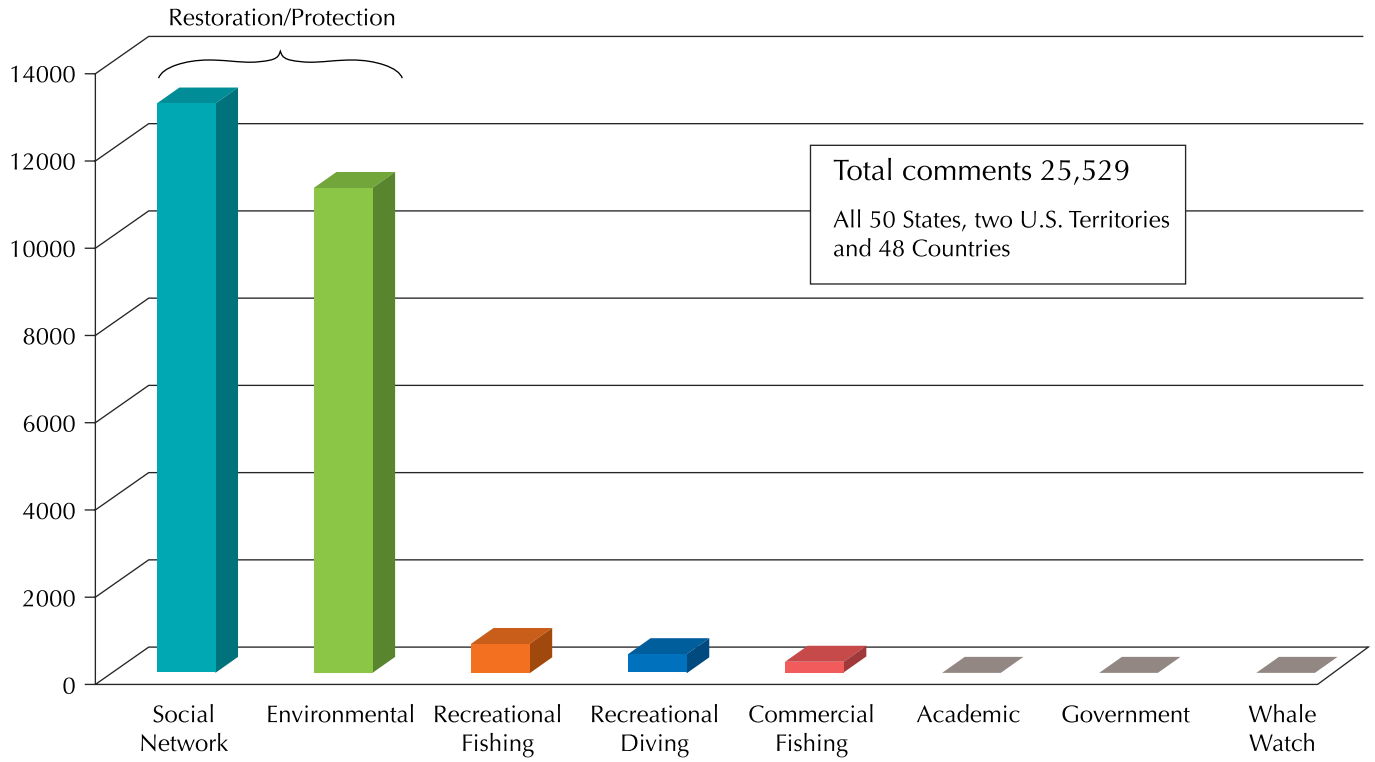
Public outreach and education is a critical component of the overall SBNMS mission and activities. There are many forms of outreach, including displays at libraries, visitor centers, museums, aquariums, etc. that the sanctuary has implemented. SBNMS has had educational displays in several locations throughout coastal areas of Massachusetts including Provincetown, Gloucester, Scituate and Boston. Current funding restrictions have resulted in the closing of exhibits or the removal of displays in a number of these places, but the SBNMS intends to restore and enhance these displays as well as create new ones in the near future. The Public Outreach and Education Action Plan (Objective POE.1) addresses expansion of the outreach program at the sanctuary.

Resource States

8. Why isn't the protection of seabirds a higher priority in the Management Plan?

The protection of seabirds is an important component of the sanctuary management plan. An estimated 60 species of seabird have been recorded in the wider GoM with more than half of these, 34 species, identified within the sanctuary, including the federally endangered roseate tern. Several studies have been conducted to determine seabird population, distribution, density, seasonal use patterns, and natural and human threats to these birds. Much of this research is described in the management plan. In its capacity as the U.S. partner of BirdLife International, the Massachusetts Audubon Society (Mass Audubon) has designated Stellwagen Bank an Important Bird Area. SBNMS regularly provides vessel support for the Winter Bird Count conducted annually in the southern part of the sanctuary by Mass Audubon. Sanctuary regulations prohibit the taking of any seabird in or above the sanctuary, except as permitted by the Migratory Bird Treaty Act, which also makes it unlawful "to pursue, hunt, take, capture, or kill…any migratory bird, any part, nest or egg" or any product of any such bird protected by the Act. A priority goal of the Ecosystem-Based Sanctuary Management Action Plan is to protect the ecological integrity of the sanctuary, which includes ecological processes, habitat diversity, and prominent species such as seabirds. Section IV. Resource States summarizes current knowledge of seabirds in the sanctuary. The priority for protecting seabirds in the sanctuary may increase in out years as research becomes directed at understanding seabird role and explicit contribution to sanctuary ecosystem function.

Figure 133. Frequency distribution of total comments by source category.



