

APPENDIX B:

**PUBLIC COMMENTS ON THE DRAFT PROGRAMMATIC
ENVIRONMENTAL IMPACT STATEMENT**

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APPENDIX B:

PUBLIC COMMENTS ON THE DRAFT PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT

B.1 INTRODUCTION

Public comments on the draft programmatic Environmental Impact Statement (EIS) were received by mail, submitted through the Internet at the Mineral Management Service (MMS) Web site for the EIS, and received in oral and written form at public hearings conducted by the MMS across the United States. Document identification (ID) numbers were given to each submission (e.g., a letter or a set of comments given in a single public hearing or Internet session by an individual or organization). Comment documents submitted via the EIS Web site were given ID numbers from 80001 to 80118. Those received at public hearings or via mail were given ID numbers from OCS01 to OCS95. Individual comments were identified within each submission received and numbered sequentially from 1 upward to the last comment in the submission (e.g., 80087-001, 80087-002, etc.). Additionally, comments that identified the same general concern or suggestion were put in groups. Twenty-three such general group comments were identified (numbered A001 through A023) and were given group responses rather than repeating the same response numerous times.

Section B.2 provides the responses to the comments. Cross-reference tables to find specific comment responses are provided in Section B.3. These tables index the location within this appendix where a comment response is located according to the comment ID and the individual or organization that submitted the comment. Section B.4 (see accompanying CD) presents the comment documents as received, with the individual comments delineated within each document.

B.2 COMMENT RESPONSES

B.2.1 Overview

General comments with a similar theme were grouped into categories as presented in Sections B.2.2 through B.2.15. This organization allows readers to more easily find additional information on the same topic. Section B.2.16 (Sections B.2.16.1 through B.2.16.23) contains comments specific to the sections on impact areas in Chapter 4 (Affected Environment) and Chapter 5 (Potential Impacts). The remaining comments and responses are presented in Section B.2.17.

B.2.2 Scope**Group Comment: A005**

OCS02-004 80079-002 80081-006 80081-007 80085-006 80085-007

Comment Summary: Although only three technologies are included for analysis in the EIS, the Alternative Energy and Alternate Use program should remain flexible enough to accommodate any other new technologies that may be developed or proposed over time.

Response: The Minerals Management Service (MMS) of the U.S. Department of the Interior (USDO) is aware of the many different forms of technology, and the proposed program and regulatory framework are deliberately not prescriptive in order to maintain a high degree of flexibility. As well, the MMS can issue leases, easements, or rights-of-way (ROWs) for any technology or alternate use not considered in the programmatic Environmental Impact Statement (EIS) because site-specific National Environmental Policy Act (NEPA) analysis and other regulatory compliance would be required.

Group Comment: A006

OCS12-003 OCS13-002 OCS13-004 OCS14-001 OCS15-003 OCS18-005
 OCS33-002 OCS41-002 OCS41-004 OCS65-001 OCS69-001 80014-001
 80014-002 80019-001 80030-001 80055-011 80105-011 80108-005

Comment Summary: Comments specific to the Cape Wind and LIOWP were received.

Response: The comments address issues that are out of scope for this programmatic EIS. They are specific to the Cape Wind or the Long Island Offshore Wind Park (LIOWP) projects, which have their own NEPA process. The MMS strongly encourages everyone to participate in that process and to submit comments during open comment periods for each project. An announcement of the comment period will be made in the *Federal Register* as well as on the MMS Web site. The comments for these projects have been forwarded to the NEPA coordinators for their consideration.

Group Comment: A007

OCS21-003 OCS23-002 OCS41-001 OCS55-002 OCS59-001 OCS83-006
 OCS83-010 OCS83-035 OCS83-039 80001-001 80018-001 80032-004
 80032-005 80047-011 80047-012 80056-003 80060-001 80061-001

Comment Summary: A number of comments were received that were outside the scope of the programmatic EIS.

Response: The comments address issues that are out of scope for this programmatic EIS, and, therefore, they will not be evaluated further.

Comment: OCS01-002

Comment: We're also concerned that the level of deference given to the industry in the development of the draft PEIS. As we stated in our scoping comments, federal agencies have a duty to look out for the best interests of the environment and to be the counterweight that prevents private interests from exploiting federal resources to the detriment of the public trust.

The draft PEIS has failed to meet that public trust obligation. Instead, the scope of the review is dictated by current industry objectives. It defers comment on issues like cumulative impacts, and the development of exclusion zones until industry has decided where and how it would like to proceed. The deference that MMS has given to industry is not only a violation of public trust, it also undermines the purpose of programmatic regulations.

One of the main advantages of having a programmatic structure is that it allows resource management to be strategic and not just reactive. But by sidestepping important OCS-wide issues, and by allowing industry action to dictate when and how resources will be assessed and managed, MMS removes all ability for proactive and strategic management of the OCS resources.

The programmatic regulations, and by extension, the programmatic EIS should be addressing OCS-wide issues directly, and not sidestepping them.

Response: The programmatic EIS represents a first look at the generic impacts of potential activities that could occur in a reasonably foreseeable time frame, that is, 5 to 7 years. The potential technologies are determined by the industry and what can be reasonably and economically developed. A programmatic EIS that examines alternative technologies that could not realistically be developed would serve no purpose. Following the programmatic EIS, lease sale and site-specific environmental reviews will be conducted.

Comment: OCS32-001

Comment: The DPEIS has failed to meet this public interest, excuse me, this public trust obligation. Instead, the scope of the review is dictated by current industry objectives. The time frame and technologies included in the draft PEIS both revolve around current industry targets, the draft PEIS wrongly defers comment on important issues which impact the whole OCS resource.

Response: The programmatic EIS represents a first look at the generic impacts of potential activities that could occur in a reasonably foreseeable time frame, that is, 5 to 7 years. The potential technologies are determined by the industry and what can be reasonably and economically developed. A programmatic EIS that examines alternative technologies that could not realistically be developed would serve no purpose. Following

the programmatic EIS, lease sale and site-specific environmental reviews will be conducted.

Comment: OCS35-002

Comment: The scope of the draft PEIS fails to address the relevant NEPA question, MMS is tasked with assessing the environmental impacts of specific regulations that are being proposed by the agency. Instead, the draft PEIS focuses almost exclusively on the question of whether or not there should be any national regulations. As a result, the draft PEIS is insufficient for informing or addressing agency decisions regarding the national regulations currently under development. For example, the draft PEIS provides only generic assessments of alternative energy and its potential impacts, it presumes mitigation of harms but does not discuss mitigation techniques in detail or compare the strengths and weaknesses of existing mitigation options.

Response: The programmatic EIS takes a first look at the impacts of three alternative energy technologies—wind, wave, and marine current—on the marine and human environment. The EIS assesses, at a high-level, the environmental impacts that are likely to occur at each of the primary stages contemplated in alternative energy development (e.g., technology testing, site assessment, construction, operation, and decommissioning). The programmatic EIS identifies the issues and concerns that the decision maker must take into consideration when deciding whether the program can be established, and what form the program should take. The EIS also informs the MMS about the environmental concerns that may be addressed in the regulations. In addition, the MMS is using this first NEPA document to identify policies and BMPs that may apply to specific activities.

Additional NEPA analyses will be required before any activity occurs on the OCS, and within these future analyses, specific mitigations will be addressed. The MMS originally intended to publish proposed regulations in the *Federal Register* shortly after publication of the draft programmatic EIS. However, the MMS subsequently determined that it would be more appropriate to finalize the programmatic EIS establishing the Alternative Energy and Alternate Use (AEAU) Program, and have the document inform the agency as it completes its efforts in drafting a proposed rule for public review and comment. The MMS currently anticipates publishing draft proposed regulations for public review and comment in late 2007 or early 2008. A separate NEPA analysis will be conducted in association with the rulemaking, which may tier off of or incorporate by reference this programmatic EIS as appropriate.

Comment: OCS57-004

Comment: The bottom line is: I think it should be with the buoys on an isolated basis. And you should give at least a certain time frame, just like the gentleman just said, for research and evaluation of that time, for at least the first three years. Stick with strictly the buoy locations. Do just the wind turbines. Set them up the way I was talking about. Make them incredibly -- make them as environmentally proactive as you possibly can, and then evaluate them for at least three years. Don't just put a bunch of garbage out

there. And, you know, you've got time. Hands down, when I saw people rushing, they always, always made mistakes.

Response: The MMS intends to offer a mechanism that would allow for enough time for testing of technology but for a shorter time frame than that which would be offered for a proposal for a full-scale commercial generation facility.

Comment: OCS80-001

Comment: We are concerned that there was no assessment provided for the waters off Alaska and Hawaii, though alternative energy is already being explored in Hawaii. These regions should have been analyzed.

Response: In taking this first look at the potential impacts from the interface of these new technologies in the marine environment, the MMS chose to focus its attention on the areas most likely to see development in the near future. While activities are being pursued in Hawaii, all are occurring within State waters. In fact, most of the Federal waters around Hawaii are not within the water depth requirements of present technological capabilities. In Alaska, the most promising area is within Cook Inlet, which is within State jurisdiction. As such, the MMS chose to focus its attention on the areas where development may occur within its jurisdiction. Should interest in Hawaii and Alaska arise, a regional analysis would be conducted.

Comment: OCS80-005

Comment: Regional Planning: We agree with the regional divisions that the MMS outlines in Chapter 4; however, we reiterate our concern that there is no discussion of Alaska and Hawaii.

Response: In taking this first look at the potential impacts from the interface of these new technologies in the marine environment, the MMS chose to focus its attention on the areas most likely to see development in the near future. While activities are being pursued in Hawaii, all are occurring within State waters. In fact, most of the Federal waters around Hawaii are not within the water depth requirements of present technological capabilities. In Alaska, the most promising area is within Cook Inlet, which is within State jurisdiction. As such, the MMS chose to focus its attention on the areas where development may occur within its jurisdiction. Should interest in Hawaii and Alaska arise, a regional analysis would be conducted.

Comment: OCS80-018

Comment: 5.4. Ocean Current Energy: We disagree that the only area likely to be affected is the area in the vicinity of the Florida Current (page 264). Bladed turbines have been proposed for testing and possible construction along coastal areas of Maine and for the area near the opening to Long Island Sound.

Response: The areas you describe are being studied for tidal currents that occur close to shore and within the jurisdiction of the respective States.

Comment: OCS81-004

Comment: A similar initiative involves the Town of Nantucket. The Nantucket Planning and Economic Development Commission has already informed the MMS that the thirty square miles of federal waters south of Tuckernuck Island have potential for offshore renewable energy development. This area is one of the most productive areas in New England for offshore wind energy. Nantucket officials are interested in developing an economically viable plan and intend to draw on the model used by Hull. Given the strong support of the Commission and the Nantucket Selectmen, I am now working with them to secure federal and state funding to undertake such a project.

In addition, the Town of Edgartown Board of Selectmen unanimously endorsed the Nantucket proposal and is interested in seeing the planning area broadened to an area that is up to fifty square miles so that it approaches the waters of Martha's Vineyard and offers the opportunity to develop offshore wave and tidal energy. At a meeting hosted by the Martha's Vineyard Commission, Selectmen from around Martha's Vineyard expressed enthusiastic support for this initiative and have contacted me to express their strong support for such a project.

Response: Thank you very much for sharing this information; the MMS looks forward to working with you in those areas that fall within Federal jurisdiction.

Comment: OCS87-002

Comment: Further, the draft Programmatic EIS focuses on potential alternative energy development that may be initiated in the next five to seven years as well as potential alternate uses of offshore facilities in the same time frame. Because California's planning horizons for both alternative energy development and alternate uses of offshore facilities is well beyond seven years, we encourage the MMS to begin planning for long-term and large-scale projects. For example, there are currently twenty-three oil and gas platforms operating in the California OCS but to our knowledge no oil company has immediate plans to decommission any of these platforms.

Response: The programmatic EIS is meant to take a first look at the issues and concerns at the national level. More detailed planning will occur at the regional and local levels, and the MMS will conduct additional site-specific NEPA analyses that focus more directly on identifying and assessing the particular regional and local considerations.

Comment: OCS88-003

Comment: Plans for this resource identification and assessment, including provisions for the dissemination of survey results and the protection of sensitive resource locational data, should be included in the PEIS.

Response: Prior to any installation of any structures on the seafloor for these technologies, the lessee must conduct site characterization by using remote sensing devices such as a magnetometer, side-scan sonar, and a sub-bottom profiler. As the MMS has required in the OCS oil and gas program, archaeological sites must be avoided. The MMS is also keenly aware of the requirement to maintain the locations of these sites proprietary; this has been done in the Gulf of Mexico (GOM), Pacific, and Alaska Regions.

Comment: OCS92-003

Comment: FPL Group does recommend that the MMS consider several environmental issues as part of any project assessment of environmental impact. First, the regulatory review process must limit the analytical review to criteria applicable to anticipated environmental impacts and not insignificant or hypothetical assumed impacts. Second, any alternatives analysis consistent with the National Environmental Policy Act must be reasonable.

Response: The MMS recognizes that the analyses in this programmatic EIS are to some degree based on hypothetical impacts since there are no activities occurring at this time on the OCS, and specific details are not available to focus the discussions. However, this EIS informs future analyses and identifies key areas of concern. As stated in the EIS, site-specific NEPA analyses will be required for all projects that are submitted to the MMS.

Alternatives as described in NEPA regulations (40 CFR 1500–1508) are determined from the purpose and need of the proposed action. The MMS carefully assesses each potential alternative to determine whether it is reasonable and whether it should be subjected to detailed analysis.

Comment: 80047-005

Comment: 6. Ecological impacts must be much more carefully described and analyzed. Qualitative descriptors like negligible, minor, moderate, and major don't really capture the full effects of the proposed OCS developments.

Response: The impact levels are defined in the EIS and are reasonable to use in a programmatic level of analysis. A more detailed analysis is appropriate at the regional or site-specific level and will be carried out at the lease sale and project-specific level.

Comment: 80047-017

Comment: 18. Please include rigorous scientific review of the impacts and alternatives. Is the EIS to be subject to review by an independent panel of experts?

Response: The EISs are made available to the public for review and comment at the draft stage. All cognizant parties, including the Federal and State agencies, other public and private organizations, and citizens review and provide comments about the content of the

draft EIS. There is no requirement to conduct a review by an independent panel of experts. This programmatic EIS was no exception. The draft EIS was reviewed extensively by the public and various government and private agencies. Their comments and the MMS's responses are provided in the final EIS.

Comment: 80049-001

Comment: Santee Cooper (South Carolina Public Service Authority) is considering offshore wind as a renewable alternative source of energy for electricity. Based on some internal discussions about the MMS and its current activities to establish regulations and procedures for the development of wind, I offer these few general comments:

MMS states that 5-7 years forward is its timeframe of consideration for rulemaking. Looking from today forward, the MMS should consider ways to encourage offshore wind and not to raise barriers of entry. Lease costs and the threat of competitive bidding of prospective sites which have been put forward for permitting (resulting in lost time and money) are both dis-incentives to a utility. Alongside of the barriers to entry just named, the uncertainty of the future rules adds a risk that would push a cautious investor to require a higher return than otherwise might be needed. Offshore wind is currently a higher cost, higher risk option to conventional power production. Santee Cooper will be seeking guidance from MMS in order to realistically evaluate the feasibility of developing this resource. The designation and availability of a contact person within MMS for our inquiries would be most appreciated.

Response: Section 388 of EPA Act requires that OCS alternative energy and alternate use authorizations be issued on a competitive basis unless it is determined that there is no competitive interest. Section 388 also requires the establishment of payments to ensure a fair return to the Nation. The MMS is aware of the challenges confronting this new industry and is taking them into consideration in the draft rules.

Comment: 80052-001

Comment: 1. Describe the process for expanding or revising the scope of MMS's program. The draft PEIS utilizes a limited length of time (5-7 years) and small coverage area (100 m depth) for MMS's alternative energy program. MMS does not indicate how it proposes to expand or revise the program as time passes and/or technologies advance. Ecology requests that MMS provide details on the process for revising or expanding its alternative energy program.

For example, MMS states that certain technologies are not expected to be ready for testing or commercial deployment in the next five to seven year. MMS also argues that current technology limits development to the 100-meter contour depth. MMS should indicate how and when it plans to incorporate and analyze the impacts of future technologies such as solar and hydrogen, and deeper water technologies such as floating wind turbines, under this program.

Furthermore, if MMS sets up a leasing process that is longer than five to seven years, the impacts from projects during this period will continue past the planning period in this PEIS. MMS's PEIS does not provide details on future impacts of development beyond the five to seven year timeframe. Ecology is concerned that projects leased for longer periods of time might increase the anticipated impacts past minor to moderate or even adverse for this and other developments. Ecology suggests MMS describe how it will assess these impacts if its program sets up longer leases than designated by this PEIS.

Response: The programmatic EIS examines the impacts of potential technologies that may have projects initiated within the next 5 to 7 years. However, the impact analyses examine the full life of any project initiated, from site characterization through decommissioning, which would be on the order of 25 years or more. For the foreseeable future, all new projects would undergo a separate analysis under NEPA, which would identify and assess the unique considerations for a project (including regional environmental considerations). Many, if not most, of the resources and potential impacts discussed in this EIS are applicable beyond the 100-m (328-ft) contour and in areas not discussed. In addition, the MMS is taking an adaptive management approach that would involve learning about these technologies and modifying guidelines as it acquires new information.

Comment: 80070-002

Comment: Although there are no specific OCS projects or facilities currently under consideration for alternate energy use off the Georgia coast, any construction and operation of onshore upland substations connecting offshore power production facilities to the mainland transmission grid for alternative energy projects described in this DPEIS, i.e. generic wind, wave and ocean current energy projects for the outer continental shelf, have the potential to produce more than minimal environmental impacts to Georgia's coastal zone.

Response: The programmatic EIS discusses the impacts both offshore and onshore from potential alternative energy development projects over the next 5 to 7 years. Because the EIS is programmatic, the impacts are discussed at a generic level. More detailed analyses would be performed using site-specific data when individual projects are proposed.

Comment: 80079-001

Comment: It is exquisitely ironic that MMS has chosen not to address alternative energy sources for the OCS in the Alaska Region "because of the relatively harsh environment" – and yet it is MMS itself that has just proposed in its Five Year Plan to open up the Beaufort and Chukchi Seas and Bristol Bay to a far more risky and pollution-prone activity, oil and gas drilling, and on top of it proposing royalty relief!

Response: The full phrase from the draft EIS that explains the rationale for excluding the Alaska OCS from the analysis is "because of the relatively harsh environment *and probability that no potential projects will be pursued in Federal waters*" off Alaska

(emphasis added). In contrast, offshore oil and gas projects currently are occurring in harsh environments around the world, including both the State and Federal waters off Alaska.

Comment: 80081-003

Comment: C. The DEIS Should Clarify That Decommissioning Will Not Be Required Until Projects Have An Opportunity to Recover Their Costs.

For offshore wind, wave and current projects, the DEIS examines the costs associated with decommissioning. OREC realizes that regulations regarding potential decommissioning have not yet been issued. However, we use this opportunity to emphasize that in the event that MMS includes a decommissioning requirement in leases or rights of way issued for use of the OCS, MMS must do what it can to ensure that projects can operate at least for a sufficient obligations under power supply agreements and to fully recover costs, while recognizing, of course, the importance of considering data from Adaptive Management or other information about project environmental impacts. If MMS plans to require decommissioning any sooner than twenty years after a project is completed, marine energy developers will be significantly compromised in their ability to obtain financing, and indeed, requiring premature decommissioning may render financing impossible.

Response: The MMS notes the concerns you identify above, but also is cautious of allowing obsolescent structures to remain on the OCS for an extended period of time. The MMS would certainly consider cost recovery, terms of power purchase agreements, and other considerations when deciding on when decommissioning would be required for a particular project.

Comment: 80085-005

Comment: MMS should recognize that Section 388 of the EPAct amended the OCSLA to specifically include the renewable energy resources of the OCS as among those “which should be made available for expeditious and orderly development.” (43 USC 1332) MMS and the Program should thus properly identify the development of the renewable resources of the OCS as a separate and independent purpose important to the national interest and defined by Congressional directive, and thus a purpose for which land-based and non-renewable energy proposals are nonresponsive, and thus not reasonable alternatives. The PEIS should thus provide that project proponents conducting future alternatives analyses, as required by NEPA, would be limited to analyzing other alternative energy uses on the OCS, because, as defined in EPAct 2005, the specific purpose of this program is to encourage clean, alternative energy technologies on the OCS.

Response: The MMS will consider this comment for subsequent NEPA analyses in connection with lease sale planning and individual project proposals.

Comment: 80087-002**Comment:** Exercising Caution in Decision Making over Offshore Uses

In its DPEIS, MMS makes it clear that it will not be able to anticipate and assess the potential environmental impacts of all the various technologies and potential locations where alternative energy and alternate uses will be proposed. Furthermore, MMS indicates that additional environmental review pursuant to the National Environmental Policy Act (NEPA) will be required for all future site-specific projects on the OCS. In its meeting on January 26, 2007, with NOAA on the DPEIS, MMS indicated that it planned to develop an Environmental Impact Statement (EIS) on all proposed activities (with the possible exception of research) in light of current information gaps. It is unclear whether or not MMS still plans to pursue this course. MMS should clarify its intent regarding future NEPA analyses.

In the absence of information on localized impacts and a comprehensive understanding of the cumulative impacts of proposed alternative energy and alternate uses on the OCS, it is important that MMS exercise caution when evaluating these uses. In light of the anticipated uncertainty surrounding proposed activities under the Alternative Energy and Alternate Use Program on the OCS, particularly during early development of the program, NOAA believes that MMS should develop an EIS for all initially proposed activities.

Response: The MMS intends to evaluate all proposed activities, including lease sales and plan submittals, through the NEPA process, with streamlining of the process as more is learned.

Comment: 80087-014

Comment: Geographic Scope: Excluding Alaska and/or tidal projects from the document may be ill-advised. Petroleum News recently announced that the federal government has recently issued permits for feasibility studies on tidal power plants in Alaska. Although tidal power plants are not considered in this DPEIS, the technology is very similar to that described for generating energy in the Florida Current, and impacts on ESA-listed marine mammals in Alaska would be similar to those identified for marine mammals in Florida. Further, it seems likely that, if one type of alternative energy technology is going to be tested in Alaska, there will be interest in testing other types of technology. Including projects in Alaska in the analysis would ensure that there is one common program for the entire country. Failing to include Alaska projects in the analysis may delay the speed at which Alaska projects can be approved, and may allow an Alaska-specific approach that may not be consistent with a national approach towards authorizing alternative energy development in the OCS.

Response: The MMS is aware of the interest in developing tidal projects in Cook Inlet, Alaska. However, tidal projects are being developed in locations where tidal flux is high,

which occurs near the coast in State waters. These locations are outside the jurisdiction of the MMS and, therefore, were not analyzed.

Comment: 80087-106

Comment: 5.1.1, Pg 5-2 – In the definition of “Major” the word “or” should be used instead of “and”. Using “and” is likely to result in an under representation of major impacts from the development and implementation of alternative energy projects.

Response: The MMS believes that the definition of “major” requires that there is not only a potential threat to the viability of the resource, but that the resource would not recover; therefore, the need for “and” in the definition.

Comment: 80087-150

Comment: 5.3.5.1 Technology Testing – This section needs to describe in detail impacts to NOAA trust resources associated with attraction or repulsion to wave energy devices. The description should provide species-specific detail. This section also should describe how NOAA trust resources and the project areas would be monitored during a technology testing event.

Response: The referenced section discusses the impacts of wave energy devices within the acoustic environment. Specific discussions of other resources (e.g., fish, sea turtles, and marine mammals) and acoustic impacts are in their respective sections.

Comment: 80091-001

Comment: The Draft PEIS for the OCS is a complete failure. It fails to give adequate, practical guidelines and best practices for assessing environmental impacts and complying with NEPA. It is improper for a PEIS to prejudge potential impact levels, as this draft PEIS does throughout, as “negligible” or “minor.” That just sends the signal to the energy industry that MMS will not place any inconvenient hurdles in the way of OCS development, regardless of NEPA.

Response: The programmatic EIS takes a first look at the impacts of three alternative energy technologies—wind, wave, and ocean current—on the marine and human environment. The EIS identifies the issues and concerns that the decision maker must consider during the establishment of the program and informs the MMS about the environmental concerns, mitigation measures, policies, and best management practices (BMPs) that may be addressed in the program and/or regulations. This EIS is not meant to be a detailed document applicable to a specific location; it is prepared as part of a process to include the public early in the development of the program and to assist the MMS in establishing processes and procedures to ensure that the environment is protected. The MMS intends to prepare or require the preparation of separate NEPA documents for lease sales and operator-submitted activities resulting from this new program. Furthermore, these actions must comply with all relevant Federal statutes such

as the Coastal Zone Management Act (CZMA), Endangered Species Act (ESA), Marine Mammal Protection Act (MMPA), and Clean Water Act (CWA). In addition, the MMS is using this first NEPA document to identify policies and BMPs that would apply to specific activities.

Comment: 80096-002

Comment: Response 2: Page ES-2, second paragraph, and in other areas of the document, “Hydrogen energy storage technologies are considered unlikely to be demonstrated or developed in the offshore marine environment in the 5- to 7-year time frame based on the current available market for the product and technological considerations for development on the OCS.”

FAU’s Center plans on developing fresh water generation systems and hydrogen generation systems. Although commercial plants are unlikely within 5-7 years, test plants may be developed and installed. Thus, MMS should consider these areas within its rules.

Response: As the MMS develops its proposed regulations, it is aware of these issues. The public will have an opportunity to comment on all aspects of the proposed regulations once they are published in the *Federal Register*.

Comment: 80096-006

Comment: Response 6: The EIS only considers Florida for the development of Ocean Current Turbines: “The only known ocean current that has these characteristics on the OCS is the Florida Current, located off the eastern coast of North America. Discussion of impacts associated with the use of ocean current technologies in this programmatic EIS is, therefore, limited to these types of facilities being constructed in the area of the Florida Current.” It is unclear if this includes the Gulf Stream offshore Northern Florida, Georgia, South Carolina, and North Carolina. Before 2014, test and or commercial turbines may be installed in some of these locations, although it is somewhat unlikely. Thus, these areas should be considered.

Response: The analyses in the programmatic EIS apply anywhere along the southeastern coast of the United States, including off the coast of Florida, Georgia, South Carolina, and North Carolina. However, because of the EIS’s programmatic nature, the analyses are not site-specific. Site-specific analyses would be conducted when projects are proposed for specific locations.

Comment: 80096-008

Comment: Response 8: The Florida Straits are a main transit route for not only commercial, pleasure, and military ships, but it is also a transit route for submarines. The impact on submarine routes should be considered.

Response: The military would be one of the stakeholders consulted on any site-specific offshore project proposal submitted to the MMS. Any impact on submarine routes would be determined at that time.

Comment: 80101-007

Comment: Landside Impacts of Transmission Requirements: The Draft PEIS states, “Construction activities such as transmission cable installation could result in moderate impacts to coastal habitats (e.g., wetlands, barrier beaches). For example, the activities could interfere with forage habitat for birds, resulting in negligible to moderate impacts depending on the location and species. Onshore construction activities may result in minor to moderate air quality impacts, mainly from fugitive dust emissions, and moderate impacts to coastal habitats (e.g., wetlands, barrier beaches). Construction activities could interfere with nesting and forage habitat for birds, resulting in negligible to moderate impacts depending on location and species.”

The successful production of offshore wind power requires new and sophisticated high voltage and extra high voltage transmission lines in order to create the transmission capacities required to transport wind generated electricity. The PEIS fails to fully analyze all of the potential onshore impacts of alternative energy production in the OCS, including the construction of new transfer stations and transmission lines needed to transport generated power.

Response: Within the 5- to 7-year time frame of the programmatic EIS, the MMS does not expect a large number of activities that would lead to an overburden of the existing infrastructure. In general, land use impacts for transmission line and possible transfer station installation are expected to be negligible as discussed in the draft EIS (e.g., see Section 5.2.20.2). However, fugitive dust emissions could cause minor to moderate impacts for a short period of time during the construction phase, similar to other commercial construction activities (e.g., see Section 5.2.2.3). The actual impacts would vary depending on the facility size and onshore locations selected.

Comment: 80102-007

Comment: Lastly, while not a direct response to the Draft EIS and to provide a constructive example, we would like to make the MMS aware that Nantucket, working in cooperation with Martha’s Vineyard, will be proactively examining a site Southwest of Tuckernuck Island as a potential site for offshore wind development. The purpose of this investigation is to establish the commercial and environmental viability of this site, which I feel should be supported by the local community because it is not in close proximity to sensitive tourism and recreational resources and noise impacts to residents would be minimal.

Response: Thank you very much for sharing this information; the MMS looks forward to working with you in those areas that fall within Federal jurisdiction.

Comment: 80104-012

Comment: MMS must analyze both direct and indirect environmental impacts of its proposed action under 40 CFR §1502.16, but has not sufficiently done so. The analysis of environmental impacts is necessarily general and superficial, since the draft PEIS considers no specific project sites. Furthermore, as explained above, the environmental impacts of the regulatory program cannot actually be analyzed because it has not been developed yet. What is offered as analysis is often merely a catalogue of possibilities.

Response: The programmatic EIS takes a first look at the impacts of three alternative energy technologies—wind, wave, and marine current—on the marine and human environment. The EIS identifies the issues and concerns that the decision maker must consider during the establishment of the program and informs the MMS about the environmental concerns that may be addressed in the regulations. This EIS is not meant to be a detailed document applicable to a specific location; it is prepared as part of a process to include the public early in the development of the program and to assist the MMS in establishing processes and procedures to ensure that the environment is protected. Individual project proposals under this program would require individual NEPA analyses that would focus on the identification and assessment of issues and concerns unique to the individual project proposal. The analysis of both direct and indirect impacts that are reasonably foreseeable is included in the programmatic EIS.

Comment: 80105-004**Comment: II. The Scope of the Draft PEIS is Unreasonably Limited**

The scope of the PEIS inquiry is important because it determines the parameters of the information provided which, in turn, affects the amount of guidance given to the agency in making its decisions. The Draft PEIS has an excessively narrow scope. It is so unduly limited in the time period, technology, and geography it covers that it risks being out of date before it is finalized. MMS has further narrowed the scope of review by choosing not to explore technology-specific guidelines or to address the issue of cumulative impacts. These decisions remove from consideration important information relevant to the development of programmatic regulations.

A. Unreasonable Time, Technology and Geographic Limitations

The Draft PEIS has limited its review to impacts from technologies and locations which industry has already shown an interest in and ability to develop over the next seven years. This is excessively limited. The PEIS will be out of date almost immediately if it does not assess the impacts of resource development not yet announced by the alternative energy industry. As the Draft PEIS has noted, offshore alternative energy development is in its infancy. The industry is likely to grow in leaps and bounds over short periods of time; particularly as market uncertainties are removed by the promulgation of regulations. As it is unlikely that a new PEIS and new programmatic regulations will be developed with each advancement in technology or each expansion of accessible resources, the PEIS

should be more proactive. Rather than limiting the review to “near shore” areas already targeted for development, and technologies that are economically viable today, the PEIS should provide information about all available resources and all known technologies in anticipation of future development.

As MMS recognizes in the PEIS, regulations bring with them tremendous incentives for increased development:

[R]egulations would also provide a road map for developers to follow during the permitting process, allowing developers to more adequately estimate the resources required for a proposed project. This would in turn result in fewer failed proposals, because developers would know the requirements before investing in projects or locations that would ultimately prove unacceptable because of unforeseen adverse impacts. Overall, it would also be anticipated that having regulations in place for permitting alternative energy activities on the OCS would result in decreased time to obtain permits, thereby facilitating faster development of the alternative energy industry on the OCS.

These incentives will no doubt have a positive impact on the number of project proposals and development locations once the regulations are developed. In fact, even without new regulations, the Draft PEIS acknowledges that “the number of inquiries regarding leases, easements, and rights-of-way for new alternative energy and alternate use projects on the OCS is increasing.” The continually increasing interest in the development of offshore alternative energy will undoubtedly translate into the development of resources previously considered technically or economically infeasible to develop. The evolution is already underway. In Germany, for example, two projects have been approved and construction is scheduled to commence in 2008 in waters 75-100 feet deep and in locations twenty miles or more from shore. In addition, developments like the Beatrice project in Scotland have demonstrated that deepwater sites, previously considered impossible to develop, are now technologically feasible. It is therefore shortsighted to develop a program (or a PEIS) limited to addressing current levels of development.

It is not practical to assume that MMS will develop new programmatic regulations or NEPA review every time alternative technology evolves. MMS must provide guidance for future development if it does not want to interfere with or obstruct the evolution of alternative energy. As such, MMS should not limit the scope of review to the current level of technology or locations of interest. Rather, the scope of assessment should be defined by the location of energy sources. The PEIS must not just consider the impacts of the limited number of projects already proposed; it must address the impacts of development that are likely to occur after the establishment of regulations. The PEIS should include an assessment of locations where resources exist in recognition that, over time, technology may make development feasible both technically and financially.

B. Lack of Technology-Specific Guidelines

MMS has further limited the Draft PEIS by eliminating from consideration regulations specific to energy sources. MMS determined energy-specific regulations to be inefficient

based on the belief that “the technologies shared sufficiently similar impacts and siting characteristics (impact on the sea bed from foundations, need for a cable etc.)” This reasoning seems contrary to MMS’s information and the format of the Draft PEIS. The Draft PEIS presents the summary of impact in a chart in chapter seven. The chart categorizes impacts by technology type. As the chart demonstrates, some resources are impacted by all of the reviewed technologies in a similar way. But, there are other resources, such as bird populations, fish, and subaquatic marine life, that are uniquely impacted by the different technologies. These differences may well warrant technology-specific guidelines at the programmatic level. These guidelines could include requirements of best practices for mitigation of unique impacts or best available mitigation techniques or some other programmatic standard based on the technology. In addition, appropriate areas for wind development may be considerably different from those for wave technology. The Draft PEIS should provide sufficient technology-specific information for MMS to make those types of determinations and to set technology-specific regulations at the programmatic level.

Response: The programmatic EIS takes a first look at the impacts of three alternative energy technologies — wind, wave, and marine current — on the marine and human environment. The EIS identifies the issues and concerns that the decision maker must consider during the establishment of the program and informs the MMS about the environmental concerns that may be addressed in the regulations. This EIS is not meant to be a detailed document applicable to a specific location; it is prepared as part of a process to include the public early in the development of the program and to assist the MMS in establishing processes and procedures to ensure that the environment is protected. The MMS intends to prepare or require the preparation of separate NEPA documents for any activities resulting from this new program, including lease sales and plan submittals. In addition, the MMS is using this first NEPA document to identify policies and BMPs that may apply to specific activities.

Comment: 80105-006

Comment: A. Inadequate Assessment of Mitigation Techniques

The Draft PEIS describes mitigation options in general terms. These descriptions are often incomplete. For example, the description of the mitigation technique for one of the “non-routine occurrences” includes the following: “Entanglement with undersea cables can be avoided by burying the cables.” Draft PEIS, p. 6-13. The Draft PEIS does not address the possibility that sediment changes can unbury previously buried cables, thus rendering the mitigation effort ineffective. None of the discussions of mitigation techniques includes an assessment of the extent to which mitigation will affect impacts or the likelihood that the technique will be employed. The Draft PEIS does not include a hard-hitting assessment of mitigation options or evaluation of comments which might help MMS to establish minimum mitigation standards at the programmatic level. The Draft PEIS therefore should include more detailed information about mitigation options.

B. Inadequate Impact-Ranking Mechanism

The draft PEIS includes an “impact scale.” The main categories for the degrees of potential harm are Negligible, Minor, Moderate, and Major. The use of these distinctions, however, is not always well explained. According to the draft PEIS, an oil spill from the project site is estimated as negligible to minor but an oil spill from a vessel collision “could be moderate or major.” As facilities may carry as much as 50,000 gallons of fuel, the difference in assessment is not clearly explained.

In addition, the use of determinations does not seem consistent among technologies. Under the category of wave technology, MMS states that “[i]mpacts to threatened and endangered marine mammals would be minor to major if individuals were lost due to entanglement in moorings.” However, under wind technology, marine mammal impacts from vessel strikes are characterized as, at most, “moderate,”¹⁸ even though vessel strikes could also result in loss of individuals designated as protected species. The Draft PEIS also describes bird impacts from wind turbines as “minor to moderate.” Again, there is no explanation as to why loss of endangered animals by wave technology is more of an impact than loss of such animals to wind technology.

These kinds of inconsistencies are not adequate for an environmental assessment of this size and importance. The PEIS must address these and all shortcomings in impact assessments.

C. Incomplete Assessments of Specific Impacts

The Draft PEIS describes impacts only in the most general terms. It does not address data requirements or mitigation techniques. In many cases, the Draft PEIS does not even evaluate the degree of risk or the level of harm. MMS bases its impact determinations on assumptions of mitigation. For example, MMS deems adverse impacts to sediment to be “negligible” based on actions which “could” be taken to mitigate impacts. See Draft PEIS, sections 5-7, Mitigation Measures. The impact assessments are often incomplete and superficial.

A prime example of the inadequacy of the Draft PEIS assessments is the discussion of impacts from unconventional occurrences. Unconventional, or “non-routine,” conditions include such things as: industrial accidents; collisions between marine vessels and either fixed components of the facilities or other vessels constructing, servicing, or maintaining the facilities; natural events, such as hurricanes and earthquakes; and sabotage or terrorism events. Draft PEIS, p. ES-13. In discussing impacts from non-routine occurrences, the Draft PEIS concludes: “[b]ecause there would generally be few personnel present at alternative energy facilities and alternate use facilities, the number of human casualties from these types of occurrences would be relatively low.” Draft PEIS, p. ES-13. This is not a valid summation of the risk. Basing the risk assessment on the number of personnel at the facility does not account for or address the impacts that the facility could have on human lives on vessels in the water surrounding the facility, nor does it address any of the environmental impacts that could occur from lubricants and oil

spills, or from dislodged turbine structures hitting the coast. It also ignores the costs associated with government cleanup after such occurrences. These are just some examples of the superficial analysis of impacts that pervades the entire Draft PEIS.

Currently, the federal government is legally responsible for the cleanup of hazardous spills or obstructions to navigable waterways. Current law does not mandate that a private developer in federal waters reimburse the government for such costs. As we have learned from Hurricane Katrina, the federal government assumes significant risks in allowing private developers to place infrastructure in federal waters that could be impacted by a large hurricane or other natural disaster. If a hurricane the scale of Katrina were to damage an offshore wind development, it appears that private developers would not be obligated to pay for the cleanup costs, leaving the United States alone responsible.