9. Is the protection of benthic invertebrates a component of the management plan?

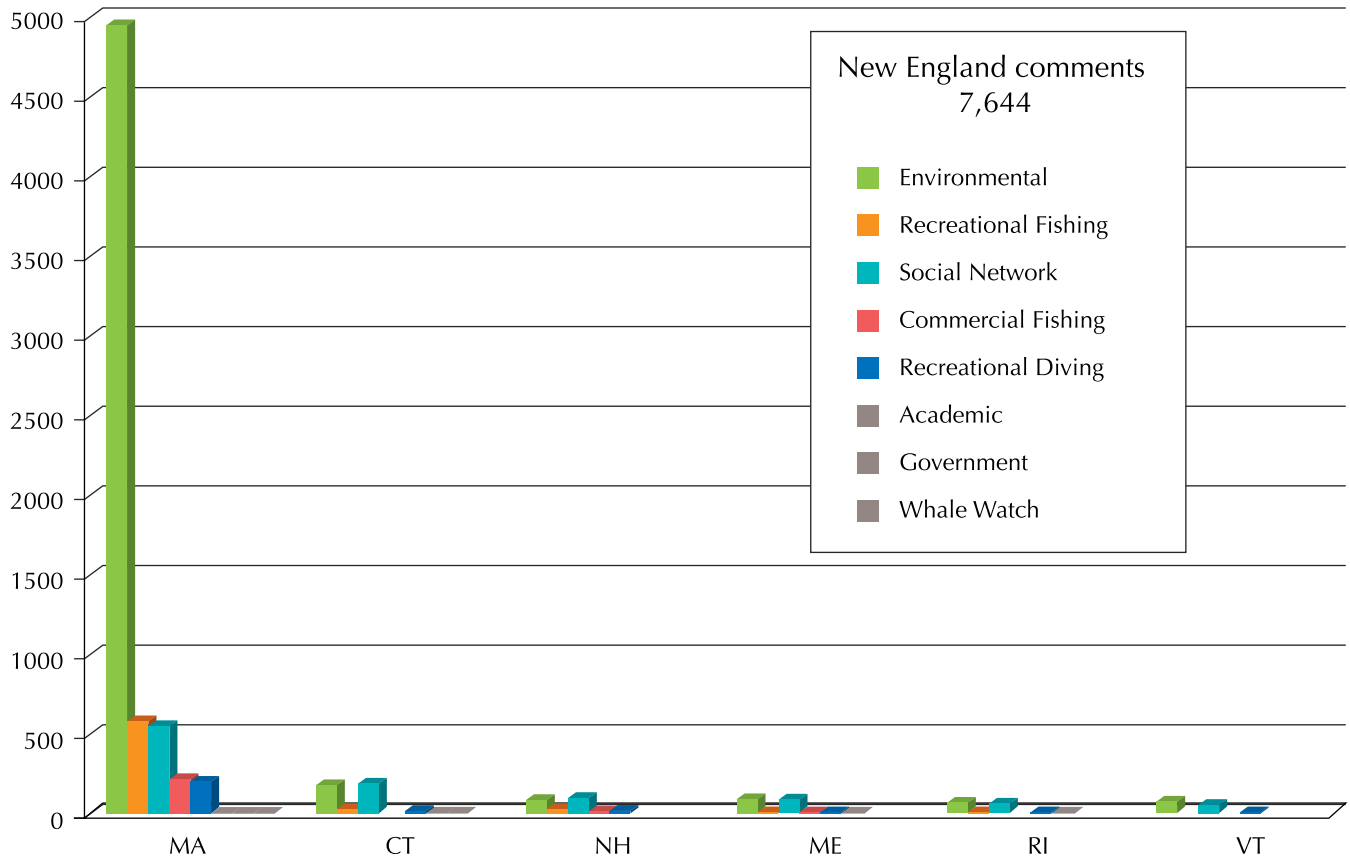
The sanctuary's benthic invertebrates include species from nearly all of the GoM invertebrate phyla. These animals live in (infauna) or on (epifauna) the seafloor, although most species have pelagic larvae. Characterized as "sessile" (sedentary or attached) or "motile" (free moving), benthic invertebrates range in size from little know microscopic forms (hydroid medusa) to the more common larger macroscopic organisms (e.g. scallops, lobsters). As a wide variety of substrates are present in the SBNMS (mud, sand, gravel, piled boulder reefs and bedrock habitats), the sanctuary provides a base for burial, attachment or shelter by many different types and forms of invertebrates. Structure-forming epifaunal invertebrates such as sponges and anemones provide critical habitat for juvenile fish of many species, while the greater invertebrate community provides an important source of food for many fish. Molluscs such as clams and mussels also serve to filter plankton and organic particles from the water column. Sanctuary regulations prohibit drilling into, dredging or otherwise altering the seabed of the SBNMS; or constructing, placing or abandoning any structure or material or other matter on the seabed of the sanctuary except as an incidental result of 1) anchoring vessels; 2) traditional fishing operations; or 3) installation of navigational aids. However, bottom contact fishing such as trawling and dredging can greatly impact the benthic invertebrate component of the sanctuary through direct mechanical disturbance and by indirect bycatch mortality. This source of disturbance is addressed in Section IV. Resource States, Seafloor as Habitat subsection, and the Ecosystem Alteration Action Plan (Objective EA.2) which seeks to reduce the alteration of benthic habitat by mobile fishing. The Ecosystem-Based Sanctuary Management Action Plan (Objective EBSM.3) further seeks to protect the ecological integrity of the sanctuary which includes ecological processes, habitat diversity, and important benthic invertebrate species.

10. SBNMS should include sea turtle entanglement in fishing gear as a priority for better management.

The management plan recognizes the four species of sea turtles that are found in the SBNMS: Kemp's Ridley, Leatherback, Loggerhead and Green. The Leatherback and Loggerhead are the two most commonly reported in the sanctuary. There are many threats to sea turtles including destruction and alteration of foraging habitats, incidental capture in commercial and recreational fisheries, entanglement in and ingestion of marine debris, and vessel strikes. However, there is very little documentation of human impacts to sea turtles in the vicinity of the sanctuary. NOAA Fisheries Service has not recorded any sea turtles being taken in gillnets or otter trawls fished within the sanctuary since 1994. To effectively address all threats to marine turtles, both NOAA Fisheries Service and the US Fish and Wildlife Service have developed recovery plans to direct research and management efforts for each species.

Sanctuary regulations prohibit the taking of any marine reptile in the sanctuary, except as permitted by the Endan-

Figure 134. Frequency distribution of comments from New England by state and source category.



gered Species Act (ESA), or possessing within the sanctuary except as necessary for valid law enforcement purposes, any marine reptile taken in violation of the ESA. The Loggerhead is listed as "threatened" under the ESA, while the other three species are listed as "endangered." This listing makes it illegal to harm, harass of kill any sea turtles, hatchlings or their eggs. It is also illegal to import, sell or transport turtles or their products. Further, all sea turtle species are listed in the World Conservation Union and Natural Resources Red List as endangered or vulnerable; included in Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora; and listed in the Convention on the Conservation of Migratory Species of Wild Animals.

Status of Human Use

11. A further definition of "human impacts" is needed to fulfill the goal of true resource protection. Different human activities have different potential impacts, and this should be more clearly delineated.

SBNMS attracts extensive commercial, recreational, scientific and educational activities, and is heavily utilized throughout all seasons. The many ports, large and small, that rim Massachusetts Bay offer direct access. Located in the backyard of almost five million people living in the greater Boston metropolitan area, the sanctuary is exposed to the stresses of human population, development and use. Control or mitigation of the impacts of this cumulative use from human activities is a major challenge and an ultimate goal of the SBNMS. The resource protection goals of the sanctuary as articulated in the National Marine Sanctuaries Act include comprehensive conservation and management to maintain natural biological communities, and to protect, restore and enhance natural habitats, populations and ecological processes. SBNMS recognizes that individual and collective human uses have different impacts upon these resources, habitats and processes and strives to develop management goals and action plans that allow human activities to occur in a sustainable, collaborative way with resource protection. Section V. "Status of Human Use" and Section VI. "Summation" in the management plan offers a detailed overview of human uses in the sanctuary.

Commercial Fishing

12. Is fishing allowed in the sanctuary?

Both commercial and recreational fishing are allowed in the sanctuary. NOAA Fisheries Service together with the NEFMC manages fisheries in New England waters between three to 200 nautical miles from shore, which area includes SBNMS. Numerous restrictions on fishing put in place by NOAA Fisheries Service affect fishing in sanctuary waters,

including rolling closures for groundfishing, catch limits for individual species, and a large, indefinite year-round closure in the GoM that overlaps 22% of the sanctuary area. Many of the fishing restrictions that apply to the sanctuary are detailed in the Current Protection subsection for each of the resource states in Section IV. Appendix S illustrates the zonal nature of several of these restrictions.

13. Does the ONMS have the authority to regulate fishing in the sanctuary under the NMSA? Will any fisheries management proposals in the management plan challenge the New England Fishery Management Council's authority over the fish populations within the sanctuary?

The ONMS has the authority to regulate fishing under the National Marine Sanctuaries Act (NMSA). Section 304(a)(5) of the NMSA provides sanctuaries the 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 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 (NEFMC in the northeast region) the opportunity to prepare draft sanctuary fishing regulations. The Council has 120 days to act upon the request by the sanctuary and is to use as guidance the national standards of section 301(a) of the Magnuson Fishery Conservation and Management 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 draft sanctuary regulations under the authority of the NMSA.

The scope of the sanctuary's regulatory authority is further defined in its designation document. A designation document may need to be changed to allow for some regulations. Fishing is not an activity currently listed as subject to regulation in the SBNMS designation document, which would have to be amended if the sanctuary were to regulate fishing. The NMSA has specific procedures and requirements for changing a term of designation. Under guidance offered by the management plan and pursuant to applicable laws, the sanctuary would work closely and collaboratively with NOAA Fisheries Service, the NEFMC and other fishing interests and authorities to ensure the environmentally sustainable management of fishery resources within the sanctuary. Fuller details regarding regulatory coordination between the ONMS and federal fishery management agencies are provided in Appendix H of the management plan.

14. Is the SBNMS trying to ban commercial fishing? Does the SBNMS want to close down parts of the sanctuary to commercial and/or recreational fishing?