The threat of a large-scale hurricane is more than just a threat to Virginia, Florida, the Carolinas, and the Gulf Coast region. In 1938, a category three hurricane decimated southern New England and produced storm tides of 14 to 18 feet across much of the coast, with 18 to 25 foot tides from New London east to Cape Cod. The full impacts of these types of non-routine occurrences need to be addressed in the Draft PEIS. The Draft PEIS should include a thorough assessment of the risks and costs involved so that programmatic regulations can address issues such as minimum insurance requirements, or other financial guarantees of reimbursement, in instances in which the developer's actions necessitate the expenditure of government resources on a cleanup effort. This is a resource-wide concern and should be addressed at the programmatic level.

The inadequacy of the non-routine occurrences assessment, however, is only one example of many in the Draft PEIS that have not been adequate. Other examples of inadequate assessments include the following:

Response: The Programmatic EIS takes a first look at the impacts of three alternative energy technologies — wind, wave, and ocean current — on the marine and human environment. The EIS identifies the issues and concerns that the decision maker must take into consideration during the establishment of the program and informs the MMS about the environmental concerns that may be addressed in the regulations. This EIS is not meant to be a detailed document applicable to a specific location; it is prepared as part of a process to include the public early in the development of the program and to assist the MMS in establishing processes and procedures to ensure that the environment is protected. The MMS intends to prepare or require the preparation of separate NEPA documents for lease sales and projects resulting from this new program. In addition, the MMS is using this first NEPA document to identify policies and BMPs that would apply to specific activities.

Comment: 80108-008

Comment: Hopefully, those at MMS who oversee the preparation of the PEIS will, in the interest of attaining and projecting some level of objectivity, then feel compelled to study the example set by the National Academy of Sciences in their recently released Environmental Impacts of Wind-Energy Projects:

The generation of electricity from wind energy is surprisingly controversial. At first glance, obtaining electricity from a free source of energy—the wind—seems to be an optimum contribution to the nation’s goal of energy independence and to solving the problem of climate warming due to greenhouse gas emissions. As with many first glances, however, a deeper inspection results in a more complicated story. How wind turbines are viewed depends to some degree on the environment and people’s predilections, but not everyone considers them beautiful. Building wind-energy installations with large numbers of turbines can disrupt landscapes and habitats, and the rotating turbine blades sometimes kill birds and bats. Calculating how much wind energy currently displaces other, presumably less-desirable, energy sources is complicated, and predicting future displacements is surrounded by uncertainties. -p.ix

The benefits of wind energy depend on the degree to which the adverse effects of other energy sources can be reduced by using wind energy instead of the other sources. Assessing those benefits is complicated. The generation of electricity by wind energy can itself have adverse effects, and projecting the amount of wind-generated electricity available in the future is quite uncertain. In addition, the amount of potential displacement of other energy sources depends on characteristics of the energy market, operation of the transmission grid, capacity factor of the wind-energy generators as well as that of other types of electricity generators, and regulatory policies and practices affecting the production of greenhouse gases. -p.x

The committee began its work expecting that there would be measurable environmental impacts, including biological and socioeconomic impacts, and that there would be inadequate data from which to issue definitive, broadly applicable determinations. Given the complexity of the electric-power industry, the dynamics of energy markets, and the rapidity of technological change, we also expected that predicting the environmental benefits of wind energy would be challenging. On the other hand, the lack of any truly coordinated planning, policy, and regulatory framework at all jurisdictional levels loomed larger than expected throughout our deliberations. Although some predictions about future adverse environmental effects of wind-energy use can be made, the committee recognized gaps in our knowledge and recommended specific monitoring studies that will enable more rigorous siting and operational decisions in the future. Similarly, the report includes descriptions of measures of social impacts of wind-energy development, and recommends studies that would improve our understanding of these impacts. -p.x

Standardized studies should be conducted before siting and construction and after construction of wind-energy facilities to evaluate the potential and realized ecological impacts of wind development. Pre-siting studies should evaluate the potential for impacts to occur and the possible cumulative impacts in the context of other sites being developed or proposed. Likely impacts could be evaluated relative to other potentially developable sites or from an absolute perspective. In

addition, the studies should evaluate a selected site to determine whether alternative facility designs would reduce potential environmental impacts. Post-construction studies should focus on evaluating impacts, actual versus predicted risk, causal mechanisms of impact, and potential mitigation measures to reduce risk and reclamation of disturbed sites. Additional research is needed to help assess the immediate and long-term impacts of wind-energy facilities on threatened, endangered, and other species at risk. P.6

There are systematic and well-established methods for assessing and evaluating human impacts (described in Chapter 4); they allow better-informed and more-enlightened decision making.

Although aesthetic concerns often are the most-vocalized concerns about proposed wind-energy projects, few decision processes adequately address them. Although methods for assessing aesthetic impacts need to be adapted to the particular characteristics of wind-energy projects, such as their visibility, the basic principles (described in Chapter 4 and Appendix D) of systematically understanding the relationship of a project to surrounding scenic resources apply and can be used to inform siting and regulatory decisions. -p.6

Aesthetic Impacts

Aesthetics is often a primary reason for expressed concern about wind-energy projects (Figure 4-1). Unfortunately, few regulatory review processes adequately address aesthetic issues, and far fewer address the unique aesthetic issues associated with wind-energy projects in a rational manner. This section begins by describing some of the aesthetic issues associated with wind-energy projects. It then discusses existing methods for identifying visual resources and evaluating visual impacts in general, and it provides recommendations for adapting those methods to the assessment of visual impacts associated with wind-energy projects. Finally, the section briefly examines the potential for developing guidelines to protect scenic resources when planning for, siting, and evaluating prospective wind-energy projects. Visual impacts are the focus of this discussion of aesthetic impacts, but noise is considered to the extent that it is related to the overall character of a particular landscape. Noise and shadow flicker are discussed further in this chapter, under the section addressing potential impacts on human health and well-being associated with wind-energy projects.

Aesthetic Issues

The essence of aesthetics is that humans experience their surroundings with multiple senses. We often have a strong attachment to place and an inherent tendency to protect our “nest”. Concern over changes in our personal landscapes is a universal phenomenon; it is not limited to the United States or to the present day. Public perceptions of wind-energy projects vary widely. To some, wind turbines appear visually pleasing, while others view them as intrusive industrial

machines. Unlike some forms of development (e.g., cell towers), there are many people who find wind turbines to be beautiful. Nevertheless, even beautiful objects may not be desirable in one's current surroundings. Research has shown strong support for wind energy generally but substantially less support for projects close to one's home (Thayer and Hansen 1989; Wolsink 1990; Gipe 2002). -p.97

Determination of Unacceptable or Undue Aesthetic Impacts

Guidance on when projects may be found unacceptable tends to be lacking or inadequate in many review processes. The information gathered in the above process can inform this decision by providing a detailed understanding of the particular issues involved in the visual relationship between the project and its surrounding context. Appendix D provides questions that could help determine the degree of visual impact.

Among the factors to consider are:

- Has the applicant provided sufficient information with which to make a decision? These would include detailed information about the visibility of the proposed project and simulations (photomontages) from sensitive viewing areas. New York's SEQRA process offers an example of clearly identifying the information required and the mitigation measures that need to be considered.
- Are scenic resources of local, statewide or national significance located on or near the project site? Is the surrounding landscape unique in any way? What landscape characteristics are important to the experience and visual integrity of these scenic features?
- Would these scenic resources be significantly degraded by the construction of the proposed project?
- Would the scale of the project interfere with the general enjoyment of scenic landscape features throughout the region? Would the project appear as a dominant feature throughout the region or study area?
- Has the applicant employed reasonable mitigation measures in the overall design and layout of the proposed project so that it fits reasonably well into the character of the area?
- Would the project violate a clear, written community standard intended to protect the scenic or natural beauty of the area? Such standards can be developed at the community, county, region, or state level. -p.102

- Photomontages and photo simulations are essential tools in understanding project visibility, and appearance. Accurate representations involve exact technical requirements, such as precise camera focal lengths, GPS records of the photo location, and digital elevation (GIS-based) software. The technologies are changing, and it is important that simulations are accurately constructed (Stanton 2005). Local planning boards and the general public should be consulted in determining photomontage locations. They should illustrate sensitive or scenic viewpoints as well as “worst-case” situations such good weather conditions and the most scenic perspectives. -p.104

U.S. Fish and Wildlife Service Interim Guidelines

On May 13, 2003, the USFWS released “Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines” (USFWS 2003). Adherence to the guidelines is voluntary, as the guidelines note:

“... the wind industry is rapidly expanding into habitats and regions that have not been well studied. The Service therefore suggests a precautionary approach to site selection and development and will employ this approach in making recommendations and assessing impacts of wind-energy developments. We encourage the wind-energy industry to follow these guidelines and, in cooperation with the Service, to conduct scientific research to provide additional information on the impacts of wind-energy development on wildlife.” -p.128

While one may not concur with all aspects of the NAS evaluation, the academic rigor and objective spirit with which they engage these issues is indisputable. While MMS may not be able to match the resources and skill-sets of the National Academy of Sciences, there is much in Environmental Impacts of Wind-Energy Projects the Service might strive to emulate. The resulting effort would be nothing less than a significant improvement on the first Draft Programmatic Environmental Study.

Response: The MMS has reviewed the pre-publication copy of the report made available by the National Academy of Sciences (NAS). Because the NAS study focuses on onshore wind facilities, not all information presented is applicable to the offshore environment. Where appropriate, additional information was added to the programmatic EIS.

Comment: 80118-007

Comment: The Service recommends against the use “park” and “farm” to describe a wind powered generating facility in the DPEIS or by MMS in other venues. The word “park” is typically associated with the National Park Service. Using “park” to describe a wind generating facility may add confusion of terms and mission within the Department of the Interior (Department).

Response: The conventional terminology that has evolved within the renewable energy industry, but mainly from projects overseas, refers to wind, wave, and current projects as

parks or farms. The MMS is aware of the connotations and confusion associated with such terms, especially the term “park”; however, the MMS is not responsible for the choices of private industry in naming their projects. Nevertheless, the MMS prefers to use the term “facility” and will use that term to the maximum extent practical.

Comment: 80118-020

Comment: Page ES-1. Bullet 1: regarding “. . . sources other than oil and gas. . .” It is unclear what activities would be allowable but not feasible or permissible on the OCS. For clarity, please explain what other energy sources would not be used to “produce or support production, transportation, or transmission of energy” in the bullet or in a subsequent paragraph.

Response: The referenced text in the Executive Summary of the EIS is a restatement of what is included in EAct as written by the Congress. The Executive Summary provides a brief summary of what is included in the main body of the EIS. The scope of the EIS, including the technologies considered in the EIS, is explained in Section 1.3.2, entitled The Scope of This Programmatic EIS. It is also mentioned in this section that Ocean Thermal Energy Conversion (OTEC) projects are authorized under the OTEC Act of 1980 (42 USC 9101 et seq.) and, pursuant to Section 388 of EAct, are excluded from the MMS Alternative Energy and Alternate Use Program.

Comment: 80118-023

Comment: Page ES-4: 2nd paragraph under “Summary of Potential Impacts . . .” Minor impacts are described as impacts that “could be avoided. . . or the affected resource would recover completely if the impacting agent were eliminated.” A minor impact under this definition could result in the inability of the resource to recover if the impacting agent was not eliminated; in certain situations or with listed or sensitive species, such impacts may be of concern. Please consider such potential situations in this definition to further distinguish it from “moderate” or major” impacts.

Response: The MMS understands the concern that not eliminating the agent could affect the ability of a resource to recover, particularly for sensitive species. However, under those conditions where the impacting agent may result in the inability of the resource to recover in the time frame of the presence of the agent, the impact would not be considered minor, but rather moderate or major. Analyses for all potential areas subject to this type of impact would be reassessed.

B.2.3 Alternatives

Group Comment: A001

OCS05-001	OCS35-001	OCS44-002	OCS53-001	OSC57-002	OCS67-002
OCS68-001	OCS82-006	80012-001	80017-001	80055-001	80056-001
80066-001	80074-001	80087-003	80089-002	80093-001	80096-001
80100-001	80109-001	80118-001			

Comment Summary: Explicit support for the proposed action to go forward with the AERU program (or rejection of other alternatives) was expressed in some comments.

Response: Commentors' support for the MMS's Alternative Energy and Alternate Use Program on the OCS, in general, and the proposed action described in the programmatic EIS, in particular, is noted. Similarly, the commentors' lack of support for the no action alternative and the case-by-case alternative is also noted.

Group Comment: A003

OCS83-004	OCS83-033	80090-001	80103-001	80106-001
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Comment Summary: Some comments indicated MMS should select the Case-by-Case Alternative as the proposed alternative.

Response: The MMS will carefully evaluate the proposed alternatives and take your comments into consideration.

Group Comment: A004

OCS08-004	OCS20-003	OCS94-005	80062-001	80101-005
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Comment Summary: In the draft programmatic EIS, more consideration should have been given to how energy conservation and efficiency could play a role in the United States. Energy conservation and efficiency should have played a larger role in the no action alternative or been considered under a separate alternative.

Response: Thank you for the comments. The MMS added a new section in the final programmatic EIS (7.4.5) with a discussion of energy efficiency and conservation.

Comment: OCS01-001

Comment: We wholeheartedly agree with the draft PEIS evaluation that having programmatic regulations is better than not having them. We are concerned, however, that this was the extent of the evaluation MMS conducted. The draft PEIS focuses on whether or not there should be any national regulations. But the relevant NEPA question is not what is the impact of having any national regulations, rather MMS is tasked with

assessing the environmental impacts of the specific regulations that are being proposed by the agency. Because the draft PEIS fails to address the impact of the specific national regulations, either the PEIS must be redone, or a second PEIS will be required to address the draft regs when they're published.

Response: The programmatic EIS takes a first look at the impacts of three alternative energy technologies—wind, wave, and marine current—on the marine and human environment. The EIS assesses, at a high-level, the environmental impacts that are likely to occur at each of the primary stages contemplated in alternative energy development (e.g., technology testing, site assessment, construction, operation, and decommissioning). The EIS identifies the issues and concerns that the decision maker must take into consideration when deciding whether the program can be established, and what form the program should take. The EIS also informs the MMS about the environmental concerns that may be addressed in the regulations. In addition, the MMS is using this first NEPA document to identify policies and BMPs that may apply to specific activities.

Additional NEPA analyses will be required before any activity occurs on the OCS, and within these future analyses, specific mitigations will be addressed. The MMS originally intended to publish proposed regulations in the *Federal Register* shortly after publication of the draft programmatic EIS. However, the MMS subsequently determined that it would be more appropriate to finalize the programmatic EIS establishing the AEAU Program, and have the document inform the agency as it completes its efforts in drafting a proposed rule for public review and comment. The MMS currently anticipates publishing draft proposed regulations for public review and comment in late 2007 or early 2008. A separate NEPA analysis will be conducted in association with the rulemaking, which may tier off of or incorporate by reference this programmatic EIS as appropriate.

Comment OCS57-002

Comment: ...you could actually put a small percentage of the amperage off of that to create almost like a miniature coral reef that generates more of a population and blend it in, you know, like the old battleships. They sink them out in the ocean, and they let that -- they let them go underneath. They let the wildlife start to take over. And within two to three years' time, it has turned into a, you know, perfectly normal, let's say, habitat for wildlife.

Response: The commentor is suggesting that the alternative energy facilities on the OCS could also be used as artificial reefs. The potential use of the alternative energy facilities on the OCS by biota as habitat is discussed in the programmatic EIS for various resource areas. The possibility of converting such facilities to artificial reefs during decommissioning is also recognized in the programmatic EIS (see Section 3.5.5.).

Comment: OCS67-001

Comment: No Action Alternative: PCCS has previously commented (May 30, 2006) on the need for a planning process that identifies areas suitable for alternative energy development. The “No-Action” alternative contained in the EIS, therefore, is contrary to this recommendation, not to mention the congressional intent of the Energy Policy Act.

Response: The commentor’s lack of support for the no action alternative as described in the programmatic EIS is noted. NEPA regulations require all EISs to include a no action alternative even if it is against a Congressional direction.

Comment: OCS94-004

Comment: In comparing alternatives, looking at increased fossil fuel usage on land if offshore isn’t developed, ignores the fact that the majority of renewable energy is and will continue to be developed onshore. Even in European countries that have offshore wind energy, the amount of energy produced offshore is small relative to the amount generated onshore. The United States is not at a land deficit as many European countries are, and the interest in offshore development is driven by the desire to site near load centers to take advantage of energy pricing structures in these areas.

Response: Onshore wind is discussed in Section 7.4.4.2 of the draft Programmatic EIS. According to the U.S. Department of Energy (USDOE), the Nation’s domestic wind power market continues to rapidly expand, with 2006 being the largest year on record for wind capacity additions. In some parts of the country, however, such as New England, there is increasing demand for electricity but limited available land to build conventional or renewable power facilities. It is very desirable to locate a wind facility near load centers to reduce transmission losses. Also, offshore wind allows for greater capacity because of the size of the potential structures and the consistency of the resource.

Comment: 80005-001

Comment: Please, Stop the madness. The proposed installation of wind turbines off our shoreline is just that. Thanks to over-development, the natural habitat of the native wildlife is rapidly disappearing. Now, we are to allow the same to happen to our ocean? The state of New Jersey is a major corridor for migrating birds. As a concerned citizen and human being, I am opposed to any destruction of wildlife, or marine life. I am troubled that the issue of this offshore wind turbine system to our shoreline and its inhabitants is even still in debate, after the long list of environmental impacts. Exactly, how many marine mammals dying in the moorings equate to minor impact? How many birds migrating into the blades of metal turbines equate to moderate impact? hope your answer will be: Even one is too many. We won’t allow it. No to Wind Turbines!

Response: The commentor’s opposition to building wind facilities off the coast of New Jersey is noted. If there would be proposals to build such facilities off the coast of New Jersey in the future, appropriate project-specific environmental reviews would be

conducted at the time, and appropriate mitigation measures would be considered to protect the natural resources.

Comment: 80058-034

Comment: I. Evaluation of an Additional Alternative: Strategic Planning Approach to Siting

As in our prior scoping comments, CESA continues to urge MMS to evaluate an alternative under which MMS would employ a strategic planning approach to program deployment and regulatory decision-making. This approach is in sharp contrast to the proposed action in which MMS proposes to establish a program characterized by MMS reaction to, and review of, developer-selected projects with no advanced stakeholder/MMS planning process. (For detailed recommendations on CESA's strategic planning recommendations, see CESA Comments on Advanced Notice of Rulemaking, February 27, 2006; CESA Comments on Notice of Intent to Prepare PEIS, June 27, 2006.)

Rather than eliminating altogether the strategic planning approach as an alternative for detailed analysis, MMS should perform a detailed evaluation of the costs and benefits of such a coordinated, anticipatory planning approach in comparison to the proposed action. Under this "planning" alternative (as described fully in CESA prior comments), MMS would establish a program that identifies, through an integrated stakeholder process, several strategically-selected areas to foster consensus-based project development. This approach would be similar to the highly successful approaches being employed by Great Britain and other European countries to advance offshore wind development.

The recent report by the National Academy of Sciences, *Environmental Impacts of Wind-Energy Projects*, May 2007, recommends just this type of anticipatory planning approach for regulatory review of wind projects:

Regulatory review of individual wind-energy projects should be preceded by coordinated, anticipatory planning whenever possible. Such planning for wind-energy development, coordinated with regulatory review of wind-energy proposals, would benefit developers, regulators, and the public because it would prompt developers to focus on proposals on locations and site designs most likely to be successful. Anticipatory planning for wind-energy development also would help researchers to target their efforts where they will be most informative for future wind-development decisions.

Id.

While the NAS study was addressing land-based wind projects, the reasoning applies equally to offshore wind energy projects. Such a planning approach could reduce regulatory conflicts and development delays.

In the draft PEIS, however, MMS rejects this strategic planning approach at this early stage of development because the Service “did not want to limit the possibilities for development” and because “MMS does not have (and cannot reasonably attain) the requisite information to ‘map-out’ the best areas for alternative energy project activity.” Id. at § 2.4.2. However, MMS could implement a strategic planning process to develop the requisite information while, at the same time, allowing developers to apply for developer-initiated projects in the first phase of the program (5 to 7 years), based on environmental screening and assessment performed by the applicant.

Under the planning-oriented alternative, MMS could allow for early projects to go forward on a project-specific review. Concurrently, MMS would launch, in cooperation with interested coastal states, a strategic planning process for several selected regions to develop additional resource information to identify the best areas for alternative energy development. In fact, in the PEIS, MMS states that “it may in the future establish ‘resource-specific development zones’ or ‘no-development zones’ likely through coordination with potential affected states.” Id.

Therefore, to evaluate the merits and elements of this planning approach and its possible future phase-in, CESA urges MMS to include this strategic planning alternative in the final PEIS as a formal alternative. Specifically, MMS should provide a more detailed analysis of the possible framework, elements, timing, and merits of such an anticipatory planning approach.

Response: The MMS agrees that broad-scale planning is important, but currently information is limited as to where the resource exists, whether the technology will work, and the extent of regional impediments to transmitting electricity to shore. It is, therefore, inappropriate to restrict development to certain areas without a full understanding of the regional needs and challenges. Defining these areas is more appropriately done at a regional level, when appropriate stakeholders can be more actively involved.

Comment: 80087-060

Comment: 2.4, Pg 2-4 – NOAA disagrees with the dismissal of Alternatives 2.4.1, regulations by energy source (i.e., wind, wave, and tidal) and 2.4.2, identification and analysis of coastal areas with greatest resource potential. These alternatives should be further developed or perhaps incorporated into existing alternatives. Although commonalities exist between the technologies assessed, there are significant differences between the relative risks these technologies pose for living resources (e.g., stationary, floating, actively turning sub-surface blades). Similarly, affects on animal feeding habitats or migratory routes may vary widely by geographic region. The document would be strengthened by providing a more definitive programmatic model for consideration.

Response: The MMS agrees that broad-scale planning is important, but currently information is limited as to where the resource exists, whether the technology will work, and the extent of regional impediments to transmitting electricity to shore. It is, therefore, inappropriate to restrict development to certain areas without a full understanding of the

regional needs and challenges. Defining these areas is more appropriately done at a regional level, when appropriate stakeholders can be more actively involved.

Comment: 80088-001

Comment: The DEIS was difficult to review because the “Proposed Action” remained undefined throughout the document. MMS points out that agency experience with the environmental consequences of the novel alternative technologies is limited or lacking, however, one of its primary motivations for moving ahead with the undefined proposed action appears to be to expedite the process of issuing leases or licenses for offshore development. The lack of information on the consequences or impacts of development would seem to be cause for taking a deliberate precautionary approach. None of the alternatives, including the proposed alternative, clearly outlines how information on impacts of new technologies on OCS living resources and habitats will be enhanced as the project goes forward.

Response: For each primary phase of alternative energy development (i.e., technology testing, site characterization, construction, operation, and decommissioning), the EIS analyzes the generic impacts that are likely to occur on the OCS. Information is limited because there are currently no activities occurring on the Federal OCS at this time. The EIS identifies the issues and concerns that the decision maker must take into consideration when deciding whether the program can be established, and what form the program should take. The EIS also informs the MMS about the environmental concerns that may be addressed in the regulations. In addition, the MMS is using this first NEPA document to identify policies and BMPs that may apply to specific activities.

Comment: 80102-001

Comment: 1. It would seem that the Energy Policy Act requirements substantially supersede the “no-action” alternative as outlined in the document (ES-3).

Response: NEPA regulations and guidelines require the analysis of the no action alternative.

Comment: 80104-014

Comment: Under 40 CFR §1502.14, MMS must examine the environmental impacts of alternatives to the proposed action, rigorously evaluating all reasonable alternatives and devoting substantial treatment to each alternative considered in detail. The draft PEIS only provides a cursory discussion of two alternatives, case-by-case and no-action. The identified environmental impacts for the alternatives are not fully examined. For example, the document lists four adverse impacts from the lack of consistency that could be created by the case-by-case alternative, including “possible inconsistent or inadequate mitigation stipulations for some projects, leading to adverse environmental impacts.” No effort is made to further delineate these impacts. Such an inadequate alternatives analysis

section cannot meet NEPA requirements, and we urge MMS to more fully develop this section.

Response: The proposed action alternative analyzes three technologies—wind, wave, and marine current—from site characterization through decommissioning on the East, Gulf, and West Coasts of the United States. That is, the proposed action alternative looks at the full range of impacts at a programmatic level. The case-by-case alternative analysis identifies where impact assessments may deviate from the proposed action analysis. This is a programmatic level analysis that, by its nature, is relatively broad and generic.

Comment: 80105-001

Comment: A. Irrelevant NEPA analysis:

The Draft PEIS correctly states that “the NEPA process is intended to help public officials make decisions based on an understanding of environmental consequences and take actions that protect, restore, and enhance the environment.” Yet the Draft PEIS is focused on an inquiry that is not relevant to current decisions. It focuses on whether or not there should be national regulations, and it attempts to address the environmental impacts of the three following alternatives:

1. The proposed action (the development of programmatic regulations);
2. A case-by-case scenario (the issuance of licenses or easements based on a project-level review only, without programmatic regulations); and
3. A no-action alternative (MMS would not issue any leases or easements for development, and alternative development on the OCS would not be permitted).

This inquiry is of little value. Section 388 of EPO Act calls for the development of alternative energy on the OCS. It also implicitly mandates programmatic regulations by requiring resource-wide protection. In addition, it is clear that MMS has already made the determination that programmatic regulations are necessary, as the agency has published an ANPR, spent sixteen months developing such regulations, and is scheduled to publish draft regulations for comment and review this summer. There is absolutely no reason to produce a PEIS on the need for regulations.

Response: Section 388 of EPO Act granted the Director of the MMS (through the Secretary of Interior’s delegation) discretionary authority to authorize alternative energy activities on the OCS. This programmatic EIS assists in informing the MMS Director of the general environmental considerations associated with authorizing such activities. The EIS takes a first look at the impacts of three alternative energy technologies—wind, wave, and marine current—on the marine and human environment. The EIS assesses, at a high-level, the environmental impacts that are likely to occur at each of the primary stages contemplated in alternative energy development (e.g., technology testing, site assessment, construction, operation, and decommissioning). The EIS identifies the issues and

concerns that the decision maker must take into consideration when deciding whether the program can be established, and what form the program should take. The EIS also informs the MMS about the environmental concerns that may be addressed in the regulations. In addition, the MMS is using this first NEPA document to identify policies and BMPs that may apply to specific activities.

Additional NEPA analyses will be required before any activity occurs on the OCS, and within these future analyses, specific mitigations will be addressed. The MMS originally intended to publish proposed regulations in the *Federal Register* shortly after publication of the draft programmatic EIS. However, the MMS subsequently determined that it would be more appropriate to finalize the programmatic EIS establishing the AEAU Program, and have the document inform the agency as it completes its efforts in drafting a proposed rule for public review and comment. The MMS currently anticipates publishing draft proposed regulations for public review and comment in late 2007 or early 2008. A separate NEPA analysis will be conducted in association with the rulemaking, which may tier off of or incorporate by reference this programmatic EIS as appropriate.

Comment: 80115-002

Comment: 2. CCE opposes a no action alternative. A no action alternative would mean the halt of all renewable energies off the outer continental shelf. Renewable energies are home-grown, pollution-free sources of energy. CCE believes that steps should be taken to reduce America's dependence on foreign fossil fuels and to use clean, emission-free sources of energy that benefit the quality of our air and water sources.

Response: The commentor's opposition to the no action alternative and support for the development of renewable energy options are noted. The proposed action as described in the programmatic EIS would facilitate the development of such energy sources on the OCS.

B.2.4 Alternative Energy

Group Comment: A014

OCS23-001	OCS29-002	OCS30-003	OCS31-003	OCS31-004	OCS33-001
OCS33-003	OCS36-001	OCS36-003	OCS39-001	OCS42-001	OCS43-001
OCS60-001	OCS61-001	OCS72-001	OCS92-002	80048-001	80081-009
80085-001	80089-001	80109-008			

Comment Summary: A sense of urgency in developing alternative energy projects was noted in a number of comments. The need for expeditious alternative energy development was attributed to reasons associated with homeland security/national energy independence, global climate change, and regulatory delays.

Response: The Alternative Energy Program is a promising new national energy program involving the development of a highly complex regulatory framework dealing with diverse industries, new technology, and a broad spectrum of activities. As such, the MMS has taken very seriously its responsibility to develop this important program, of which this final EIS, along with the policies, BMPs, and mitigation are key components.

Group Comment: A019

OCS15-004	OCS40-001	OCS41-003	80047-002	80058-032	80067-001
80067-002	80067-003	80081-005	80083-001	80092-006	80094-008
80103-007	80104-022				

Comment Summary: The benefits from the offshore development of alternative energy sources should be better emphasized in the EIS, in part to show why development should occur. Benefits include the reduction of greenhouse gas emissions (climate change), improved air quality with reduced human health risks, reduced damage to ecosystems from mining fossil fuels, and decreased reliance on foreign sources of energy.

Response: The MMS agrees, and the EIS has been revised to incorporate the benefits of alternative energy where appropriate.

Comment: OCS07-002

Comment: There are also, I think, throughout the document, a number of factual errors and deficiencies. There are under estimated or over estimations of the potential of alternative energy to displace fossil based fuels, sort of sweeping statements made about how it might happen. All of those opportunities, if you want to call them that, are premised on the idea that you can site these facilities in a way that the tradeoffs or the impacts of the existing resources are there, the existing uses of the ocean are acceptable. You know, we sort of operate on the premise that you don't trade one resource for the other. So, in our desires to address the reduction of greenhouse gases or to provide for capacity next to load centers. We don't trade away the ocean. We don't trade away its resources. Particularly when you do a hard objective analysis of the ability to integrate some of these alternative technologies or alternative generation methodologies into a grid based electrical system, you find that those benefits are fairly small and in fact there are a number of options that could provide the capacity there that are probably much less expensive to the public. When you look at the economics and look at the numbers of particularly offshore wind, I don't think anybody will try to argue that it can't happen without a tremendous amount of public subsidy either through tax credits, either through regulatory mechanisms such as the environmental credits to go with the renewable portfolio standards and that money, that public money might be better invested in other places. That type of alternative I did not see in the EIS.

Response: Offshore alternative energy is not a panacea for our Nation's growing energy needs; however, appropriately sited projects can contribute to satisfying energy demand at a regional level. The programmatic EIS is taking a first look at the potential interface

between these new technologies and the marine environment and is not meant to incorporate a detailed analysis.

Comment: OCS12-001

Comment: MR. HERSH: Good evening folks. I'm Charles Hersh and I am a retired electrical engineer and I think you people have a hard job because everybody is going to want renewable energy. Everybody's going to want all kinds of gas and everything and the big question is how well will it work and how much will it cost. And you may have to say no to people, even though they desperately want something that will turn out to be a piece of junk like the wind farm. And it's not just the flaw of the wind farm, it's the wind itself. You know, you are trying to build a device that is going to work dependably on something that's not dependable, the wind. The other problem with the wind is it's low density. That forces you to build gigantic structures in order to catch a sufficient power and it means that the thing is not cost effective. It costs a small fortune, it's not dependent. A 20 percent drop in wind speed will have the power and the energy isn't there. And so this is why the wind farm is a piece of junk and they are planting them all over the place and the environmentalist love it. It's renewable energy. I will tell you something else, after it's built, they will look at these windmills and they'll say they're lovely, we love them. And they are still not producing a lot of power and they are still not dependable and they don't even see the bottom line. And yet that's what they are going to be doing. Now you are going to look at wave energy. Well I have to admit the density of water is 800 times as much as air, but waves tend to be bigger when there's wind, so that's not even dependable.

Response: The reliability issues of wind and wave energy resources are well recognized, and the capacity of energy capture devices is factored into the decisions when such facilities are proposed, reviewed, and constructed. The MMS does not decide on the reliability and the economics of alternative energy facilities. Such decisions rest with the companies that propose to build and operate those facilities.

Comment: OCS12-002

Comment: I don't know. You could have a fool's paradise. As renewable energy, I'm hereby declaring natural gas is renewable. It is being made by vegetation. The scientific American just stated that, even living plants make methane. And so that's renewable. So maybe you should also consider looking for a natural gas. Frankly, re powering he spends generating equipment, we do a lot more than combat global warming, a lot better for the rate payers and we would do a lot more to cut fossil fuel use. It's not even close compared to that wind farm. That's the things you should be thinking about, not -- you know, you have to be careful because the newspapers and all, the environmentalists, they will get enthusiastic about something and then low and behold maybe it will be good and maybe it will be a piece of junk. So you have your work cut out for you and I'll try, if you want, I'll try and help you, but it's tough. Maybe they will come up with an easy way to produce hydrogen. Craig Branta, you know, is looking at it but I don't know what they are going to come up with. I would say that some of the old fashioned things like re-

powering worked much better and that often means switching from oil to natural gas and so you should look at L and G and so I am going to wish you guys the best of luck. Okay. You have a hard task. Thank you very much.

Response: The economic viability of alternative energy facilities on the OCS is beyond the MMS's responsibility. Commercial firms would evaluate the economic feasibility of their facilities and would not propose to build them if they were found to be not economical. The commentor's offer to help is noted.

Comment: OCS13-005

Comment: The draft programmatic EIS dismisses most environmental concerns and impacts as negligible to moderate, which in my view for all intense purposes, renders an environmental review particularly for this project superfluous and unnecessary. In essence, through this national draft programmatic, you have given an environmental green light to this project. I would like to give a point by point analysis or breakdown of why or how this programmatic should be changed but quite frankly it's unsalvageable with respect to the wind portion. I think that MMS should simply tear up the draft portion, the wind portion, of this draft programmatic and you should start over.

Response: The programmatic EIS is an initial assessment of the potential impacts from the development of alternative energy projects. The potential impacts are determined to be negligible to moderate depending on the resource and possible mitigation measures, including careful siting of facilities. Detailed analyses would be required for specific lease sales and projects; the EIS would be used as guidance in identifying key issues of concern and probable mitigation measures that may be applied. The MMS believes that this EIS is a solid initial analysis of the potential generic impacts from the interface of the technology with the marine environment.

Comment: OCS15-005

Comment: Re-powering the existing plants is an alternative that must be considered due to its benefits concerning reduction of emissions as well as doubling capacity of existing plants.

Response: The alternatives analyzed are developed from the purpose and need of the proposed action as required by NEPA. The proposed action is the establishment of the MMS AEAU Regulatory Program. Analyzing an alternative that evaluates repowering of existing facilities does not arise from the purpose and need statement. However, the programmatic EIS does include a discussion of repowering in the no action alternative.

Comment: OCS43-002

Comment: I would like to ask you to also keep in mind that whatever regulations or procedures you ask to be implemented in the statement that you also keep in mind the cost and the impact of the cost on those who would be involved, so it doesn't necessarily

mandate adding unnecessary cost to the ultimate end user of those projects and make them financially unfeasible. I was involved in a lot of the demand side management programs that the utilities were involved with and found, and ultimately we all found some of their ridiculously costly and cost the rate payers of all of these utilities unnecessary dollars.

And those in a, you talk about follow up programs, impact programs to see what the true results are, one of the prime conclusions were that we were over-measuring and over-verifying that a 30 watt compact fluorescent actually consumes 30 watts of energy compares to a 100 watt incandescent, so keep in mind, please, the cost of what this takes so we can make this process as simple as possible

Response: The MMS is cognizant of the fact that any regulatory program it develops will have an unavoidable financial impact on the industry as well as, indirectly, the energy consumers. In analyzing program options, the MMS has carefully considered this issue and balanced it against the need to ensure that alternative energy and alternate use activities on the OCS are conducted in a fashion that avoids or minimizes environmental impacts and ensures safe and sound operations. The MMS will work to identify areas where it can take the lead in making the assessments as well as leveraging partnership opportunities to move forward in a cost-effective manner.

Comment: 80087-015

Comment: Comparison with Existing Energy Sources

An informative method of assessing impact would be an explicit consideration of the status quo. For example, generation of 1000 MW at a coal or oil-fired plant should be compared with the potential impacts of an alternative energy source. The possible consequences of dispersing mineral oil from a wind turbine transformer should be compared to the risks of hundreds of thousands of oil ton-miles to produce an equivalent amount of energy. While this may be beyond the scope of this report, such information would help evaluate impacts from a range of different energy sources. Chapter 7.4 addresses alternatives in a very general way, but a proper comparison would compare these impacts on a per delivered-BTU or other energy measurement basis. A few comparative tables depicting such results would be a very helpful addition to the report.

Response: The MMS agrees that this type of analysis would be informative, but it is beyond the scope of this EIS.

Comment: 80118-022

Comment: Page ES-4: *“As a further consequence [of taking the no action alternative], a potentially significant option for meeting US. energy demands would be eliminated, and the United States would be less competitive in alternate energy development and implementation worldwide. In turn, the impacts from coal, nuclear, and natural gas usage to satisfy expanding energy demand would be increased...”* While the Service

supports alternate energy, including wind energy development — provided it is done in the most wildlife- and habitat-friendly ways — wind energy will not entirely replace fossil-fuel energy. Wind energy is the fastest growing energy initiative both Stateside and worldwide, however, coal and natural gas energy sources continue to also grow exponentially, especially in the United States. Wind-generated electricity will provide some of the energy needs for the growing energy demands in the U.S., but will not completely replace CO₂-producing fuel sources. This issue needs to be clarified in the final PEIS.

Response: The MMS agrees that wind-generated electricity will not completely replace carbon dioxide (CO₂)-producing fuel sources, but wind-generated electricity could become a significant option in helping to meet the increasing energy demands in the United States.

Comment: 80118-084

Comment: Page 7-14, Section 7.4 Impacts of Other Energy Sources: The Service recommends providing an analysis of the impacts of other energy sources on wildlife and their habitat, especially wave- generation hydropower. Additionally, we strongly encourage MMS include in this analysis an evaluation of energy conservation as an alternative to developing new energy sources in the final PEIS.

Response: The alternatives analyzed are developed from the purpose and need of the proposed action as required in NEPA regulations. The proposed action is the development of a regulatory program for oversight of alternative energy development on the OCS and alternate use of existing structures. Analyzing an alternative that evaluates energy conservation does not arise from the purpose and need statement. However, a discussion of conservation in the no action alternative is appropriate and is presented in this final document.