Given the unique roles that sanctuaries can play in overall resource conservation and management, it is reasonable to anticipate the management plan would advocate for a higher level of conservation of living marine resources in the SBNMS than may apply broadly through the whole of the GoM. And, it is reasonable to expect that human uses such as fishing would be done in a manner that is environmentally sustainable. The concept of environmentally sustainable fishing as advanced in the management plan is compatible with the goal of managing sanctuary resources for biodiversity conservation. An environmentally sustainable fishery protects the fish and the environment in which they live while allowing responsible use of the species that come from that environment. Managing the sanctuary for biodiversity conservation does not imply that fishing should be eliminated and may require the sanctuary to work with its partners, including the NEFMC and NOAA Fisheries Service, to modify fishing within the sanctuary in order to conserve biodiversity. Section III. Sanctuary Setting in the management plan offers a Sidebar that elaborates on the concept of environmentally sustainable fishing.

15. Are the fishing data outdated?

SBNMS uses the best, most current fishing data possible for analyzing both the state of the fisheries within the sanctuary and the impacts of fishing on sanctuary resources and habitats. Much of this data is subjected to a lengthy process of quality assurance and quality control (QA/QC) between when it was sampled and when it becomes available for analysis. Much of this data derives from the long-term monitoring projects and scientific studies by the NOAA Fisheries Service, with important information also drawn from the NEFMC, fishermen's organizations and individual fishermen as well. Most of the scientific studies cited were peer reviewed and published in professional journals. Peer review and eventual publication of these journal articles can be a lengthy process, exceeding a year or more to conduct. Once the data are available and analyzed, directly by government scientist or indirectly by journal author, the results are incorporated into the draft management plan, which in turn is subject to lengthy public and agency review preliminary to publication. The sum of these various processes can result in the management plan being published several years after the date that the data were initially collected.

16. Has fishing removed all of the big, old individuals? Why is this important?

Studies indicate that fishing has removed almost all of the large, "old growth" individuals of 15 ecologically and commercially important species in the sanctuary. This is important because high numbers of larger, older fish are what ultimately sustain fish populations - large fish produce many more offspring than small fish. Larger fish also devote a greater proportion of energy stores to egg production and produce healthier eggs and larvae with greater likelihood

of survival than do smaller fish. Finally, the removal of big old fish in great numbers may alter the food web and other aspects of community structure within the sanctuary. Historic truncation of the population size/age structure of these fishes is the consequence of chronic overfishing and the failure to meet target fishing mortalities rather than a consequence of management policy. Contemporary fishery objectives advocate a much larger range of ages in the spawning population and much larger reproductive contributions from larger fish.

17. Will there be more research on bycatch in the SBNMS?

Destructive bycatch is a serious issue within the sanctuary and is continuing to be assessed by fishery observers and scientists from the NOAA Fisheries Service, research institutions and universities. Fishermen also provide important input on this problem through collaborative research with academic partners. Fishery bycatch remains a significant focal point for future inquiry and possible change in fishing practices throughout the sanctuary. The transition to catch share management of fisheries in New England waters in May 2010 should help alleviate some of the bycatch problem. Catch share management would allow fishermen who are members of sectors to retain and sell all the fish they catch rather than having to adhere to catch limits on target species and to discard all non-target species, which is the current practice.

18. Will the SBNMS offer fishermen any incentives for gear restrictions?

Incentives for gear restrictions and other alterations or proposals to directly aid fishermen are not within the authority of the SBNMS, but could be considered by the NEFMC in concert with the NOAA Fisheries Service under the Magnuson Fishery Conservation and Management Act (MFCMA).

19. Why doesn't the plan acknowledge that the survival of fishing communities is dependent on continued access to Stellwagen Bank?

SBNMS recognizes that fishing communities have been and continue to be tied to fisheries resources that lie within the sanctuary's borders, but the extent of dependency has not been determined. Section V. Status of Human Use in the management plan begins to explore that dependency by drawing the relationship between fish catches made in the sanctuary and their port of landing. The management plan proposes neither specific regulations nor mitigations that would affect fishing and therefore has made no explicit analysis of the degree to which fishing communities would be affected. Input from fishing communities is critical to environmentally sustainable management of fishery resources within the sanctuary and has been an important consideration in the development of the plan.

20. Why isn't there a separate position for a "Sanctuary-to-Fishermen Mediator"?

SBNMS staff has ongoing direct access to and consultation with many individual fishermen and fishing organizations to aid in management of the sanctuary, including formal representation by commercial and recreational fishermen on the Sanctuary Advisory Council. The sanctuary also serves on advisory panels of the NEFMC and works closely with NOAA Fisheries Service on regional and national levels.

21. Why are commercial fishermen limited to 48 days at sea but recreational fishermen are not?

Setting the number of days at sea that both commercial and recreational fishermen are allocated is not a responsibility of the SBNMS or the Office of National Marine Sanctuaries. These limits are set through scientific studies and policy decisions made by the NOAA Fisheries Service and the NEFMC with the purpose of rebuilding fish stocks and ending overfishing.

Whale Watching

22. Does the management plan adequately regulate the conduct of recreational and commercial whale-watching boats?

SBNMS is one of the top-ten premiere whale-watching locations in the world, attracting more than one million visitors each year, with estimated total direct sales of more than $30 million. Commercial whale watching is conducted in the sanctuary from April through October. At least 13 dedicated whale watching businesses with between 18-23 boats operate from six Massachusetts ports. At present, there are no precise assessments of the number of recreational boats that engage in whale watching in the sanctuary, but the general consensus is that the number is high.

All whales, dolphins and porpoises in the northeast region are federally protected by the Marine Mammal Protection Act (MMPA), while 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 also includes any "negligent or intentional act which results in the disturbing or molesting of marine mammals." In addition, NOAA's voluntary operational guidelines for both commercial and recreational whale watching in the northeast region are intended to avoid any harassment or injury to whales and have been in place since 1999. These guidelines, developed collaboratively with the whale watching industry, NOAA Fisheries Service and SBNMS include a series of recommended vessel speeds within various set distances to whales. However, industry compliance with these guidelines has been measured and found to be very poor.

The management plan includes several initiatives involving whale watching. Among them, these actions include developing and implementing management measures that mitigate behavioral disturbance and risk to whales due to vessel speed and close approach, creation of a research program to better understand vessel interactions with whales, and

development of a sanctuary education partnership with commercial whale watch companies. Regulation of whale watching would be considered as part of that management mix. Refer to the Marine Mammal Behavioral Disturbance Action Plan (Objective MMBD.1) for elaboration.

23. Will SBNMS partner with the whale watching industry to develop better regulations for commercial whale watch vessels?

SBNMS has had an informal relationship with the whale-watching industry for the many years since the sanctuary's designation in 1992, including the industry's representation on the Sanctuary Advisory Council. The sanctuary seeks to formalize that relationship through formal accord. SBNMS recognizes that whale watching is an important commercial and recreational use of the sanctuary and that commercial whale watch boats are the primary platforms for the experiential education of upwards of a million visitors annually to the sanctuary. Naturalists on the whale watch boats also have a long history of collecting critically useful information that contributes to the sanctuary's research base and understanding of whale behavior and biology. The Marine Mammal Behavioral Disturbance Action Plan includes several collaborative efforts with whale watch companies to better protect whales from behavioral disturbance and vessel strikes and to better educate the public about the sanctuary.

Recreational Diving

24. Why aren't recreational divers more involved in sanctuary resource protection, preservation and documentation? Will the SBNMS implement a permitting process for recreational divers?

SBNMS welcomes assistance from divers interested in resource protection, preservation, and documentation. The management plan does not contain regulations requiring permits or restricting diver access to the sanctuary beyond current sanctuary regulations. Current sanctuary regulations do not require a permit nor prohibit diving anywhere in the sanctuary; however, divers must not move, remove, or injure or attempt to move, remove, or injure a sanctuary historical resource. Divers interested in helping the sanctuary with resource characterization are encouraged to send in dive reports describing where they visited and what they saw. Divers who encounter a maritime heritage resource while in the sanctuary can assist with sanctuary documentation efforts by photographing the resource, noting its position, and then providing the information to the sanctuary. Divers can express their interest and concerns to the sanctuary by communicating with the diving representative on the Sanctuary Advisory Council.

Maritime Transportation

25. Shouldn't LNG ports and their associated underwater noise be banned?

The construction of a deepwater Liquid Natural Gas (LNG) port is a prohibited activity within the sanctuary by virtue of the prohibition against alteration of the seafloor and discharge of matter. Two separate LNG deep water ports (and their associated pipelines, mooring buoys, risers and other equipment) have been sited just outside of the SBNMS borders. NOAA determined that they constitute a significant threat to sanctuary resources, and several mitigation measures have been adopted to reduce the risks to whales, fish, the benthic environment, water quality and aesthetics. One of these measures has been the placement of nineteen passive acoustic monitoring buoys to monitor levels of underwater noise produced during port construction and operation and compare these levels to measures made before the ports were in place. Thus far this monitoring effort has indicated that the actual sound levels associated with the ports compare well to those predicted and have not detected any large-scale changes in the distribution of vocally-active marine species (two of the main objectives for these efforts). However, monitoring is scheduled to continue through 2015. In addition, a separate acoustic array in the shipping lane is being used to detect calling right whales and give information regarding their presence in the lanes to transiting LNG vessels. The LNG vessels are then mandated to slow their speeds to ten knots or less and heighten their visual awareness in areas where whales were heard.

26. SBNMS should charge all tanker ships and cruise lines that transit through the sanctuary a fee. Ships that comply with the speed restrictions should receive a partial return of the fee.

A myriad of commercial vessels, including large container ships, tankers, LNG carriers, cruise ships, military vessels, research boats, whale watch boats, ferries and fishing vessels, transit through the sanctuary's waters using one or more of the many ports that surround both Massachusetts Bay and Cape Cod Bay. Many vessels arrive in Boston from Europe, Asia and South America, either transiting directly through the sanctuary or skirting its edges after travelling through the Cape Cod Canal. SBNMS is not authorized to charge or return fees for the use of its waters for maritime transportation. But SBNMS constantly monitors the movement and speed of all large commercial ships passing through the sanctuary by means of the U.S. Coast Guard's Automatic Identification System (AIS). These data have been used extensively by SBNMS and its partners to characterize and understand traffic patterns and vessel speed within the sanctuary. Further, the SBNMS worked with its NOAA partners, U.S. Coast Guard, International Maritime Organization (IMO) and industry groups to shift the Traffic Separation Scheme (TSS or. shipping lanes) that crosses the sanctuary into the Port of Boston. That shift occurred in July 2007 and is estimated to reduce the risk of whales being struck by ships using the TSS by 81% for all baleen whales (humpback, fin and minke) and 58% for the critically endangered North Atlantic Right whale.

Prohibited Uses

27. Overflights should be restricted to 1,000 feet altitude. Cables and pipelines should be banned.

SBNMS has no overflight restrictions governing airplane activity. However, the NOAA Northeast Regional Guidelines on approach to marine mammals (i.e., whale watching guidelines) cover both vessels and aircraft. Refer to the background discussion provided under Objective MMBD.1 in the Marine Mammal Behavioral Disturbance action plan. The NOAA approach guidelines stipulate that aircraft should maintain a minimum altitude of 1,000 feet over water. However, the NOAA approach guidelines are not reflected in Federal Aviation Administration (FAA) publications. Management plan Objective MMBD.2, Activity 3.2.1 specifies that NOAA should approach the FAA to change FAA overflight regulations. The laying of submerged cables and pipelines is a prohibited activity under sanctuary's regulations. However, special use permits/authorizations may be issued on a case-by-case basis, as was the situation with the trans-Atlantic high-capacity fiber optic cable that was laid across 12.1 miles of seafloor in the northern part of the sanctuary in 2001. As a condition of the special use permit/authorization, the possible impacts of this cable to the seafloor and the sanctuary's living resources are being studied over a ten year period.

Economic Value

28. What is the current value of the party charter fleet, the whale watching industry, recreational fishing, commercial fishing, tourism, etc. in the SBNMS?

Current total economic value of these activities in the SBNMS has not been calculated. Over one million people per year used the sanctuary's waters in some way for profit or pleasure, annually generating $45-50 million of direct sales revenue (about $20 million each for commercial fishing and whale watching) over 1996-2005. However, the indirect, induced and total economic impact of these commercial activities has not been determined nor has the total expenditures for private recreational fishing and boating in the sanctuary been evaluated. In other words, the multiplying effect of the direct sales value of these industries' products and services through the economy has not been assessed. Likewise, there are no alternative estimates available to gauge the intrinsic value that the general public places on the sanctuary's natural and cultural resources remaining *in situ*. See Section V "Status of Human Use" in the management plan for information on what's known about the value of commercial activities in the sanctuary.

Climate Change

29. Are climate change issues a priority in the DMP?

The current and future impacts of climate change are extremely important to the protection and management of sanctuary resources and related human uses, and will undoubtedly influence most if not all activities in the sanctuary and within the wider GoM. Climate change and the associated effects of ocean acidification may have the most unpredictable effects on community structure and trophic interactions in the sanctuary, where many species are at the southern or northern limit of their distributions. Ocean acidification is caused by the oceanic uptake of anthropogenically released CO_2, which in its dissolved form is carbonic acid. Small increases in water temperature may result in significant increases in more warm temperate species and the loss of cold water taxa. Increasing ocean acidity may interfere with the ability of organisms to form calcium carbonate structures (e.g., tests and shells) and will alter fundamental chemical balances that are critical to ocean life.

Although the precise effects of these environmental threats are still uncertain there is ample evidence that sea temperatures and sea level are both on the rise. High priority areas for research on these issues include high latitude regions. The state of ocean acidification in the northeast U.S. continental shelf ecosystem is largely undefined and in need of understanding. The sanctuary is working with NOAA Fisheries Service in preparation of the NOAA Northeast Coast Ocean Acidification Research Plan, one of several such regional plans being prepared around the nation. The sanctuary will be much better prepared to address the effects of climate change and ocean acidification in out years and in future management plan revision as precise findings become available.

The climate change and ocean acidification issues arose in years subsequent to substantive preparation of this management plan and are not addressed specifically in this document. However, this document provides extensive baselines that will help determine trends. The effects of climate change and ocean acidification will be a high priority of sanctuary management for the foreseeable future.

Action Plans

30. How will the actual costs of the action plans be established?

SBNMS has a limited budget and cannot simultaneously address all of the issues that it faces, nor fund all strategies within each Action Plan. However, sanctuary staff developed budgets for each action plan by evaluating the resources necessary for their complete implementation. Staff estimated the programmatic cost required to address each strategy, including the number of field operation days required (boat, air, dive), as well as materials, supplies and travel time needed. Some action plan strategies will be contracted to other parties, in which case the total cost of the contract was included in the budget estimate.

The estimated annual costs for each action plan are presented in this document. General SBNMS funding is derived primarily from yearly federal appropriations. Sanctuary relationships with other sources including local and state agencies and nonprofit organizations and foundations provide collaborative opportunities for extracurricular grant support for research, outreach and educational programs. However, funding associated with extracurricular grant support is speculative and not included in these cost estimates.

31. Are these Action Plans prioritized in any way?

Action plans are detailed plans for addressing an issue or problem in the SBNMS over the next five years. They are a collection of strategies and activities sharing common management objectives that provide a structure and process for implementation. All of the SBNMS action plans are important for the protection and management of sanctuary resources. The actual timing and effort for action plan activities is based on several factors including funding, staff availability, partnering opportunities, season, ship time, reaction to a specific event, etc. The strategies within each action plan were prioritized (High, Medium, Low) taking into account advisory council recommendations, budget constraints, feasibility and prerequisites for implementation. In lieu of the generally poor condition of sanctuary resources, most strategies in the action plans are ranked high because they are considered imperative and either underway or address the sanctuary's immediate needs.