B.2.5 Alternate Use

Group Comment: A021

OCS03-002	OCS03-003	OCS45-001	OCS46-001	OCS46-002	OCS46-003
OCS70-006	OCS70-007	OCS70-008	OCS71-001	OCS71-002	OCS73-002
OCS78-004	OCS80-021	OCS93-002	80013-001	80013-002	80033-001
80034-002	80035-002	80036-001	80037-002	80038-002	80039-002
80040-002	80041-002	80042-002	80043-002	80044-002	80047-001
80050-002	80051-002	80063-002	80068-007	80068-019	80071-001
80076-001	80078-001	80078-004	80078-005	80078-006	80078-007
80079-012	80079-013	80080-001	80082-001	80087-162	80087-165
80087-166	80090-006	80094-010	80104-018	80106-008	80117-001
80118-018	80118-027	80118-080	80118-086		

Comment Summary: MMS's authority to regulate aquaculture was questioned and concerns were raised about the hazards posed by aquaculture operations. Others offered benefits and mitigation measures that would reduce adverse impacts.

Response: Many of the concerns raised in the comments over the hazards of offshore aquaculture were recognized in Section 6.3.2 of the draft programmatic EIS. Additional concerns identified in the comments have been added to the discussion, along with suggested mitigation measures in the final programmatic EIS. Potential benefits from the use of retired oil and gas facilities for aquaculture were also identified in the comments and have been incorporated into the final EIS as appropriate.

A more detailed analysis of aquaculture, as requested by some commentors, is not presented because the programmatic EIS is making a high-level analysis of the potential impacts from potential alternate uses of existing oil and gas facilities. This EIS is not meant to be a detailed document applicable to a specific location; it is prepared as part of a process to include the public early in the development of the program and to assist the MMS in establishing processes and procedures to ensure that the environment is protected.

A major concern raised in the comments was the MMS's authority to regulate offshore aquaculture. The MMS has no active role and is not seeking a primary role in regulating aquaculture activities. However, under the MMS's new "alternate use" authority provided under Section 388 of EPLA (codified as subsection 8(p) of the Outer Continental Shelf Lands Act [CSLA]), the MMS may consider proposals to conduct aquaculture activities that involve the use of existing OCS oil and gas facilities, since there currently are no regulations governing this activity. The MMS is in the process of completing a proposed rulemaking for the OCS Alternative Energy and Alternate Use Program, and the proposed rule would emphasize the need for coordination and consultation with the National Oceanic and Atmospheric Administration (NOAA) and other relevant Federal agencies before the MMS would consider approving any alternate use proposal involving aquaculture. The MMS is also aware of the National Offshore Aquaculture Bill currently being discussed by Congress that would make NOAA the lead agency for offshore aquaculture. Should the bill be enacted, the MMS looks forward to working closely with NOAA on any potential proposals that involve the use of existing structures.

Comment: OCS84-002

Comment: CARE would, however, like to draw your attention to the considerable body of research that has been conducted in the past several years demonstrating the ecological benefits of using oil platforms as artificial reefs. We note that, while the EIS refers to an older review of the field by Holbrook et al., which identified some gaps in the understanding of platform habitat value that then existed, the EIS does not describe or even cite the extensive research that has been conducted more recently to fill those gaps, which conclusively demonstrates the benefits of artificial reefs as fish habitat. These comments contain additional scientific information that should be included as part of the record and evaluated in the Final EIS.

Response: The MMS recognizes that there are many additional references that deal with the potential for offshore platforms to serve as artificial reefs and research pertaining to the ecological communities associated with such structures. Additional citations have been added to discussions about potential ecological effects. However, as discussed in Chapter 6, the functioning of oil and gas structures as artificial reefs would be secondary to the proposed alternate uses considered in this programmatic EIS. Conversion of oil and gas structures to artificial reefs is out of scope for this programmatic EIS as EPA Act does not supersede existing artificial reef programs.

Comment: 80068-002

Comment: Weaknesses include: a tendency to emphasize the benefits of alternative uses and to minimize potential adverse effects. For example, the description of impacts associated with removing oil and gas rigs is heavily skewed toward the negative impacts on the ecological communities associated with the rigs, rather than on any potential benefits for the restoration of the natural communities that were displaced by the rigs originally.

The description also emphasizes the benefits of rig communities to sportfishing etc. and does not describe any of the controversies associated with this issue (e.g., do rig communities increase exposure of vulnerable species that are attracted to the rigs away from natural reefs to fishing pressure?).

Response: Adverse impacts from alternate uses are discussed in Sections 6.3.1.2, 6.3.2.2, 6.3.3.2, and 6.5. Additionally, the vast majority of oil and gas structures on the OCS are in the GOM where there is very little natural rock bottom and reef habitat. Thus, benefits from rig removal to any natural communities originally displaced would be small compared with disruption of the communities that were established on the rigs. Again, because of the limited natural rock bottom and reef habitat in the GOM, the increase of exposure to vulnerable species from natural reefs is expected to be small compared with disruption of the artificial reef community from rig removal.

Comment: 80068-004

Comment: Weaknesses include: failure to comprehensively consider alternative uses of offshore facilities. For example, the PEIS fails to consider deep water carbon sequestration activities that may involve the use of offshore facilities or facilities onshore in Hawaii or other places where deep water lies close to shore, which could potentially affect federal waters (e.g., through the development of large dead zones associated with mortality from liquefied CO₂).

Response: The alternate use of oil and gas structures for carbon sequestration activities is not likely within the 5- to 7-year time frame of the EIS. Its omission from the EIS does not exclude such an activity from being considered by the MMS should such a project be proposed. In that case, project-specific NEPA analyses would be required before such an activity could be allowed.

Comment: 80068-006

Comment: Weaknesses include: failure to consider the framing of a national policy to define how use privileges (e.g., leases for ocean energy facilities and permits for alternative uses) will be allocated and how resource rents will be tapped to help fund ocean conservation, mitigation, and restoration efforts. Because this PEIS and the proposed AEAU program deal with new uses of the OCS, such a national policy should be front and center.

Response: Section 388 of EPLA requires that a percentage of the revenues be shared with the affected States. The remaining revenues would be deposited in the general fund. A national policy to establish a fund for ocean conservation, mitigation, and restoration efforts, as suggested by the commentator, would need to be created by Congress.

Comment: 80068-009

Comment: Page ES-1. The area of interest of the PEIS is restricted to 500 m. This fails to consider the rapidly evolving interest in deepwater carbon sequestration technologies. They could be classified an alternate use (if, e.g., oil rigs are used to support deepwater carbon injection) and thus subject to regulation under the proposed AEAU program.

Response: The 500-m (300-ft) depth limit is defined for marine current energy technologies. Alternate use of existing platforms is limited only by the locations of these structures. The discussion of alternate use was not meant to be all inclusive, since it is not possible to predict all potential uses. Certainly, carbon sequestration is not beyond the realm of possibilities, and should a potential applicant approach the MMS with a realistic proposal, the environmental consequences would be considered at that time.

Comment: 80068-018

Comment: Page ES-11. The description of impacts associated with removing oil and gas rigs is heavily skewed toward the negative impacts on the ecological communities associated with the rigs, rather than on any potential benefits for the restoration of the natural communities that were displaced by the rigs originally. The description also emphasizes the benefits of rig communities to sportfishing etc. and does not describe any of the controversies associated with this issue (e.g., do rig communities increase exposure of vulnerable species that are attracted to the rigs away from natural reefs to fishing pressure?).

Response: The vast majority of oil and gas structures on the OCS are in the GOM where there is very little natural rock bottom and reef habitat. Thus, benefits from rig removal to any natural communities originally displaced would be small compared with disruption of the communities that were established on the rigs. Again, because of the limited natural rock bottom and reef habitat in the GOM, the increase of exposure to vulnerable species from natural reefs is expected to be small compared with disruption of the artificial reef community from rig removal.

Comment: 80079-003

Comment: On the other hand, MMS should decline to address Alternate Uses for existing rigs as these are not germane to advancing energy policy, but rather are perceived as a way of letting lessees off the hook for decommissioning and liability as is legally binding now.

Response: Section 388 of EPLA gives the MMS discretion to allow structures to remain on the OCS after cessation of oil and gas production provided there is an acceptable alternate use. The use of these structures would still require complete removal once the new activities cease, and approval of an alternate use does not allow existing lessees to avoid accrued decommissioning responsibilities.

Comment: 80087-167

Comment: 6.3.2.3, Pg 6-11, Paragraph 4 – This paragraph on mitigation measures needs to be edited to reflect NOAA comments with respect to non-native species and siting of aquaculture facilities, specifically:

- At the end of the second sentence, add: “unless a scientific risk analysis shows that the risk of harm to the marine environment from the offshore culture of nonindigenous or genetically modified marine species is negligible or can be effectively mitigated.”
- Revise the last sentence to read: “facility siting should consider impacts on essential fish habitat and traditional fishing grounds” (rather than “should avoid...”)

Response: The suggested changes have been incorporated into the final programmatic EIS.

Comment: 80087-168

Comment: 6.4, Pg 6-12 – Several other uses seem possible for retired oil and gas platforms. Although such proposals are not expected within the next 5 to 7 years, MMS should state whether these facilities will be included within MMS’ program for alternative energy and alternate use.

Response: As in the case of alternative energy, proposals submitted for alternate uses not covered in the programmatic EIS would not be excluded from consideration. The MMS would consider such proposals on a case-by-case basis along with the attendant site-specific NEPA analyses.

B.2.6 Regulations, Guidelines, and Stakeholders

Group Comment: A009

OCS75-001 OCS78-001 OCS78-003 OCS82-003 80047-008 80047-009
80062-002 80069-001 80086-002 80094-001

Comment Summary: There were general comments received that emphasized that MMS be protective of the environment in its regulation of offshore alternative energy development. Siting of alternative energy facilities should pay close attention to sensitive areas and cause minimal impact to sensitive areas and wildlife.

Response: The MMS will manage the OCS Alternative Energy and Alternate Use Program in a manner that ensures environmental protection and human safety. Any alternative energy-related activity must comply with all relevant Federal statutes such as NEPA, CZMA, ESA, MMPA, and CWA. Additionally, this final EIS contains proposed policies and BMPs to ensure that any alternative energy-related activities are conducted in an environmentally sound manner. The MMS also plans to prepare or require the preparation of separate NEPA documents for any activities resulting from this new program, including individual lease sales and required plan submittals. As well, the MMS intends to use an adaptive management approach to regulate alternative energy activities by using a system whereby the operating industries can demonstrate and validate their performance. The MMS then would require adjustments to mitigation and monitoring activities on a case-by-case basis based on operating experiences. These efforts would involve reassessing the program and regulations as new information becomes available.

Group Comment: A010

OCS02-003 OCS44-001 OCS49-004 OCS50-001 OCS87-004 OCS89-006
80052-005 80072-002 80074-005 80081-008 80092-005

Comment Summary: Concerns were raised about the potential jurisdictional conflict between MMS and FERC with respect to the siting of offshore alternative energy projects.

Response: Following the adoption of EPAct, there has been some uncertainty as to the appropriate regulatory roles of the Federal Energy Regulatory Commission (FERC) and the MMS with respect to wave and current energy projects proposed on the OCS. The MMS is currently working with FERC to prepare a Memorandum of Understanding (MOU) that will help clarify the roles and responsibilities of each agency. The MMS is working closely with FERC and other Federal agencies to ensure a transparent, efficient, and orderly regulatory framework for alternative energy activities on the OCS.

Group Comment: A011

OCS18-003	OCS53-003	OCS74-001	OCS81-003	80032-002	80045-001
80085-004	80109-003	80109-006			

Comment Summary: MMS is urged to review lessons learned from past alternative energy projects and also similar regulatory experiences.

Response: The MMS intends to take into consideration all the lessons learned from the experiences around the world, as well as the MMS's long history with operations on the OCS.

Group Comment: A012

OCS05-004	OCS10-001	OCS17-003	OCS24-004	OCS45-004	OCS48-002
OCS49-003	OCS50-002	OCS78-002	OCS82-001	OCS82-007	OCS83-014
OCS83-018	OCS83-020	OCS83-024	OCS83-025	OCS83-027	OCS83-032
OCS83-044	OCS83-045	OCS83-047	OCS83-050	OCS83-052	OCS85-005
OCS85-007	OCS88-001	OCS90-001	OCS91-001	OCS94-002	OCS95-002
80052-003	80058-004	80058-005	80058-006	80058-007	80058-031
80058-035	80058-038	80068-030	80069-004	80069-005	80070-005
80072-003	80079-004	80087-001	80087-005	80087-009	80087-013
80087-043	80087-048	80099-004	80103-010	80104-008	80118-002
80118-021	80118-042	80118-088			

Comment Summary: Many comments were received expressing the need for MMS to work in coordination with (and recognize other relevant, existing regulations) other federal agencies as well as state and local agencies, developers, citizen groups, and other affected organizations. Such coordination is essential for a transparent development process to ensure that all parties are aware of and account for all relevant governmental processes and permits required. Such coordination is also necessary to resolve space/use conflicts and optimize data collection and dissemination in support of alternative energy and alternate use development. While some merely stated that such coordination was necessary, others requested how MMS was planning to carry out such a coordination effort.

Response: The MMS agrees that it is essential to coordinate with stakeholders, including Federal agencies, State and local agencies, developers, citizen groups, and other interested parties as our program is implemented. To develop working partnerships with coastal states interested in alternative energy, such as New York, New Jersey, California, Oregon, Washington, Massachusetts, and New Jersey, the MMS hosted a series of stakeholders meetings to further its understanding about each locality's unique alternative energy issues, needs, and concerns. The MMS has been working with many of the same agencies involved in activities already authorized under the Outer Continental Shelf Lands Act (OCSLA), such as the U.S. Army Corps of Engineers (USACE), NOAA, the U.S. Environmental Protection Agency (USEPA), the U.S. Coast Guard (USCG), and the

U.S. Fish and Wildlife Service (USFWS), to establish new “renewable energy” interfaces with each agency’s existing Federal statutory requirements and responsibilities. The MMS is proposing a policy to require coordination with the U.S. Department of Defense (USDOD). The MMS has also begun to forge new partnerships with the USDOE and FERC and is actively working on agreements with each agency.

As well, the MMS regulatory framework will take into account the importance of early coordination with Federal, State, local, and tribal authorities when considering any proposal for alternative energy or alternate use activities on the OCS. Presently, the MMS is working with other Federal and State agencies and Indian tribes on the Cape Wind and Long Island Power Authority offshore wind proposals.

Group Comment: A017

OCS37-004	OCS38-002	OCS38-003	OCS89-002	80004-002	80047-016
80052-006	80058-012	80058-029	80058-036	80066-004	80081-002
80085-014	80094-007	80104-007	80109-002	80118-003	

Comment Summary: MMS should adopt an adaptive management approach to help address this lack of data and the uncertainty associated with alternative energy development on the OCS. Such an approach would provide the flexibility needed to address unforeseen impacts.

Response: The MMS intends to use an adaptive management approach to regulate alternative energy activities by using a system whereby the operating industries can demonstrate and validate their performance. The MMS then would require adjustments to mitigation and monitoring activities on a case-by-case basis based on operating experiences. These efforts would involve reassessing the program and regulations as new information becomes available.

Group Comment: A018

OCS03-001	OCS22-001	OCS37-001	OCS38-001	OCS38-004	OCS38-005
OCS40-002	OCS53-006	OCS56-001	OCS61-003	OCS83-002	OCS83-011
OCS83-023	OCS85-006	OCS89-005	OCS91-002	OCS91-005	80004-003
80052-007	80052-008	80052-012	80055-007	80058-003	80058-009
80058-010	80058-011	80058-013	80058-014	80058-015	80058-016
80058-017	80058-018	80058-020	80058-022	80058-023	80058-024
80058-025	80058-026	80058-028	80066-002	80069-002	80070-006
80070-007	80078-003	80079-006	80079-009	80087-007	80087-010
80087-011	80087-020	80087-035	80087-037	80087-038	80087-044
80087-054	80087-062	80087-101	80087-141	80087-164	80088-002
80088-003	80088-004	80088-005	80088-007	80094-003	80094-006
80103-005	80103-006	80104-009	80105-009	80106-003	80109-004
80116-001	80118-009	80118-029	80118-036	80118-038	80118-039
80118-066					

Comment Summary: A large group of comments focused on the approach that MMS should take in developing regulations governing monitoring, construction, operation, decommissioning, and mitigation; specific items that should be included in permits or leases; best management practices; and how the draft EIS can not be evaluated properly without knowledge of how alternative energy/alternate use offshore development is to be conducted.

Response: The MMS thanks everyone for their input and suggestions. The programmatic EIS is taking a first look at the generic impacts of wind, wave, and marine current technologies and is being used to support the development of the program and regulations. The final EIS proposes policies and BMPs that may be incorporated into the new program. As well, the MMS intends to use an adaptive management approach to regulate alternative energy activities by using a system whereby the operating industries can demonstrate and validate their performance. The MMS then would require adjustments to mitigation and monitoring activities on a case-by-case basis based on operating experiences. These efforts would involve reassessing the program and regulations as new information becomes available. When the Notice of Proposed Rulemaking is made available, the MMS strongly encourages everyone to submit comments.

Comment: OCS13-001

Comment: And there was some confusion initially, I believe, regarding whether this programmatic would ultimately comply or the Long Island offshore wind project would ultimately have to comply with the results here. It was our understanding and I think it was promoted by the Long Island Power Authority that Secretary Gal Norton, as she was departing the Department of the Interior, had said that the Long Island offshore wind project would not be required to comply with the regulations that were under promulgation at the time. I think it is good news to hear that that's not the case, that they will have to comply. My greater concern, however, is that if the programmatic were to go through as is, what they have to comply with is not significant and as one of the speakers said before, and I think very well, would any project under this programmatic not pass environmental muster. FPL when they sent in their comments to your proposed rule making, they basically sent in a document that in my view could have been written by Haliburton. It was that bad of an environmental document. And essentially, at its core, what it said was MMS and federal government, you let the industry really regulate itself and take the driver's seat when it comes to projects like this, particularly with wind and my comments will be, with this programmatic, will be directed at the wind portion of the programmatic. And we in the town of Babylon, we are very critical of FPL submission to MMS at that time. What I have seen in this programmatic is that MMS has essentially granted virtually everything that FPL asked for in their submission and my concern again is that MMS, the agency responsible for oversight here is acting more as an expediter of these projects rather than as a regulator. And this is too important, this project has too many impacts for Long Island and you can extend that out to projects that will occur across the country for there not to be a more thorough and more rigorous environmental review and process required before these projects go through and because they are

renewable and because they are clean energy does not, in my estimation, excuse them from the same kind of thorough rigorous environmental review that any project should go through. We are all here concerned about reducing the impact of global warming, about reducing our reliance on fossil fuels, but we are concerned about the environment. I might as well put up all the cards right now.

Response: The programmatic EIS is an initial assessment of the potential impacts from the development of alternative energy projects. Detailed analyses will be required for specific lease sales and projects, using the programmatic EIS as guidance in identifying key issues of concern and probable mitigation measures that may be applied. The MMS believes that this EIS is a solid initial analysis of the potential generic impacts from the interface of the technology with the marine environment.

Comment: OCS17-001

Comment: In my opinion, the draft PEIS did not achieve its stated purpose to provide guidelines and best practices for future permit applications. I understand that the PEIS evaluates generic, not specific, impacts, but it is nevertheless disconcerting that it's virtually all the impacts are described as either negligible or minor or at the most, moderate in rare instances. These expected impact levels are not quantified anywhere, so how can they be challenged. The final PEIS must reveal quantifiable data to support each conclusion regarding expected levels of impact because these are in effect measurements and they should be able to be substantiated and verified with quantifiable data. I mean, what is minor as previous figures have brought up?