32. A new action plan should be added to include a comprehensive SBNMS science plan.

Scientific research is a key component of the ongoing efforts of the SBNMS and its many partners. Studies that focus on whale identification, behavior, feeding, and impacts from human activities; predator-prey relationships; ecosystem based sanctuary management; loss of habitats; water quality; maritime heritage; etc. are ongoing and spread among many sanctuary programs, action plans and partner activities. While a comprehensive science action plan is not included in the management plan, the Ecosystem-Based Sanctuary Management action plan (Objective EBSM.1, Activity 1.1.1) stipulates development of a science plan that details the research, monitoring and modeling activities necessary to carry out the sanctuary mission and informs management decisions. Further, this action plan recommends the establishment of a science advisory working group, the convening of a sanctuary science symposium, and the formation of a science consortium as future strategies.

Interagency Cooperation

33. Why should SBNMS be managed any differently than the rest of the Gulf of Maine?

SBNMS is the only marine protected area in the GoM that was established by Congress. It is one of only thirteen national marine sanctuaries so designated by Congress across the entire United States. It hosts some of the largest aggregations of endangered whales (e.g. humpback, fin and North Atlantic right whales) along the eastern seaboard of the United States. It is a designated Important Bird Area by BirdLife International in recognition of the exceptional seabird habitat it provides. It is a hotspot for fish species diversity in the GoM. And it protects numerous nationally significant historic shipwrecks that are listed on the National Register of Historic Places. Additionally, management of SBNMS elicits broad national and international interest, as evidenced by the large number of comments on the draft of this plan submitted from every state across this country and from around the world.

This overriding expression of interest and concern for this special place validates the sanctuary being designated by Congress as one of the nation's notable marine treasures and denotes strong public resolve that the actions recommended in this plan be implemented. Given its Congressional status unique to the GoM, the remarkable living and cultural resources it encompasses, the substantial expression of nation-wide support and interest it has received, and the unique role that the sanctuary can play in overall resource management in the region, a higher standard of conservation for living marine resources should apply to the sanctuary than would apply broadly throughout the whole GoM.

34. Doesn't the regulation of cod stocks by SBNMS pose a jurisdictional conflict with NOAA Fisheries?

SBNMS does not regulate the stocks of any species of fish within the sanctuary's boundaries or in the greater GoM. However, the ecological role of fish species such as cod is crucially important to the functioning of biological communities and the maintenance of ecological integrity within the sanctuary. Both the NOAA Fisheries Service and SBNMS take an ecosystem approach to managing fisheries and sanctuary resources respectively and when working in a complementary fashion, both agencies can advance the goal of conserving and restoring the ecological integrity of this important marine area.

Compatibility Determination

35. All existing and proposed activities and uses should be examined for compatibility with the goals of the SBNMS as defined by the NMSA.

The National Marine Sanctuaries Act (NMSA) directs the National Marine Sanctuary system to facilitate uses that are compatible with the primary mandate of resource protection, but is silent on how compatibility should be determined. Through guidance provided in the Compatibility Determination Action Plan, the sanctuary and the Office of National Marine Sanctuaries will evaluate the application of a Sanctuary Compatibility Analysis Process and determine its usefulness as a decision-making tool. This objective approach incorporates the best available scientific information, allows for stakeholder involvement, and should be easy to understand and apply. Such an analysis defines the decision-making process and addresses current and new uses, as well as the scale of use and the cumulative impacts of multiple uses. If adopted, the process can be refined by regularly incorporating updated monitoring information and data about changing environmental conditions and evolving uses of sanctuary resources.

Ecosystem Protection

36. What is the importance of "local prey depletion" in the sanctuary?

The meaning of the term "local depletion" as used in this management plan derives from the fact that the assumption

of unit stocks (regionally interbreeding populations that are reproductively closed) is being rethought in the scientific literature based on new findings. The important implication of these findings is that a decline in fish abundance in one area may not be replenished quickly or inevitably from another area. Thus, averaging stock assessments among areas may result in localized overfishing. This creates the possibility for local depletion. Local depletion of key prey species at the scale of the sanctuary would be problematic. Herring and sand lance are the key prey species that constitute a major segment of the forage base underlying all ecological functions and economic and recreational activities that define the sanctuary.

37. Will the forage base (sand lance) be completely protected from fishing?

Sand lance occur within the SBNMS at higher levels of abundance than in any other area of the Gulf of Maine and are crucial to the ecological functioning of the sanctuary. At present, sand lance are not commercially fished within the sanctuary and there is no fishery management plan (FMP) in place. Any future sand lance FMP would be developed by the New England Fisheries Management Council and regulated by NOAA Fisheries Service; would involve consultation with other governmental and non-governmental entities including the SBNMS; and would require significant public input. For a description of the regulatory processes involved, refer to Section IV. Resource States of this management plan, under Current Protections (Reduced Forage Base) for Marine Mammals. SBNMS would not support the development of a sand lance fishery in the sanctuary. Further, given the complexity of the regulatory process involved and the critical importance of this species to the ecosystem functioning of the sanctuary, consideration should be given to a direct prohibition on fishing sand lance in SBNMS to remove all uncertainty.

38. Why does the SBNMS want to close down the herring fishery when current harvest levels are sustainable?

Atlantic herring accounted for the greatest volume by species landed from the sanctuary during 1996-2005. Atlantic herring is managed in the Northeast by NOAA Fisheries Service and the New England Fisheries Management Council (NEFMC). According to recent stock assessments, herring are currently not overfished and no overfishing is occurring. However, the sanctuary has concerns apart from and in addition to the dynamics of herring populations per se.

The Ecological Alteration Action Plan (Objective EA3.3) in this document directs the sanctuary to 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. The fishery for herring harvests the same size groups that predators consume and this overlap could result in competition if herring was a limiting resource; fishermen seeking pelagic species (such as herring) adopt the same foraging strategy as natural predators. Tradeoffs between these two sources of removal may need to be addressed, but this does not necessarily imply an 'either-or' situation.

Of consequence also are the findings that baleen whales (humpback, fin and minke) require some minimum threshold level of prey density to successfully forage and that humpback whales depend on the spatial characteristics and density of prey schools to maximize their feeding efficiency when surface feeding. Prey patchiness tends to increase with mean prey density, so depletion of prey stocks by fishing may rapidly reduce numbers of suitable prey aggregations. Thus local changes in prey abundance may be more important than changes across the entire stock range, i.e., GoM. Management to avoid depletion of the prey fields composed of herring and sand lance in local areas of critically important foraging habitat for marine mammals, such as the sanctuary, may be needed.

Herring and sand lance are keystone prey species that constitute a major segment of the forage base of the sanctuary. The species that may be affected by the harvest of herring include those (e.g. whales, cod, bluefin tuna) central to supporting tourism and recreation in the sanctuary, which are activities that generate direct sales far greater in value than the ex-vessel landings of herring per se. Cost-benefit analysis could be useful in evaluating the tradeoffs between these two sources of marine revenue.

Biodiversity plays a key role in ecological integrity in that it promotes ecosystem resilience and stability via ecosystem function and biological redundancy within functional groups. Maintenance of ecological resilience and stability is thus further rationale to protect key forage species within the sanctuary. If one forage organism (e.g. sand lance) has low abundance one year, or over a period of time, then it is important that the sanctuary have in place conservation measures to ensure that there is an adequate population of the other forage species (e.g. herring) to maintain that ecosystem function.

Because it is difficult to predict the effects of climate change, especially in complex marine ecosystems, precautions must be taken in places of special importance like the sanctuary. Richer biodiversity, because of the functional redundancy it affords, supports more resilient ecosystems. Climate change may affect one species of a functional prey group more adversely than another, which is why it is important, especially in times of environmental uncertainty, to maintain multiple species populations that can perform similar ecosystem functions.

Ecosystem Alteration

39. Will oil and gas drilling ever be allowed in the sanctuary?

Currently, all new oil and gas development in the SBNMS and all other national marine sanctuaries is prohibited by Presidential executive memorandum until June 30, 2012. No exploratory wells have been drilled anywhere on the Atlantic Outer Continental Shelf (OCS) since 1984. Further,

SBNMS regulations prohibit alteration of the seabed and discharge of most matter.

40. Why is bottom trawling a problem in the sanctuary?

The use of bottom trawls in commercial fishing operations may be deleterious to sanctuary resources in several ways. Many studies show that bottom contact fishing gear disturbs benthic habitats; reduces species diversity by crushing, burying or exposing marine animals and structures on and in the substratum; alters bio-geochemical cycles; may shift stable seafloor communities from those that are dominated by slow-growing and long-lived species to those dominated by organisms that are fast-growing and short-lived; and reduces productivity. For maritime heritage resources this and other types of fishing that physically contact the resource result in degraded archaeological integrity; reduced historical/archaeological significance; diminished aesthetic qualities; and when trawl gear becomes entangled in the resource poses a serious safety hazard for divers and remote sensing equipment.

Water Quality

41. What is the SBNMS doing about the direct discharge of pollutants into the sanctuary?

The sanctuary's water quality monitoring program has been in place for several years, primarily to determine whether the Massachusetts Water Resources Authority (MWRA) Boston Harbor outfall was causing increased nutrient loading and eutrophication in the sanctuary. In 2001 the SBNMS added four monitoring stations to the MWRA's existing five stations within the sanctuary. Data shows that much of the pollution reaching the sanctuary comes from non-point sources or from distant point sources that are difficult to control. SBNMS continues to work with other governmental agencies, industries and the public to reduce the input of pollution into both the sanctuary's waters and air. Further, the Water Quality Action Plan makes recommendations to address water quality concerns within the sanctuary. Under this action plan, the sanctuary is committed to develop a comprehensive water quality monitoring plan; characterize the contaminant loading to the sanctuary from all sources; reduce the threats to the sanctuary water quality from vessel wastewater discharges; and reduce the impacts of municipal and other shore-based waste water streams. In addition, strategy 2.3 of the Interagency Cooperation Action Plan calls for informal consultation with other agencies on water quality issues.

42. How is water quality monitored, and how will it be managed in the future? The SBNMS should identify all water quality monitoring programs in Cape Cod and Massachusetts Bays that could complement its efforts.

The water column and sediments of the SBNMS represent important habitats for numerous species. Concern for impacts to these habitats due to pollution and contamination (including harmful algal blooms and invasive species) is acute. Much of the pollution reaching the sanctuary comes from non-point sources or from distant point sources such as waste water treatment facilities that discharge directly into Massachusetts Bay. In addition, shipping activities may result in a number of chemical releases from discharges, spills or collisions. Regular monitoring of key water quality indicators is conducted in and around the sanctuary at several sites to detect and evaluate trends. SBNMS collaborates with the Massachusetts Water Resources Authority, the NOAA National Status and Trends Bioeffects Program, and the National Benthic Surveillance Program to understand and characterize the threats to and status of water column and related seafloor habitats in the sanctuary. Regular measurements of nitrogen, phosphorous, chlorophyll, dissolved oxygen, contaminants in organism tissue, trace metals, pesticides, fertilizers, municipal wastes, invasive species, etc. are performed. Sanctuary regulations currently prohibit the discharge or depositing of many materials that are harmful to living resources and habitats. See Section IV Resources States, Subsection "Water Column as Habitat" in the management plan for detailed information about these substances, their impacts and monitoring data; see Appendix K for a description of typical waste discharges in the SBNMS. The Water Quality Action Plan recognizes two important future needs: 1) to assess water quality and circulation to characterize baseline conditions, and 2) to reduce pollutant discharges and waste streams that may be negatively impacting sanctuary resources.

Marine Mammal Protection

43. Will the transit of vessels through bubble clouds be prohibited?

Vessels transiting bubble clouds or bubble nets may strike large whales or disrupt critically important feeding behaviors. Humpback whales actively engaged in capturing elusive prey by these behaviors may be inattentive to other activities in their environment and could be particularly susceptible to being struck by a transiting vessel. The Marine Mammal Behavioral Disturbance Action Plan (Objective MMBD.1, Strategy 1.2) recommends development of a process to consider prohibiting vessels from transiting through humpback whale bubble clouds and nets.

44. Will lower vessel speeds in the sanctuary be mandatory in the future?

The issue of vessel speed through the SBNMS is critical as collisions with large commercial ships constitute the majority of human-caused North Atlantic right whale mortalities. Two ship tracking programs (the NOAA Mandatory Ship Reporting System and the U.S Coast Guard (USCG) Automatic Identification System) are in place to characterize the speed of these vessels transiting the sanctuary. NOAA Fisheries Service has established regulations that prohibit operating vessels 65 ft in length or greater in excess of 10 kts in two Seasonal Management Areas (SMAs) that overlap the sanctuary. These SMAs are the Cape Cod Bay (January 1st-May 15th) and Off Race Point (March 1st-April 30th) areas. When right whales are known to be present in an area, NOAA Fisheries Service also establishes temporary, voluntary restriction zones referred to as Dynamic Management

Areas (DMAs) which vessels are requested to route around or transit through at 10 kts or less. DMAs may be established in the sanctuary depending on where right whales are located. Further, pursuant to licensing agreements with the U.S. Maritime Administration (MARAD) and USCG, LNG tankers using the Boston shipping lanes through the sanctuary must slow speed to 10 kts or less when transiting within five nautical miles of acoustic detection buoys during a 24 hr period after right whale calls are detected indicating whale proximity. In addition, Strategy 2.1 of the Marine Mammal Vessel Strike Action Plan proposes generic voluntary speed restrictions that would apply to all vessels operating within the sanctuary. These likely would allow for faster speeds than specific guidance when endangered whales are known or likely to be present. At those times, the more restrictive speed limits would apply.

SBNMS has worked with and will continue to work with NOAA Fisheries Service, the USCG, the International Maritime Organization, whale watching companies and the maritime industry to further evaluate and refine vessel speeds through the sanctuary with a focus on protection of marine mammals. The Marine Mammal Vessel Strike (Objective MMVS.2) and Marine Mammal Behavioral Disturbance (Objective MMBD 1., Strategy 1.1) Actions Plans recommend establishing criteria for speed controls and restrictions, instituting year-round voluntary speed restrictions for all vessels, and considering amending sanctuary regulations to include resource protection measures associated with vessel speed and close approach distance. Consult the Right Whale Sighting Advisory System (http://rwhalesightings.nefsc.noaa.gov) to determine the existence of SMAs or DMAs and the real-time Listen for Whales website (http://listenforwhales.org) to determine the relative presence of right whales in the sanctuary.

45. SBNMS should establish as a high priority a survey and monitoring program that detects and enables the prediction of right whale distribution and behavior in the sanctuary.

The protection and study of marine mammals, particularly the large baleen whales that feed seasonally in sanctuary waters, is one of the reasons for the sanctuary's designation. All marine mammals in the SBNMS, including the endangered North Atlantic right whale (*Eubalaena glacialis*), are protected through the National Marine Sanctuaries Act; the Marine Mammal Protection Act; the Endangered Species Act, SBNMS regulations and NOAA voluntary whale watch guidelines. Right whales are extensively studied and monitored throughout the year within the sanctuary and the greater Northeast region, using visual sighting, acoustic detection and tagging techniques. Scientific research focused on acoustic communication, feeding, nursing and other behaviors as well as impacts of human disturbances including vessel speed, noise, gear entanglement and whale watching is vital and ongoing. These studies, performed by SBNMS scientists in collaboration with many partners from NOAA Fisheries and outside the agency are among the most comprehensive and advanced in the world, and will always be a high priority for the sanctuary.