Response: The programmatic EIS represents a first look at the potential impacts of the new alternative energy technologies on the OCS that could be initiated in the next 5 to 7 years. Detailed analyses are more appropriately conducted at the regional or site-specific level where quantifiable analyses would have more meaning. The MMS intends to require these more detailed analyses in subsequent NEPA documents on lease sales and projects. The impact levels are defined in the EIS and are based on the evaluations made by the specific subject matter experts that prepared each section. This final EIS contains proposed policies and BMPs to be used in the program. The MMS intends to use adaptive management practices to regulate alternative energy activities by using a system whereby the operating industries can demonstrate and validate their performance. The MMS then would require adjustments to mitigation and monitoring activities on a case-by-case basis based on operating experiences. These efforts would involve reassessing the program and regulations as new information becomes available.

Comment: OCS31-002

Comment: In developing standards for future projects, the most important objective should be to ensure that all sources be held to comparable high standards, new sources, like offshore wind, would not be held to more rigorous standards regarding their impacts than energy resources such as offshore oil and gas, the playing field must be as level as

possible to ensure that we make the best energy choices possible. We also appreciate MMS's efforts and the constraints, financial and personnel, for carrying out this work.

Response: The MMS's program goal is to ensure that alternative energy activities are conducted in a manner that is environmentally sound and safe. The MMS will employ the appropriate BMPs, operating conditions, lease stipulations, and engineering standards to reach this goal.

Comment: OCS35-004

Comment: In addition, MMS needs to defer action on all wind energy projects until after the regulations and the properly developed PEIS are complete. It is arbitrary and capricious in the extreme to consider the first and largest project in the U.S. before the underlying program is in place. Cape Wind has no exemption from the offshore program and conducting a concurrent review can only result in uninformed decision making.

Response: The MMS elected to initiate the NEPA evaluation for the proposed Cape Wind project prior to development of a program and completion of a formal rulemaking. Section 388 of EPAct provides that the Cape Wind project would not have to resubmit any applications or receive reauthorizations of any previously authorized actions, and would not be required to compete with other applicants for the project area. In proceeding with its Cape Wind NEPA evaluation, the MMS concluded that the scope of previous actions—principally the preparation of a draft EIS—under U.S. Army Corps of Engineers jurisdiction in accordance with Section 10 of the Rivers and Harbors Act was significantly narrower than what the MMS would require to authorize activities under its authority in subsection 8(p) of OCSLA. Thus, in deciding to proceed with consideration of the project, the MMS has applied the more extensive requirements of the new law and has required Cape Wind to prepare a second draft EIS examining the full range of issues and impacts associated with authorization of the project under EPAct. This programmatic EIS informs the MMS about potential environmental effects associated with offshore alternative energy technology, and recommends mitigation and BMPs as the MMS contemplates future alternative energy proposals. Unlike the broad, generic analyses contained in the programmatic EIS, the Cape Wind EIS is a site-specific analysis of the proposal and will be a critical component to inform decision makers on the environmental implications of the proposed action and reasonable alternatives.

Comment: OCS45-002

Comment: Further, a controversial proposal first promulgated by the now-defunct Enron Corporation, and proposed to Vice President Dick Cheney's "Energy Task Force", early in the first term of the current Administration, produced an unsuccessful piece of draft legislation called the "Cubin bill". Since no legislative markup of the Cubin bill could be facilitated in any subcommittee or committee of jurisdiction due to a lack of votes, analogous language was then arbitrarily dropped verbatim into Section 388 of the Energy Policy Act of 2005 in an apparent attempt to pre-empt state authority over subsea pipelines, seafloor anchoring systems, and other major industrial installations associated

with floating offshore Liquefied Natural Gas (LNG) terminals and related facilities. It remains inappropriate for MMS, or for any other federal agency, including FERC, to attempt to over-ride state jurisdiction in this manner

Response: State jurisdiction extends to 3 nautical mi (3.5 mi; 5.6 km) offshore, except for offshore Texas and the Gulf Coast of Florida, where it extends 9 nautical mi (10 mi; 16 km). Section 388 of EPOA does not give the MMS authority over subsea pipelines, anchoring systems, or any other installations located on State-owned submerged lands. Also, the CZMA requires concurrence from any State with an approved Coastal Management Program for proposed activities that affect any coastal use or resource, which can include activities proposed on the OCS.

Comment: OCS45-005

Comment: And in conclusion, MMS is now facing increased congressional oversight amidst confirmed reports of tens-of-billions of dollars in missing federal revenues, as cited by the Government Accounting Office, and even ongoing criminal investigations over the agency's persistent failure to secure fair market value for the American public for petroleum resources already developed and produced by the petroleum industry in the Gulf of Mexico. Going forward, MMS must obviously exercise due care to ensure that the taxpayers receive full compensation via the federal treasury from energy developers once again seeking to profit from public trust resources, this time in the form of alternative energy resources that may be found on the federal Outer Continental Shelf.

Response: Section 388 of EPOA requires that the Nation receive a fair return for the recovery of resources on the Federal OCS. The MMS will take due care in the collection and distribution of any revenue generated from these activities.

Comment: OCS45-006

Comment: It must be noted that any activities proposed by MMS pursuant to this rulemaking must comply fully with all provision of the bipartisan Congressional OCS Moratorium which precludes leasing, pre-leasing, and related activities in specific regions, and must also be in full compliance with the separate Presidential OCS Withdrawals of 1991, as renewed in 1998, in addition to complying with the Endangered Species Act (ESA), National Environmental Policy Act (NEPA), and the National Marine Sanctuaries Act (NMSA).

Response: The Congressional moratorium and Presidential withdrawals apply only to OCS oil and gas activities. EPOA prohibits activities supporting exploration, development, production, or storage of oil and gas and prohibits oil and gas energy-related uses of OCS facilities in areas subject to the moratorium. The proposed rule would govern production, transportation, or transmission of energy sources other than oil and gas, as well as the use of facilities authorized under the OCSLA for energy-related purposes or other authorized marine-related purposes, in accordance with the moratorium, withdrawals, and statutory prohibitions. None of the circumscribed activities

or uses would be permitted. In addition, Section 388 stipulates that all existing laws, which would include the ESA, NEPA, and the National Marines Sanctuary Act (NMSA), must be complied with.

Comment: OCS51-001

Comment: MS. TUCKER: Okay. Debbie Tucker, Florida Department of Environmental Protection. I was asking about the draft regulations, when they were scheduled to be released.

Response: The MMS originally intended to publish proposed regulations in the *Federal Register* shortly after publication of the draft programmatic PEIS. However, the MMS subsequently determined that it would be more appropriate to finalize the programmatic EIS establishing the AEAU Program, and have the document inform the agency as it completes its efforts in drafting a proposed rule for public review and comment. The MMS currently anticipates publishing draft proposed regulations for public review and comment in late 2007 or early 2008.

Comment: OCS52-001

Comment: Well, I'm Elizabeth Kress from Santee Cooper, and my comment was really going to be a question of you, to explain -- asking about the way that the grandfathered sites in the northeast would come under this programmatic EIS.

Response: The two projects mentioned, Cape Wind and LIOWP, are not technically grandfathered in such that they will not be exempt from applicable requirements in the final regulations. EPAAct allowed these two projects to continue to be evaluated without having to resubmit what had already been completed.

The programmatic EIS focuses on the development of a program within the MMS and is not directed to any specific project. The individual projects would not be exempted from any policies or practices within the program that were derived from this EIS.

Comment: OCS53-004

Comment: And finally is to provide a fair return to the nation. I just want to comment on that. A lot of these technologies -- unlike oil and natural gas, they are not going to have a national impact. They're going to have a regional impact.

The minerals that come out of -- for instance, the natural gas or oil serve the nation. They're distributed throughout the nation. If a wind farm or a wave farm is developed off the coast, it is going to be a regional impact. It's really going to serve that community and that region.

So the whole issue about how the leases are handled and what are the duties or whatever is going to be, you know, charged for these facilities needs to be considered into that

equation. And the fact that this is really just going to have -- a regional impact is what these technologies are going to have.

And also, we don't want to burden these new technologies with undue type of leases or whatever that makes them even more or less cost-competitive, because they are competing with existing technologies: The coal technologies and the nuclear technologies. So we need to try to increase their viability, as well.

Response: The MMS understands that the electricity generated by these new technologies discussed in the programmatic EIS will supply regional markets. However, the alternative energy resource is being developed on the OCS, an area subject to Federal jurisdiction and managed for the benefit of the Nation as a whole. As such, subsection 8(p) of the OCSLA requires that the MMS ensure a fair return to the United States to compensate for the use of this Federal resource. Subsection 8(p) of the OCSLA provides for revenue sharing with the affected coastal States.

Comment: OCS53-005

Comment: The question I have is -- when these projects bring in their cabling onshore, the cabling at some point is going to cross into state waters. Is that going to require these projects to also get state approval for that three-mile area where the cabling is going to come in, you know, onshore, regardless of the technology?

Response: As discussed in Section 1.6 of the draft programmatic EIS, Federal actions that have reasonably foreseeable effects on any land or water use or natural resources within the coastal zone of a State that has a federally approved Coastal Management Plan (CMP) must be consistent with the enforceable policies of the State's CMP to the maximum extent practicable. Consistency reviews are performed in accordance with the CZMA Federal Consistency Regulations, located in 15 CFR Part 930. Nonfederal actions requiring the approval of a Federal agency (e.g., issuance of a lease, easement, or ROW) also must be fully consistent with the enforceable policies of a State's CMP. The CZMA gives the States an important role in managing uses in waters off their coastlines in addition to their authorities on State-owned submerged lands. If a State would be potentially affected by a particular lease, easement, or ROW regulated by the MMS, the respective MMS Regional Office would work directly with that State's CZM lead agency in reviewing those activities that are likely to affect the State coastal areas.

Comment: OCS56-003

Comment: I agree that the return to the nation consideration should probably have a low priority for this five- to seven-year outlook because it's not a competitive technology yet. And the oil and gas industries are still heavily subsidized. So I think that that's a major consideration.

I do want to see care taken with affecting wildlife, but I also feel like we don't want to overburden a new technological industry that has the potential to provide clean energy

with too many regulations at this point, since we don't know a lot. So I would like to see the regulations be smart, but not too difficult to wade through, at this point. And I guess I would see this five- to seven-year period as a learning period. I expect that you're going to revamp the regulations at the -- towards the end of five years. And that's what I would hope.

Response: The MMS agrees that care must be taken to protect the environment, including the wildlife, while also not creating a regulatory environment that is overly burdensome to a nascent industry. The MMS intends to use adaptive management practices to regulate alternative energy activities by using a system whereby the operating industries can demonstrate and validate their performance. The MMS then would require adjustments to mitigation and monitoring activities on a case-by-case basis based on operating experiences. These efforts would involve reassessing the program and regulations as new information becomes available.

Comment: OCS57-003

Comment: So -- and as far as the governments, who's actually going to be controlling this? I've dealt with the government saying one thing with one hand and doing the other with the other. So who's actually controlling this, and how much say-so is the general public really going to have in how it's implemented?

Response: Under Section 388, the USDOJ was given the authority to oversee the granting of leases, easements, or ROWs on the OCS for alternative energy development. This was subsequently delegated to the MMS. Numerous public scoping meetings and public hearings were held to allow for the public to comment on the development of this programmatic EIS. Each subsequent commercial development project would be subject to individual, project-specific NEPA analysis that would include public hearings to allow for input from all interested parties.

Comment: OCS57-005

Comment: The way you referred to the contracting, whether it -- you know, making it competitive, that's -- it sounds all fine and good on paper, but you know good and well the bigger contractors could end up squeezing the smaller contractors out, like a monopoly. And are there any provisions in the way it's written to make it much more fair, I should say, and make it above board?

And that was Number One. And, Number Two, before they start installing these windmills up in the northeast, I would really like to -- provided you're willing to take my input on it, I really would like it if you would speak to me about the way they're actually doing it.

I design stuff all the time. And I guarantee you I could come up with all kinds of innovative ways to make sure, Number One, it should not be problems as it is with the tankers and everything else.

I really don't think it's even necessary or in the best interest of this country to be drilling offshore where ever they're putting these -- we have enough oil all over the country. There should not -- we've got enough environmental windmills.

Response: The MMS plans on making all steps of the competitive process open and fair through public notifications and input.

Comment: OCS61-002

Comment: And the question I had for later was, Are there any proposals that you have on your doorstep that are just waiting for the government to come up with the program?

Response: Yes, the MMS has had several companies express interest in submitting applications as soon as the program is established.

Comment: OCS63-002

Comment: If someone buys a lease for a wind farm and says, "Hmm, we just happened to buy a lease where there's oil," do they have to go through a separate process for oil? Could they get a two-for one bargain? I mean it's not inconceivable, because we're already talking about drilling offshore. Why not do two things at once, especially if you're the same company?

Response: Alternative energy leases on the OCS will not authorize development of any mineral or oil and gas energy resource. The leases will be for a specific purpose, and the operator will not be allowed to perform any activities not authorized.

Comment: OCS63-003

Comment: Suppose somebody buys a wind farm. Do they get to choose which state they sell the electricity to?

Response: The MMS does not propose to regulate or restrict the areas in which a project operator may market or sell electricity. In developing a project, the operator will need to identify the location of the transmission cable that brings the produced power to shore. For economic reasons, at least in the near term, it is expected that the transmission lines will enter into the State that is closest to an appropriate cable interconnection. Since the proposed transmission cable will cross State-owned submerged lands, appropriate State authorities will conduct necessary environmental analyses that could ultimately result in relocation of a proposed cable.

Comment: OCS64-001

Comment: I was curious who was planning on underwriting this type of project. Would there be any type of federal funding or subsidies to encourage this type of growth off the coast in terms of wind energy? I know we heavily subsidize the oil industry. And, I

guess, related to this, what is -- were you interested in encouraging indigenous South Carolina companies from doing this type of work, or was it more of a federal effort to encourage companies of, you know, other states to come in off the coast and develop this type of technology?

Response: The MMS does not encourage any type of industry or company. Congress has passed some incentives, and Congress is responsible for establishing laws to encourage or subsidize the industry. Currently, the industry receives temporary tax breaks that must be renewed periodically by Congress. Additional Federal incentives are proposed in legislation and considered by Congress from time to time.

Comment: OCS67-003

Comment: Proposed Action: The promulgation of permitting regulations associated with the development of alternative energy sources is a necessary beginning. The EIS clearly and convincingly articulates why and how this should be carried forward. However, a permitting process that proceeds in the absence of broad-scale planning may not achieve the desired results, if site-specific projects become bogged down in overlapping or conflicting management objectives for the OCS.

Response: The MMS agrees that broad-scale planning is important, but currently information is limited as to where the resource exists, whether the technology will work, and the extent of regional impediments to transmitting electricity to shore. It is, therefore, inappropriate to restrict development to certain areas without a full understanding of the regional needs and challenges. Defining these areas is more appropriately done at a regional level, when appropriate stakeholders can be more actively involved.

Comment: OCS81-001

Comment: In my view, the agency's approach, as outlined in the PDEIS, does not follow through on any of these assurances. To be specific, there has been no progress in working with the National Academy of Sciences. There has been no progress in identifying those areas of our oceans that are suitable for renewable energy. Further, it appears that the MMS is proposing to abandon the successful model used in the oil and gas leasing program, and proposes instead to let private energy companies take the lead in choosing sites for offshore renewable energy development.

As we have consistently argued, the approach suggested in the PDEIS takes the program in the wrong direction. It means that each project, each energy company and developer will become the focal point for intense debate. Adopting such an approach will inevitably delay the rapid development of offshore renewable energy in the United States.

Response: The NAS was charged with producing a report about wind energy on land, not offshore, and made a prepublication copy available to the public in May of 2007. The MMS is applying the NAS recommendations, where appropriate, to offshore development. The programmatic EIS represents a first look at the generic impacts of

potential activities that would be occurring in a reasonably foreseeable time frame, that is 5 to 7 years. The MMS does not propose to let private energy companies take the lead in choosing sites for OCS renewable energy development. As in the OCS oil and gas program, the MMS will decide where to proceed with development based on comprehensive analysis of relevant issues and information, which would include industry interest as expressed by potential lessees. The MMS may take a national, regional, or more localized approach to the leasing analysis and decision process. The programmatic EIS generally describes MMS processes for deciding where to lease and includes BMPs that will govern decision making.

Comment: OCS83-022

Comment: 10. Mineral Resources. The Department of Mines, Minerals, and Energy recommends that MMS analyze the potential impacts of alternative energy development on mineral resources, including hard minerals, oil, and gas. Specifically, consideration should be given to the question of whether construction, operation, and decommissioning of alternative energy facilities could impair the potential for development of mineral resources, and possible measures to mitigate such impairment. Mitigation measures should, in the view of the Department, include requiring surveys prior to construction, and avoiding construction of facilities over mineral deposits with potential for development.

Response: The MMS is aware that the potential for conflict of use is a concern, particularly for sand and gravel borrow sites. The potential impacts of proposed alternative energy activities and alternate uses on mineral resource development would be considered in the leasing decision process, including the NEPA analysis, and appropriate conflict avoidance and mitigation measures would be formulated. Before development of an alternative energy lease may commence, site characterization surveys would be required that would provide useful information about the characteristics of the seafloor, including the presence of sand and gravel or other minerals with development potential.

Comment: OCS83-048

Comment: The Virginia Department of Mines, Minerals and Energy has reviewed the environmental impact report for the above-referenced project. Based on this review we offer the following comment. In the chapter on “Potential Impacts of Alternative Energy Development on the OCS and Analysis of Potential Mitigation Measures”, the MMS should consider the potential impact of alternative energy development on mineral resources, including hard minerals and oil and gas. Specifically, consideration should be given to the question of whether construction, operation, and decommissioning of alternative energy facilities could impair the potential for development of mineral resources, and possible measures to mitigate such impairment. The MMS should consider mitigation measures such as requiring surveys prior to construction to identify and characterize potential mineral resources, and avoiding construction of facilities, including foundations, anchors, or submarine power cables, over mineral deposits that have potential for development.

Response: The MMS is aware that the potential for conflict of use is a concern, particularly for sand and gravel borrow sites. The potential impacts of proposed alternative energy activities and alternate uses on mineral resource development would be considered in the leasing decision process, including the NEPA analysis, and appropriate conflict avoidance and mitigation measures would be formulated. Before development of an alternative energy lease may commence, site characterization surveys would be required that would provide useful information about the characteristics of the seafloor, including the presence of sand and gravel or other minerals with development potential.

Comment: OCS85-001

Comment: DNR would like to clarify that the line of state/federal jurisdiction does not follow a bathymetric contour. Any projects falling within 3 nautical miles/3.5 miles/ 5.6 kilometers will require a use authorization from DNR for state-owned aquatic lands.

Response: The MMS is aware that State jurisdiction extends to 3 nautical mi (3.5 mi; 5.6 km) for most States and represents an inner boundary for the siting of these facilities. The bathymetric contour was used as an outer boundary condition to better focus the analyses and discussions.

Comment: OCS85-003

Comment: 3. Comment: Clarify Purpose of OCS Alternative Energy Programmatic EIS
It is unclear to DNR how the MMS intends to use or incorporate this document into the existing federal regulatory processes. For example, will other NEPA documents tier off of it, or incorporate it by reference? Will this Programmatic EIS be a “living or dynamic” analysis, and incorporate “site-specific” NEPA in the future? The applicability of this document after seven years is also unclear.