Maritime Heritage

46. Will moorings buoys be installed on sanctuary shipwrecks?

At present, no mooring buoys are allowed to be placed on maritime heritage resources or at any other diving destination within the sanctuary. However, the SBNMS's Maritime Heritage Action Plan recommends the development and implementation of a mooring buoy system on historic sites in collaboration with affected parties and scuba diving charter operators. This will help protect historic shipwrecks from anchor damage and facilitate safe diving.

47. Will buffer zones be used to protect maritime heritage sites?

SBNMS is committed to protecting the historical and archaeological integrity of its maritime heritage resources. SBNMS's Maritime Heritage Action Plan recommends developing a maritime heritage management system that protects historical resources while allowing for uses compatible with resource protection. Sanctuary regulations may be amended to implement protective measures, including buffer zones which limit human activities that have a high potential for harming a resource's archaeological integrity.

48. Why aren't all shipwreck locations publicly revealed? Why can't divers have complete open access to shipwrecks in the SBNMS?

The sanctuary, through the National Marine Sanctuaries Act (NMSA), is charged with ensuring that historical resources are protected from human activities that harm the historical and archaeological integrity of the resource. Furthermore, the National Historic Preservation Act (NHPA) requires that the sanctuary take into account the effects of its actions on historic properties and allows the sanctuary to withhold the locations and character of historic shipwrecks if the release of that information would risk harm to the resource. SBNMS has determined that current sanctuary regulations do not sufficiently protect maritime heritage resources and that public disclosure of shipwreck locations puts the resources in further jeopardy. Under the Maritime Heritage Action Plan, the sanctuary will consider implementing a management system that protects historic resources while allowing for uses compatible with resource protection. SBNMS believes that non-consumptive SCUBA diving can be compatible with the NMSA's primary goal of resource protection.

49. Does the management plan address the issue of commercial fishing damage to shipwrecks?

The management plan aptly reflects the SBNMS's serious concerns for the issue of commercial fishing damage to maritime heritage resources. Commercial fishing has physically impacted sanctuary shipwrecks; degrading archaeological integrity; reducing historical/archaeological significance; diminishing aesthetic qualities; and posing a serious safety hazard for divers and remote sensing equipment. SBNMS is

working to reduce this continuing threat through Maritime Heritage Action Plan Objective MH.3 – Protect and Manage Historical Resources.

50. Under the management plan will artifact collecting be off limits to both the public and the government?

Current sanctuary regulations prohibit divers from moving, removing, or injuring or attempting to move, remove, or injure a sanctuary historical resource. Regulations also prohibit possessing within the sanctuary (regardless of where taken, moved or removed from), except as necessary for valid law enforcement purposes, any historic resource. Researchers conducting archaeological research in the SBNMS must obtain a sanctuary archaeological research permit and follow the implementing regulations of the Archaeological Resources Protection Act of 1979. Any artifacts recovered under this permit must be conserved, curated and remain the property of the U. S. Federal Government.

51. When a sanctuary shipwreck is listed on the National Register of Historic Places will it be off limits to the public (i.e. divers)?

NOAA is required to nominate eligible sanctuary historical resources to the National Register of Historic Places pursuant to Section 110 of the National Historic Preservation Act. The listing of a shipwreck provides public recognition that the property is significant to American history and worthy of preservation. National Register listed properties must also be considered during any Federal or Federally-funded undertakings that may affect the resource. A sanctuary shipwreck listed on the National Register does not mean that it will be off limits to divers. In fact, the Maritime Heritage Action Plan calls for measures to facilitate access, such as the installation of mooring buoys, which will allow divers to enjoy shipwrecks in a sustainable manner.

Environmental Assessment

52. If the action qualified for a categorical exclusion as NOAA stated, why did NOAA prepare an Environmental Assessment (EA)? And why wasn't an Environmental Impact Statement required?

All sanctuary management plans must comply with the National Environmental Policy Act (NEPA). NOAA was incorrect in stating that the action qualified for a categorical exclusion.

For the current management plan revision, NOAA considered the options of preparing an entirely new management plan or minimally revising the current management plan. NOAA decided that new issues affecting sanctuary management and fulfillment of the prior plan's objectives necessitated the development of a new plan, but that the revision would be a non-regulatory plan that establishes a policy framework for future management actions.

The Environmental Assessment (EA) that was performed as part of the management plan review concluded that the development of a new plan, the "preferred alternative", would not result in significant effects on the quality of the human environment. Thus, a Finding of No Significant Impact (FONSI) is included in Section VIII following the Environmental Assessment. Accordingly, no Environmental Impact Statement was necessary.

Regulations

53. Even though the management plan is "non-regulatory" doesn't it call for future regulations in several areas?

The management plan serves as a non-regulatory policy framework for addressing the issues facing the SBNMS over the next five years. It lays the foundation for restoring and protecting the sanctuary's ecosystem, and details the human pressures that threaten the qualities and resources of the sanctuary. It also recommends actions that should be taken now, and some that should be considered in the near future. At this time, NOAA is not proposing any regulations or changes to the SBNMS designation document. However, several regulatory initiatives that derive from the strategies presented in the draft management plan ultimately could be considered for action prior to the next management plan review nominally scheduled for 2014.

54. Why aren't regulatory changes being proposed to implement the Action Plans? The SBNMS should revise the management plan to include regulatory changes in vessel speed and approach, and in the prohibition of sand lance and herring fishing within the sanctuary.

The scope of a sanctuary's regulatory authority is established through the National Marine Sanctuaries Act and is further defined in its designation document. No changes to the current regulatory regime for the SBNMS are proposed at this time. However, the SBNMS will consider adding or modifying regulations if it believes that the protection and management of the sanctuary will be enhanced by doing so. Any regulatory changes must be reviewed through a formal process that includes public input and environmental review and possible amendment to the sanctuary designation document if warranted.

Boundary Modification

55. Will the SBNMS work towards possible modification of the sanctuary's boundaries or the creation of different zones? Where might the boundaries of the sanctuary be modified and why?

At present, the SBNMS is not working toward possible modification of the sanctuary's boundaries. Any alteration to the boundaries of the sanctuary would necessitate a change in the SBNMS designation document, regulations and coordinates; an Environmental Impact Statement; and extensive public review and comment. It is not possible to predict whether or to what extent the boundaries might be altered, but any modification would be based on the SBNMS's primary mission of enhancing the protection and management of the sanctuary's natural and historic resources.

A Zoning Working Group of the Sanctuary Advisory Council that focuses on habitat zoning and ecological function has been established, but it does not extend to all aspects

of potential sanctuary zoning. Its charge is to evaluate the adequacy of existing zoning schemes in the sanctuary to satisfy the scientific requirements and meet the goals of ecosystem-based sanctuary management as defined by the Ecosystem-Based Sanctuary Management Working Group and, if needed, develop a modified zoning scheme (including a consideration of no-take reserves) to meet that need. Boundary expansion may be considered in light of developing a modified zoning scheme.

Summary of Revisions

This subsection summarizes significant changes made to the management plan between its draft and final versions. In general, changes reflect input received from public comments, revisions to update information, and corrections of minor typographical, technical and formatting errors. Changes are summarized below by section. Only significant changes are noted below in italics. If a section had only minor editorial changes it is omitted from the list below. Specific substantive and technical revisions responsive to comments were made directly in the text.