Response: The programmatic EIS takes a first look at the impacts of three alternative energy technologies—wind, wave, and marine current—on the marine and human environment. The EIS identifies the issues and concerns that the decision maker must consider during the establishment of the program and informs MMS about the environmental concerns that may be addressed in the regulations. The MMS intends to prepare or require the preparation of separate NEPA documents for any activities resulting from this new program, including lease sales and required plan submittals. This final EIS contains proposed policies and BMPs to be used in the program. An adaptive management approach will be used to re-evaluate the policies and practices as new information is acquired.

The MMS originally intended to publish proposed regulations in the *Federal Register* shortly after publication of the draft programmatic EIS. However, the MMS subsequently determined that it would be more appropriate to finalize the programmatic EIS establishing the AEAU Program, and have the document inform the agency as it completes its efforts in drafting a proposed rule for public review and comment. The MMS currently anticipates publishing draft proposed regulations for public review and

comment in late 2007 or early 2008. A separate NEPA analysis will be conducted in association with the rulemaking, which may tier off of or incorporate by reference this programmatic EIS as appropriate.

Comment: OCS91-004

Comment: The Final EIS should outline how MMS proposes to treat locations with human remains, consistent with the spirit and letter of federal and international law and agreements about these matters.

Response: The MMS's cultural resource protection program is one of identification and avoidance of significant historic properties that may be adversely affected by the activities the MMS permits on the Federal OCS, in compliance with Section 106 of the National Historic Preservation Act (NHPA). The Federal government does not own the historic properties on the Federal OCS (with the exception of ships owned by the U.S. Government or on official business of the U.S. Government at the time of sinking), and the MMS does not have the authority to excavate these sites or to maintain collections from these sites. In the unlikely event that human remains were discovered on a historic shipwreck or aircraft as a result of MMS-required surveys, it would be referred to the appropriate Federal agency (e.g., the State Department for identified foreign-owned vessels, or the U.S. navy for U.S. vessels).

Comment: 80017-002

Comment: 2. Generating energy from the ocean's winds or currents does not constitute an extraction of mineral wealth as does oil and natural gas. As such, this emerging new technology should not be burdened by high lease fees or any type of mineral royalties. These regulations should only provide guidelines that ensure due diligence in the area of environmental stewardship. Burdening these emerging new technologies with additional costs will only stymie their development and result in slow commercial adoption. As a result, diversifying our nation's energy resources and promoting clean energy resources will proceed much slower.

Response: Section 388 of EPAAct requires that the Nation receive a fair return for the use of the OCS, thus the MMS must require some payment. The MMS is aware that the industry is new and that excessive fees would be a disincentive.

Comment: 80017-004

Comment: 4. Offshore wind power will serve as a local source of energy and not be a distributed nation wide as is oil and natural gas. The impact of these facilities and public acceptance will be confined to the local communities. The MMS should consider turning over the promulgation of the regulations for offshore wind power facilities to the states. Another option the MMS should consider is to give the states jurisdiction out to 20 nautical miles for offshore wind power facilities. This would allow the states to rapidly push forward and have buy-in on projects that would serve their coastal

communities but also allows these facilities to be built at a distance that minimizes the public's view shed issue.

The emergence of offshore wind power is important to coastal states like South Carolina who have no indigenous fossil fuel reserves to develop. Offshore wind power can help the local communities diversify their energy resources, utilize a clean energy resource and provide a new industry for economic development as in Europe. We should not burden this new technology with undue regulations, fees or bureaucracy. We should ensure it is developed in a viable and sustainable manner with environmental due diligence, consideration to other industries that use the oceans and the local communities. I strongly urge the MMS to seriously consider working with the state governments to make this a local issue. Offshore wind power is a local source of energy that will most likely only impact the local communities and local energy supply infrastructure. This would help expedite the development and acceptance of this technology.

Response: MMS jurisdiction on the OCS for alternative energy is set forth by Congress, as provided under Section 388 of EPAct (codified by subsection 8(p) of the OCSLA). The MMS recognizes that development of alternative energy on the OCS will more likely be advanced based on local and regional power needs, rather than on a broader national interest, as is the case for oil and gas. It is for this reason that the MMS intends to continue to promote coordination and consultation with affected States, as well as local and regional stakeholders, to ensure that lease sale planning considers appropriate regional issues and concerns.

Comment: 80047-013

Comment: The EIS should consider consequences of ending all the direct and indirect subsidies for fossil fuels. Consider the life-cycle social costs of these technologies. Will the impacts to fishermen, bird watchers, and whale watchers outweigh the social benefits?

Response: The purpose of this programmatic EIS is to establish the Alternative Energy and Alternate Use Program. As such, the EIS analyzes the interface of alternative energy technologies that may be deployed in the next 5 to 7 years and the alternate use of existing structures. Analyzing the consequences of subsidies for fossil fuels is outside the scope of analysis. The MMS also funded a cost-benefit analysis for the program, which concluded that the primary benefit of these types of technologies is the reduction in air emissions associated with generating electricity in this manner. These benefits far outweighed the other environmental impacts.

Comment: 80056-004

Comment: Finally, detailed comments dated February 6, 2006 were submitted previously from this office in response to the Advanced Notice of Proposed Rulemaking published in the December 30, 2005 Federal Register. Comments were also provided on June 21, 2006 during the scoping period for the Programmatic EIS. Additionally, the

DNREC attended a stakeholders meeting on January 24, 2007 in Monmouth County, New Jersey and provided comments on the rulemaking process. The Draft PEIS omits mention of any input from the State of Delaware in Chapter 8, Coordination and Consultation. Please rectify this oversight.

Response: Although the draft programmatic EIS inadvertently omitted mention of input from the State of Delaware, the MMS did receive comments from the Delaware Department of Natural Resources and Environmental Control (DNREC), and considered them in the scoping process. The text of Chapter 8 has been revised to indicate that the Delaware DNREC provided comments.

Comment: 80058-001

Comment: A. PEIS Formulation of Comprehensive Program Policies and Best Management Practices

According to the PEIS, concurrent with the preparation of the programmatic EIS, MMS is developing rules to guide the development of the program, including definition of processes and procedures for granting leases. PEIS at 1-2. However, the PEIS does not discuss the proposed regulatory approach and elements that will shape the new regulatory program. For example, it would be useful for the PEIS to discuss the merits and possible approaches to such major program issues as:

- How the program will minimize multi-use conflicts?
- How MMS will balance competing uses of the OCS?
- What criteria MMS will use in deciding whether to approve a project?
- What will be the goals of environmental monitoring and management systems, and how will they be designed and implemented?
- How will MMS assess risks to resources?
- How will MMS balance the national interest in advancing clean energy development with uncertainty regarding the effects of alternative energy projects on OCS resources?
- What fees and payments will be established to encourage the development of alternative energy projects?
- How will MMS ensure effective consultation and coordination with affected state agencies and with other federal agencies?

Surprisingly, the PEIS does not discuss these significant regulatory issues, but defers them to the rule-making process. To address this deficiency, CESA believes that, at a minimum, the final PEIS should discuss and propose the establishment of general programmatic policies and best management practices (BMPs) that MMS will use to shape the regulations and leasing program. Establishment of such policies and BMPs also will help to minimize delays for renewable energy development projects on the OCS and reduce costs. With these BMPs in place, the universe of issues that must be evaluated in detail at the project level will be reduced to site-specific issues.

While the draft PEIS does not identify specific policies and BMPs that will govern the development of alternative energy resources, MMS could readily do so in the final PEIS – based on the PEIS discussion of potential mitigation measures in Section 5. That is, in the final PEIS document, CESA recommends that the MMS outline the specific policies and BMPs that will be applicable to all wind, wave, and ocean current development projects. The “policies” should address the administration of the project development activities, while the “BMPs” should identify required mitigation measures that would need to be incorporated into project-specific Plans of Development. Additional mitigation measures then would be applied to individual projects to address site-specific and species-specific issues, as identified in project-specific environmental impact statements.

This is the approach that the Bureau of Land Management (BLM) employed in its preparation of the final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States (BLM 2005). The BLM’s PEIS identified programmatic policies and BMPs to address the administration of all wind development-related activities and to identify minimum requirements for mitigation measures. These programmatic policies and BMPs then were adopted in the BLM program and made applicable to all projects on BLM public lands. Site-specific concerns, and the development of additional measures, are then addressed in project-level reviews. MMS should employ this same framework in its PEIS.

Response: This programmatic EIS takes a first look at the impacts of three alternative energy technologies— wind, wave, and marine current—on the marine and human environment. The EIS assesses, at a high-level, the environmental impacts that are likely to occur at each of the primary stages contemplated in alternative energy development (e.g., technology testing, site assessment, construction, operation, and decommissioning). The EIS identifies the issues and concerns that the decision maker must take into consideration when deciding whether the program can be established, and what form the program should take. The EIS also informs the MMS about the environmental concerns that may be addressed in the regulations.

The MMS originally intended to publish proposed regulations in the *Federal Register* shortly after publication of the draft programmatic EIS. However, the MMS subsequently determined that it would be more appropriate to finalize the programmatic EIS establishing the AEAU Program, and have the document inform the agency as it completes its efforts in drafting a proposed rule for public review and comment. The MMS currently anticipates publishing draft proposed regulations for public review and comment in late 2007 or early 2008. A separate NEPA analysis will be conducted in association with the rulemaking, which may tier off of or incorporate by reference this programmatic EIS as appropriate.

The MMS reviewed the policies and BMPs proposed by the commentator, and many have been incorporated into the final EIS.

Comment: 80058-033

Comment: H. Describe Decisional Framework for Weighing Degrees of Adverse & Beneficial Impacts of the Proposed Action

CESA recommends that MMS attempt to define the “degree” of adverse or beneficial effects of a proposed alternative energy project that it will consider critical for approving or disallowing a proposed project. That is, MMS should address in the PEIS how it will weigh and balance the costs and benefits of a proposed project with regard to a single project or in comparison with alternatives if the project is not built.

For example, in Section 7, MMS finds that offshore projects may have “possible moderate impacts” to marine mammals, marine and coastal birds, and fish resources (p.7-3). (MMS employs a four level impact classification system from “negligible” to “major”). MMS, however, does not indicate whether a moderate impact will be considered as a threshold for disapproving projects and/or how a moderate (or major) impact will be weighed with other beneficial impacts associated with a project.

In short, MMS should address its proposed decision framework and approach for considering and weighing impacts and benefits in making leasing decisions. For example, MMS could consider establishing an advisory group of state regulators and affected interest groups to determine acceptable impact thresholds which recognize the public interest in increasing renewable energy resource deployment as a strategy to address climate change.

Response: While the MMS agrees that clearly defining thresholds would be beneficial to all stakeholders, it would be difficult to define such thresholds on a national level, and attempting to do so could have unintended or undue negative consequences for specific projects. As discussed, such decision-making thresholds would be best addressed regionally or locally. MMS’s regulatory framework contemplates consultation and coordination mechanisms for developing decision-making criteria in collaboration with interested and affected parties. However, since the desirability of pursuing renewable energy development on the OCS will be guided by market considerations rather than government directives, industry interest in developing a particular area would be a necessary prerequisite for initiating such efforts.

Comment: 80068-008

Comment: Page ES-1. The PEIS assumes that given rapid evolution of industry, MMS cannot foresee all possible alternative energy and alternate uses and impacts; hence, the focus of the PEIS is on industry proposals. This is short-sighted and too passive. The PEIS could instead focus on defining and promulgating performance standards (e.g., site ecosystem structure and function – or health – standards, construction impacts standards, regional-scale cumulative impact standards) that would apply to proposed, anticipated, as well as unanticipated projects. This would create incentives for innovation to meet the

standards and provide guidance for projects that are still in the pipeline or not even conceived of yet.

Response: The creation of standards requires a detailed understanding of the environment that is being affected and the impacting factors. A performance standard for an ecosystem is nearly impossible to develop because of the dynamic nature of the ecosystem and the existence of factors that cannot be controlled. Applying mitigation measures to the activities of industry in the ecosystem has a greater chance of being successful in minimizing impacts because they can be executed, controlled, and monitored. Standards would also need to apply equally everywhere, even though environments may vary greatly. The MMS also intends to use adaptive management practices to regulate alternative energy activities by using a system whereby the operating industries can demonstrate and validate their performance. The MMS then would require adjustments to mitigation and monitoring activities on a case-by-case basis based on operating experiences. These efforts would involve reassessing the program and regulations as new information becomes available.

Comment: 80068-010

Comment: Page ES-2. Hawaii is not included in analysis due to deep waters nearshore and inclusion of waters in National Marine Sanctuaries, not subject to MMS jurisdiction. It seems illogical to exclude Ocean Thermal Energy Conversion (which has already been piloted in Hawaii) from the PEIS or AEAU. While OTEC is not listed directly in the Energy Policy Act, it should be interpreted to include OTEC as it is a leading ocean energy technology. Hawaii's ocean environment in particular may be suitable for OTEC and deepwater carbon sequestration, but these kinds of technologies should be subject to stringent performance standards and review processes before development begins.

Response: Section 388 authorizes the granting of a lease, easement, or ROW on the OCS for activities not otherwise authorized. The OTEC is beyond the scope of the programmatic EIS because it is already subject to a regulatory regime created by the OTEC Act of 1980 and the OTEC Research, Development, and Demonstration Act.

Comment: 80074-004

Comment: The EIS process being undertaken by MMS will provide potential developers with valuable information with respect to their wave and ocean current energy project siting decisions. So too, the regulations MMS is drafting will provide developers with some certainty with respect to the lease approval process. Additional determinants of project feasibility will be known when, pursuant to OCSLA Section 8(p), the DOI Secretary defines the rules for "issuance, transfer, renewal, suspension, and cancellation" of leases, easements, and rights-of-way and establishes a program of "royalties, fees, rentals, bonuses, or other payments" to the United States. Given the nascent and pre-commercial state of this industry, PG&E urges the Secretary to consider ways to encourage these early off-shore technologies when it establishes leasing and payment

provisions. DOI can revisit these subjects once the technologies are mature and commercially viable.

Response: The MMS recognizes the concerns of industry with respect to the potential for excessive expenses and has taken them into consideration in establishing payments to ensure a fair return for rights granted as required by Section 388 of EPCA. The MMS believes that the payments to be proposed in the proposed rule strike a proper balance for this nascent program and agrees that these subjects could be revisited in the future.

Comment: 80079-010

Comment: Hydrokinetic and Wave Energy: As a starting point, we recommend that the aquatic environmental issues for hydropower raised at a Department of Energy (DOE) workshop in 2005 be pursued. These include alteration of bottom habitats, suspension of sediments and contaminants, alteration of hydraulics and hydrologic regimes, strike and entanglement of fish and other aquatic organisms, diving birds, and marine mammals, impingement on screens, effects of electromagnetic fields, toxicity of paints and other chemicals, noise, and effects of multiple units. See <http://www.fisheries.org/afs/publications/fisheriesmag/3204.pdf> http://hydropower.inl.gov/hydrokinetic_wave/

Response: The programmatic EIS provides a comprehensive assessment of potential impacts that could result from the five phases (technology testing, site characterization, construction, operation, and decommissioning) of alternative energy projects on the OCS. In developing these assessments, the MMS reviewed the comprehensive body of knowledge available in Europe, the United States, and elsewhere, and incorporated this information in its analyses to the extent practicable. The MMS will continue to monitor the developments in this area and incorporate them into future analyses as necessary.

Comment: 80081-004

Comment: D. The DEIS Should Incorporate Principles of Proportionality in Permitting By Discussing the Alternative of Creating Different Regulations for Different Types, or Stages of Technology.

OREC's comments in response to the ANOPR emphasized the importance of proportionality in creating a regulatory process. As OREC explained, smaller and environmentally benign marine renewables projects should not be subjected to the same rigorous review or onerous litany of studies as mature technologies with major impacts.

The DEIS does not go far enough to reinforce the principles of proportionality. And in fact, the DEIS describes that MMS will not issue regulations specific to energy source, i.e. wind, wave and ocean current. See ES-2-4, Part 2.4.1. While OREC supports streamlined and efficient regulation for wind, wave and ocean current technology, offshore wind is a far more advanced and mature technology than wave and current. With ten years of operational data from Europe, as well as information from onshore wind operation, the potential impacts of offshore wind projects are more easily discernable

than those related to wave and tidal. Thus, offshore wind energy developers may be able to readily produce data on project effects that a wave or current developer could not because of lack of operational experience.

In developing regulations, MMS does not necessarily need to distinguish between types of energy sources. But MMS should keep in mind the size of a project and the maturity of the technology in developing its regulations.

Response: The MMS originally intended to publish proposed regulations in the *Federal Register* shortly after publication of the draft programmatic EIS. However, the MMS subsequently determined that it would be more appropriate to finalize the programmatic EIS establishing the AEAU Program, and have the document inform the agency as it completes its efforts in drafting a proposed rule for public review and comment. The MMS currently anticipates publishing draft proposed regulations for public review and comment in late 2007 or early 2008. A separate NEPA analysis will be conducted in association with the rulemaking, which may tier off of or incorporate by reference this programmatic EIS as appropriate. As the MMS develops its proposed rulemaking, it is considering the different stages of development, recognizing the need for technology testing and other noncommercial activities. The goal of the MMS is to be flexible and not prescriptive to accommodate as yet unforeseen developments in technology.

Comment: 80085-003

Comment: In addition to the need to have industry propose sites that could be developed, it is also encouraging to see that MMS understands the need to maintain the flexibility of site-specific reviews and requirements. As with wind energy projects on land, projects offshore will have numerous differences and should be evaluated by analysis deemed appropriate on a case-by-case basis as much as possible. As noted in our Prior Comments (p. 10), requests for field study “should be reasonable, site-specific, and aimed at answering specific questions, not a rigid onsize- fits-all requirement.” This is mirrored in the Bureau of Land Management’s (BLM) program, which properly provides that “the amount and extent of ecological baseline data shall be determined on a project basis.”

NEPA Review/Tiering

Regulations promulgated by the Council of Environmental Quality encourage agencies to tier their environmental impact statements to eliminate repetitive discussions of the same issues (40 CFR 1508.28). Section 1.5 of the DPEIS states that “subsequent project-specific NEPA analyses may tier off, where appropriate, the generic analysis provided in the Final EIS.” (Emphasis added.) AWEA would like to underscore the importance of allowing projects to “tier off” the PEIS to the maximum extent possible.

The Bureau of Land Management (BLM), also within the Department of the Interior, recently prepared a detailed PEIS to address the impacts of the future development of wind energy resources on public lands. The BLM PEIS process established policies and best management practices as mitigation measures for potential environmental impacts.

In many cases, BLM's tiering process has facilitated the processing of site specific wind energy applications, thereby reducing the potential for duplicative environmental review and documentation. AWEA is concerned, however, that some local BLM offices have not permitted developers to appropriately tier off relevant provisions of the PEIS, creating uncertainty within the industry, increasing development costs for individual projects, and impacting project viability and financing. MMS can avoid such outcomes by clarifying that by allowing projects to rely upon the analysis in the PEIS to the maximum extent possible and not require individual projects to needlessly replicate prior research and studies.

Response: The MMS will encourage tiering as appropriate, but will also be preparing other NEPA documents that will focus on specific regions or activities that will be more detailed and appropriate for tiering. This final EIS incorporates proposed policies and BMPs for the new program.

Comment: 80087-016

Comment: National Marine Sanctuaries Act Compliance

The DPEIS should clarify and/or correct NOAA's OCS jurisdictions under the Marine Protection Research and Sanctuaries Act and the National Marine Sanctuaries Act (NMSA).