General Changes

NOAA made the following changes wherever relevant throughout the document:

- *Removed references to this document as a draft*
- *Corrected and updated figure and table numbering*
- *Replaced National Marine Sanctuary Program (NMSP) with Office of National Marine Sanctuaries (ONMS).*

Changes by Section

Front Piece

- *Added cod photo and caption on-unnumbered page above sanctuary address.*

About This Document

- *Added expanded summary information.*

Photography and Art Credits

- *Added cover photo credits.*

Executive Summary

- *Added summary of public comments.*
- *Updated information on primary productivity and important bird area status.*
- *Clarified language regarding whale entanglements with fishing gear in the sanctuary.*
- *Added reference to the new Section X: Summary of Public Comments.*

I. Introduction to the Document

- *Added summary statement on draft management plan public comment period.*
- *Added summary statement on comments received.*
- *Updated and revised the figure portraying the system of National Marine Sanctuaries.*
- *Updated and revised the figure illustrating the proposed management continuum.*

II. Institutional Setting

- *Updated information on the National Undersea Research Center.*
- *Updated summary tables for sanctuary research and education projects.*

III. Sanctuary Setting

Biodiversity Conservation

- *Added discussion of conservation biology as a scientific discipline important to sanctuary management.*
- *Added new subsection on Use of Coastal and Marine Spatial Planning.*
- *Added a new subheading on Functional Relevance that discusses the linkage between biodiversity and ecosystem services.*
- *Added information on historic baselines for fish from a new report entitled "Stellwagen Bank Marine Historical Ecology."*
- *Added information on guilds under the subheading on Trophic Cascades.*
- *Added expanded information on trophic levels and revised the associated figure.*
- *Added a new subheading on Climate Change and Ocean Acidification.*

Primary Producers and Decomposers

- *Added additional information on primary productivity.*

IV. Resource States

Context

- *Added legal definition of "sanctuary resources."*

Seafloor as Habitat

- *Added new figure showing photographs of disturbed and relatively undisturbed seafloor habitat.*
- *Added references that studied fishing impacts relative to the WGoMCA.*
- *Deleted analogy to "forest clear cutting". Added further explanation of gear impacts on seafloor habitats.*
- *Added new results and findings from the Seafloor Habitat Recovery Monitoring Program.*

Water Column as Habitat

- *Added information on water column productivity.*
- *Added information on harmful algal blooms in sidebar on Potential Sources of Pollution and Contamination.*

- *Added information on water quality monitoring in the sanctuary by the MWRA*
- *Added information on a study analyzing levels of heavy metals and pesticides in the sanctuary in comparison to Georges Bank.*
- *Added information on invasive species (including Didemnum sp.) and augmented the sidebar on Community Ecology Theory Relating to Biological Invasions.*

Fishes

- *Added significant clarification to discussion of fish diversity (particularly metrics) and revised the associated figure. Species richness is used as the preferred metric.*
- *Added clarification and information under the subheading Big Old Fat Females. Added three new figures.*
- *Added information on historic baselines for fish from a new report entitled "Stellwagen Bank Marine Historical Ecology."*
- *Added information on fish tagging results.*
- *Added new subheading on Catch Share (Sector) Programs.*

Marine Mammals

- *Added information on humpback whale foraging behavior.*
- *Added discussion of a new study on reproductive success of humpback whales relative to exposure to whale watching vessels.*
- *Added information on ocean noise based on new peer-reviewed papers.*
- *Added information on the implications of ocean noise for marine mammal communication and the utility of using the SBNMS as a test bed for new research.*
- *Added information on harassment of whales by tuna fishing activities.*
- *Added information on characterization of vessel traffic and a new figure showing spatial distribution of vessel traffic in 2006.*
- *Clarified information on the entanglement of whales in the sanctuary.*
- *Revised the sidebar on Local Depletion.*
- *Revised the discussion under the subheading Reduced Forage Base.*
- *Added information on herring catch by commercial fishing.*
- *Added information on humpback calf survival rates as predicted by availability of prey.*
- *Added rationale for protecting forage species to maintain ecological resilience and stability.*
- *Added information on the NOAA ship strike reduction program and the Seasonal Management Areas.*
- *Updated the figure illustrating the realignment of the shipping lanes into the Port of Boston.*
- *Added reference to the White House Council on Environmental Quality's Interim Framework for Effective Coastal and Marine Spatial Planning.*
- *Added information on fishery regulations relative to protecting sand lance; updated information on herring management.*

Maritime Heritage Resources

- *Added introductory information for clarification.*
- *Updated the number of shipwrecks found to date.*
- *Added information on Eastern rig draggers.*
- *Substituted the figure of an eastern rigged dragger with an archival photo of the Joffre.*
- *Added clarification on fishing gear impacts on shipwrecks.*
- *Added information on the impacts of "hand fanning" of historic artifacts.*
- *Added information on section 110 of the National Historic Preservation Act.*

V. Status of Human Use

- *Added clarification that non-market valuation of sanctuary resources awaits to be done.*
- *Added reference to a new report entitled "Stellwagen Bank Marine Historical Ecology."*
- *Added discussion of the Northeast Vessel Monitoring System (VMS) data.*
- *Added reference and information from a recent whale watch survey.*
- *Added information on the "Whale Sense" commercial whale watch program.*
- *Added information on diving opportunities in the sanctuary and updated the associated figure.*
- *Added information on the sanctuary bird count with MASS Audubon.*
- *Updated status information on the deepwater LNG ports adjacent to the sanctuary.*
- *Added information on the Massachusetts Ocean Plan relative to wind power generation.*

VI. Summation

- *Added discussion that the sanctuary can have a role in working with harvesters and other stakeholder groups to help build local economies.*
- *Added general updated information drawn from previous sections of the plan.*
- *Added information on the Sister Sanctuary program.*

- *Added information on the extent of fishing in the sanctuary based on anecdotal reports from local fishermen.*
- *Added clarification on the condition of sanctuary resources based on information contained in a new report entitled "Stellwagen Bank Marine Historical Ecology."*

VII. Action Plans

General Changes

In most cases, the status date of strategies and activities was increased by several years.

Introduction to Action Plans

- *Added updated information on action plan costs.*
- *Added three new figures illustrating cost structure by action plan and programmatic area.*

Administrative Capacity and Infrastructure Action Plan

- *Added information on vessels and facility planning.*
- *Changed status dates for strategy implementation.*

Interagency Cooperation Action Plan

- *Changed status dates for strategy implementation.*

Public Outreach and Education Action Plan

- *Changed status dates for strategy implementation.*

Compatibility Determination Action Plan

- *Changed status dates for strategy implementation.*

Ecosystem-Based Sanctuary Management Action Plan

- *Added language to discern effects of climate change in Activities 3.2.1 and 3.2.3.*

Ecosystem Alteration Action Plan.

- *Updated information on groundfish days-at-sea (DAS).*
- *Revised Activities 3.3.1 and 3.3.2.relative to reduced forage availability of sand lance and herring.*
- *Changed status dates for strategy implementation.*

Water Quality Action Plan

- *Added information on the new MWRA outfall monitoring plan.*
- *Changed status dates for strategy implementation.*

Marine Mammal Behavioral Disturbance Action Plan

- *Changed status dates for strategy implementation.*

Marine Mammal Vessel Strike Action Plan

- *Updated information relating to Strategies 1.1 and 2.1. Added clarification to Activity 1.1.1 on approaching right whales.*
- *Changed status dates for strategy implementation.*

Marine Mammal Entanglement Action Plan

- *Revised and updated Activities 1.1.1, 2.1.1 and 3.1.1 and respective status.*
- *Deleted notes to review the adequacy of the Atlantic Large Whale Take Reduction Plan in background for Objectives MME.2 and MME.3.*
- *Changed status dates for strategy implementation.*

Maritime Heritage Action Plan

- *Added clarification on past Native American presence in the sanctuary.*
- *Added clarification to Strategy 2.3 on listing sites on the National Register of Historic Places.*
- *Added clarification on Strategy 3.3 that permitted archaeological research is conducted to specific standards.*
- *Added new Objective 6 – Facilitate Access to Modern Shipwrecks – and two new Strategies 6.1 and 6.2 by which to achieve the objective.*
- *Changed status dates for strategy implementation.*

VIII. Draft Environmental Assessment

- *Added clarification on the justification for an Environmental Assessment.*
- *Included a Finding of No Significant Impact (FONSI).*

IX. Sources Cited

- *Added over 170 new citations to scientific and professional papers and reports.*

X. Summary of Public Comments

- *Added this entire new Section*
- *Added one table and seven figures that summarize numerical analysis of comments received.*

XI. Appendices

- *Added new appendix on Stellwagen Bank Sanctuary Annex to Area Contingency Plan.*