- Table 1.6-1 lists the US Environmental Protection Agency and the US Army Corps of Engineers as the responsible agencies under the Marine Protection Research and Sanctuaries Act. This should be corrected to include NOAA.
- NOAA's responsibilities under the NMSA should be listed in Table 1.6-1 and the directives of the NMSA should be described in section 1.6 ("OCS Regulatory Framework") to include a statement such as:

The National Marine Sanctuaries Act (NMSA) prohibits the destruction, loss of, or injury to any sanctuary resource managed under law or regulations for the sanctuary in question and any violation of the act, any regulations, or permits issued there under (16 U.S.C. § 1436). In addition, section 304(d) of the NMSA (16 U.S.C. § 1434(d)) requires Federal agencies to consult with the Secretary of Commerce, through NOAA, on Federal agency actions internal or external to any national marine sanctuary that are likely to destroy, cause the loss of, or injure any sanctuary resource. Thresholds for consultation vary according to each sanctuary's designation document. If NOAA determines that the action is likely to destroy, cause the loss of, or injure sanctuary resources, NOAA shall recommend reasonable and prudent alternatives that can be taken by a Federal agency to protect sanctuary resources. The Federal agency may choose not to follow these alternatives provided the reasons are submitted in writing. However, if the head of a Federal agency takes an action other than an alternative recommended by NOAA 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 NOAA.

Response: The MMS agrees that NOAA's OCS jurisdictions under the Marine Protection Research and Sanctuaries Act (MPRSA) and the NMSA should be clarified; reference to the NMSA has been made in Section 1.7 of the programmatic EIS, OCS Regulatory Framework, in the list of laws that require consultation and coordination. Additionally, Table 1.7-1 of the EIS has been modified to (1) add NOAA as a responsible agency under the MPRSA and (2) add the NMSA.

Comment: 80087-025

Comment: ESA Consultation and Related Issues

On Page ES-2 and elsewhere, MMS states that the proposed action analyzed in the DPEIS is the establishment of the MMS Alternative Energy and Alternate Use Program on the OCS and the promulgation of associated regulations. However, neither the program nor the associated regulations are described. Although the analysis generally explains the potential impacts of the activities that could result from wind, wave, and current energy projects on the OCS, from initial site characterization through decommissioning, it is not described in the context of a Federal program overseeing these activities. This presents difficulties in understanding how site selection for projects would occur, how site-specific studies would be identified and carried out, and how mitigation measures would be identified and implemented. Section 3.5 (beginning on Page 3-17) describes the steps to be undertaken in testing a technology, characterizing potential sites, construction of the facility, and its operation. MMS should clarify how each of these steps would be addressed in a rule.

Response: This programmatic EIS takes a first look at the impacts of three alternative energy technologies—wind, wave, and marine current—on the marine and human environment. The EIS assesses, at a high-level, the environmental impacts that are likely to occur at each of the primary stages contemplated in alternative energy development (e.g., technology testing, site assessment, construction, operation, and decommissioning). The EIS identifies the issues and concerns that the decision maker must take into consideration when deciding whether the program can be established, and what form the program should take. The EIS also informs the MMS about the environmental concerns that may be addressed in the regulations. In addition, the MMS is using this first NEPA document to identify policies and BMPs that may apply to specific activities.

The MMS originally intended to publish proposed regulations in the *Federal Register* shortly after publication of the draft programmatic EIS. However, the MMS subsequently determined that it would be more appropriate to finalize the programmatic EIS establishing the AEAU Program, and have the document inform the agency as it completes its efforts in drafting a proposed rule for public review and comment. The MMS currently anticipates publishing draft proposed regulations for public review and comment in late 2007 or early 2008. A separate NEPA analysis will be conducted in

association with the rulemaking, which may tier off of or incorporate by reference this programmatic EIS as appropriate.

Comment: 80087-045

Comment: Siting in Pacific Northwest Waters

MMS appears to assert that the proposed alternative will effectively address confusion regarding the roles and responsibilities of various Federal, state and local agencies with respect to OCS alternative energy facilities. It is unclear why such clarification is not possible prior to selection of a proposed alternative or why it is not provided in this document.

Response: The establishment of a program and, ultimately, implementing rules will define the responsibilities of the MMS in the process. In addition, the MMS will continue to work closely with affected States and other Federal agencies as appropriate during the processing of each application.

Comment: 80087-053

Comment: Page ES-5 states, “In general, impacts ...measures are followed.” This summary sentence is not supported by a scientific or policy foundation. It is likely that the full effects of siting alternative power generation facilities will not be known for years without a robust monitoring and adaptive management program.

Response: The MMS agrees that siting effects may not be fully understood until a facility is in place and the effects are monitored. The final EIS proposes policies and BMPs that may be adopted in the Record of Decision (ROD) and incorporated into the program. The MMS also intends to use an adaptive management approach to regulate alternative energy activities by using a system whereby the operating industries can demonstrate and validate their performance. The MMS then would require adjustments to mitigation and monitoring activities on a case-by-case basis based on operating experiences. These efforts would involve reassessing the program and regulations as new information becomes available.

Comment: 80087-055

Comment: Page ES-7, Technology Testing – “Single demonstration ... environment.” MMS assumes minimal disturbance. That conclusion is dependent on where the facility is sited. Without the requirement to collect baseline information prior to installation and to monitor impacts for a year after installation, it is not appropriate to draw this conclusion in this DPEIS.

Response: The MMS agrees that the location is critical. The final EIS proposes policies and BMPs that may be adopted in the ROD and incorporated into the program. The MMS also intends to use an adaptive management approach to regulate alternative energy

activities by using a system whereby the operating industries can demonstrate and validate their performance. The MMS then would require adjustments to mitigation and monitoring activities on a case-by-case basis based on operating experiences. These efforts would involve reassessing the program and regulations as new information becomes available.

Comment: 80087-057

Comment: Page ES-13, Paragraph 6 – The DPEIS states, “Mitigation measures that decrease the likelihood of occupational accidents include adherence to established regulations and safety guidelines.” MMS needs to discuss which regulations and safety guidelines it is referring to, perhaps by expanding the discussion on laws identified in Table 6-1.

Response: The MMS and the USCG are responsible for safety on fixed OCS facilities. Occupational safety regulations are discussed in Sections 5.2.24, 5.3.24, 5.4.24, and 6.5.1 of the programmatic EIS.

Comment: 80087-058

Comment: Table 1.6-1, Pg 1-14 – Regarding US Fish and Wildlife Service and NMFS – modify the last phrase of pertinent provisions to “...or result in the destruction or adverse modification of critical habitat designated for such species.”

Response: The MMS appreciates the suggested clarification of the pertinent provisions of the ESA as noted in Table 1.6-1 of the draft EIS (Table 1.7-1 of the final EIS). Accordingly, the provision has been changed from “...or result in destruction of critical habitat of such species” to “...or result in the destruction or adverse modification of critical habitat designated for such species.”

Comment: 80087-059

Comment: Table 1.6-1, Pg 1-17 – For NMFS there should also be treaty tribe responsibilities listed.

Response: The comment is understood to mean that the National Marine Fisheries Service (NMFS) has responsibilities to tribes under the NHPA, the Archaeological and Historical Preservation Act, Archaeological Resources Protection Act, and American Indian Religious Freedom Act as shown in Table 1.6-1 of the draft EIS. Those responsibilities are addressed by the summaries of pertinent provisions for those laws that allude to the fact that all Federal agencies must comply with the laws’ provisions. The NMFS is understood to be one of those Federal agencies. Since the NMFS is not a responsible agency for administering those laws, it was not listed under the table heading, “Responsible Federal Agency/Agencies.”

Comment: 80089-004

Comment: D. MMS should recognize the regulatory differences associated with offshore wind and offshore oil and gas.

MMS should keep in mind that while offshore oil and gas facilities are typically regulated heavily based on their large environmental impact, offshore wind does not have the same type of impediments and therefore should not be regulated in the same manner. Offshore wind has fewer environmental impacts, typically only during the construction and dismantling stages, and does not need to be regulated as heavily as oil and gas. It is important that the PEIS does not overly burden the alternative energy industry with irrelevant regulations and should ensure that the regulations applicable to wind energy development are really directed at those types of projects.

Response: The MMS recognizes the differences between offshore alternative energy and offshore oil and gas industries. The programmatic EIS is not a decision document, but will be used as guidance in the development of the Alternative Energy and Alternate Use Program. The goal is to develop a regulatory program that provides for safe and environmentally sound operations in a manner that is efficient for the activities and uses envisioned.

Comment: 80092-004

Comment: 3. Program Flexibility – The ocean and tidal industries utilize many different forms of technology with varied profiles and effects. Regulatory flexibility will be needed to accommodate the unique attributes of a particular technology as deployed at any particular site. Additionally, as the ocean and tidal technologies are so new, and the industries continue to advance and move forward, sufficient flexibility will be needed in the AEAU program to accommodate this innovation.

Response: The MMS is aware of the many different forms of technology, and the proposed program and regulatory framework are deliberately not prescriptive in order to maintain a high degree of flexibility.

Comment: 80098-001

Comment: First, MMS should clarify that its proposals to regulate offshore energy development from sources other than oil and gas, and to regulate alternate uses of existing facilities, do not extend to undersea telecommunications cables, and that the domestic and international legal frameworks for undersea telecommunications cables would preclude MMS from doing so.

Response: No assertions of jurisdiction over undersea telecommunications cables have been made by the MMS as it develops its regulations of offshore energy activities and alternate uses of existing facilities. If any telecommunications cables are part of a future project proposed to the MMS, their impacts would be considered in the project-specific

environmental review documentation. If there are unrelated telecommunications cables in the general vicinity of future projects, the MMS would not be regulating their use, but they would be considered under the cumulative impacts analyses of the proposed projects.

Comment: 80098-003

Comment: I. MMS Should Acknowledge the Statutory and Treaty-Based Limits on U.S. Regulation of Undersea Telecommunications Cables on the Outer Continental Shelf

For the reasons stated in NASCA's comments on the ANPRM (appended to these comments and incorporated by reference), MMS must acknowledge the statutory and treaty based limits on U.S. regulation of undersea telecommunications cables on the outer Continental Shelf. As with the ANPRM, some of MMS's statements in the Draft PEIS could be construed to suggest that the U.S. Government exercises permitting jurisdiction over undersea telecommunications cables on the outer Continental Shelf, when in fact U.S. laws and treaty obligations preclude such exercises of permitting jurisdiction. Permitting jurisdiction under the Outer Continental Shelf Lands Act – whether exercised by the Secretary of the Interior or the Secretary of the Army – is limited to activities connected with the exploration and exploitation of mineral resources on the outer Continental Shelf.

Consistent with this jurisdictional analysis, NASCA believes that MMS should revise the Draft PEIS to reflect the limits of U.S. jurisdiction. Specifically:

- MMS should acknowledge in Draft PEIS Section 1.2 (“Recommended Action”) and Section 1.3.2 (“Scope of the Programmatic EIS”) that MMS jurisdiction does not encompass regulation of undersea telecommunications cables on the outer Continental Shelf, as both the Outer Shelf Continental Lands Act and the relevant international treaties limit regulation to energy-related infrastructure.
- Consistent with the recommended acknowledgments of jurisdictional limits in Draft PEIS Sections 1.2 and 1.3.2, MMS should explain in more detail in Draft PEIS Section 1.6 (“OCS Regulatory Framework”) the domestic and international legal frameworks governing undersea telecommunications cables.

Response: No assertions of jurisdiction over undersea telecommunications cables have been made by the MMS as it develops its regulations of offshore energy activities and alternate uses of existing facilities. The scope of the programmatic EIS is described in Section 1.3.2 of the document and does not include the regulation of undersea telecommunications cables. A Section 1.3.2 listing of all existing offshore activities, including those pertaining to undersea cables, not covered by the new upcoming MMS regulations is impractical. If any telecommunications cables are part of a future project proposed to the MMS, their impacts would be considered in the project-specific environmental review documentation. If there are unrelated telecommunications cables in the general vicinity of future projects, the MMS would not be regulating their use, but

they would be considered under the cumulative impacts analyses of the proposed projects.

Comment: 80099-001

Comment: 1. Inadequate Discussion about Compliance with Section 106 of the National Historic Preservation Act:

The Draft PEIS does not provide adequate information and guidance regarding the application of the NHPA. Section 106 of the NHPA requires federal agencies, “prior to” approving or funding a project, to “take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register,” and to provide the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on the undertaking.¹ 16 U.S.C. § 470f. Federal agencies must initiate Section 106 review early in the planning process to ensure that a broad range of alternatives are considered. *Id.* § 800.1(c). In this case, it is not clear how or when MMS will satisfy the requirements of Section 106 of the NHPA.

It is understood that the Draft PEIS is programmatic providing for only a generic scope and purpose, and that the provisions of the NHPA will apply broadly to the proposed program in ways that relate directly to and intersect with the other laws, standards and considerations detailed in the draft. MMS makes some reference to the standards of Section 106 of the NHPA at Section 5.2.19 (potential impacts to archaeological resources) and Section 5.2.21 (potential impacts to visual resources), as well as cursorily in a few other sections. Unfortunately, the Draft PEIS makes no attempt to outline how the proposed program would comply with Section 106 consultation and procedural requirements. Specifically, how will MMS satisfy the requirements of Section 106 of the NHPA prior to the issuance of leases, easements, or right-of-ways on the OCS for offshore alternative energy development, such wind, wave, or ocean technologies?

This issue is important because MMS’s grant of private access rights to federal lands of the OCS, including leases, easements, or rights-of-way is considered an “undertakings” under Section 106. See 36 C.F.R. §§ 800.16(y), 800.5(a)(2)(vii). See *Montana Wilderness Association v. Fry*, 310 F. Supp. 2d 1127, 1152 (D. Mont. 2004). As the lead Federal agency under the Department of Interior, MMS must comply with Section 106 of the NHPA and consider what effects the undertakings will have on historic and archaeological properties. The Section 106 regulations complete the Section 106 process prior to issuing leases, easements, or rights-of-way.

Further, although NEPA and NHPA reviews can run concurrently and coordinate in many respects, see *id.* §§ 800.3(b), 800.8, NEPA review alone cannot satisfy the review and consultation required under NHPA. *Id.* §§ 800.8(c)(1)(i), (iv). With such broad potential to affect historic, cultural, and archaeological resources, the program proposed by MMS should acknowledge and detail in the Final PEIS the unique review and consultation steps that NHPA will require for sites-specific projects. The text summarizing the NHPA and related laws at Table 1.6-1 of the Draft PEIS, in particular,

should be revised to add a reference to the consultation and public process requirements of the NHPA. In our view, the Final EIS should also indicate how consulting and interested parties will be determined and how direct notification and consultation is proposed to occur, consistent with the requirements of 36 C.F.R. Part 800.

Response: A section in Chapter 8 has been included that describes how future Section 106 consultations will be conducted.

Comment: 80101-001

Comment: The PEIS is a massive initiative contemplating the implementation of numerous technologies that are either untried on a commercial scale anywhere in the world, or that have only had limited experience around the world, such as offshore wind. In the US, there are no commercial experiences of these technologies. In fact, we commend MMS for being forthright about the current immature status of the offshore alternative energy industry in the introductory remarks at the public hearings MMS conducted on the draft PEIS:

“It’s basically unproven in U.S. waters, although wind farms have been sited offshore Europe. It’s a nascent industry. It’s an emerging industry. And there’s uncertain viability associated with that.”

We emphasize the importance of utilizing the precautionary principle when developing the regulatory framework for these untested technologies.

Response: The “Precautionary Principle” states that “When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically. In this context the proponent of the activity, rather than the public, should bear the burden of proof. The process of applying the Precautionary Principle must be open, informed and democratic and must include potentially affected parties. It must also involve an examination of the full range of alternatives, including no action.”

The MMS agrees that, whenever practicable, steps should be taken to prevent harm prior to an activity occurring. The final EIS proposes policies and BMPs that may be adopted in the ROD and incorporated into the program. The policies and BMPs establish up front some of the practices to be used to reduce or prevent harm to the environment. The MMS also intends to use an adaptive management approach to regulate alternative energy activities by using a system whereby the operating industries can demonstrate and validate their performance. The MMS then would require adjustments to mitigation and monitoring activities on a case-by-case basis based on operating experiences. These efforts would involve reassessing the program and regulations as new information becomes available. The MMS also believes that the NEPA process allows for input from all affected parties and the examination of alternatives.

Comment: 80102-006

Comment: It is my understanding that the MMS has relied, in part, on an economic analysis for siting of offshore energy- resources. As stakeholders in this process, I would strongly urge you to share this economic analysis and its underlying assumptions, so that this analysis may be understood and fully evaluated in this draft EIS process.

Response: The preliminary economic analysis of offshore energy resources sponsored by MMS (Weiss et al. 2007) is discussed in Section 7.4.5 of the draft EIS. However, a full economic analysis of offshore energy resources is beyond the scope of this EIS.

Comment: 80103-003

Comment: Correlative Rights and the DP EIS: The DP EIS did not address the “protection of correlative rights” as stated in Section 388 of EPLA 2005. Correlative rights may have environmental impacts that need to be considered in terms of cumulative effects, as well as socioeconomic impacts because of the use of areas of the ocean over the OCS by renewable energy production facilities and commercial fishing activities.

Response: Issues that may be considered correlative rights are discussed in the fisheries sections as well as in discussions of multiple use. The discussions have been reevaluated based on your suggestion.

Comment: 80103-009

Comment: Regional Endangered Species Act (ESA): The performance of regional ESA analyses would be greatly benefit all applicants in all regions because they would know what they need to examine in performance of their environmental studies.

Such studies, performed by MMS, would eliminate the chance of “surprises” at the end of the permitting process. Also, applicants would know early on the mitigation measures that would be necessary to comply with the requirements of the ESA. Alternatively, they could identify alternative sites that do not have the same level of effects on endangered species.

Response: As the MMS moves forward with this program, it will consider developing regional-specific NEPA documents (e.g., lease sale EISs) that will involve ESA consultations and coordination to identify specific concerns.

Comment: 80104-001

Comment: a. The draft PEIS does not adequately describe the program or its regulations:

MMS states that the purpose of this action is to “develop a regulatory program implementing MMS’s new authority pursuant to Subsection 8(p) of the OCSLA.” But as noted above, MMS has issued the draft PEIS before publication of the program’s

regulatory structure and requirements. It is impossible to tell what the rules might be from the PEIS. These limitations necessarily hamper MMS's ability to analyze potential environmental impacts of the program while also impeding the public's opportunity to make informed comments.

Although the draft PEIS describes some aspects of the planned program in general terms, the program has not yet been fully delineated and details are scarce. Some ambiguities and inconsistencies in the document also make it difficult to discern what the program's requirements will be. For example, the draft PEIS does not clearly specify the type of environmental review that each project will undergo. Similarly, the draft PEIS lists a number of mitigation possibilities available to address predicted impacts (footnote 5) and expects mitigation to "minimize impacts," but it does not indicate standards or criteria for selecting mitigation methods. In fact, Chapter 3, which describes the program, does not mention mitigation. Also, in some parts of the analysis, the draft PEIS suggests that structures will be removed at the end of the lease, while others leave open the possibility that structures will remain in place.

It is nearly impossible to predict the environmental impact of a program without knowing what the regulatory requirements and standards will be because these rules can dramatically affect the impacts. Including this information in the PEIS would allow MMS to analyze potential impacts more concretely and would give stakeholders a meaningful opportunity to provide feedback on the rules and regulatory structure at the programmatic level. Additionally, under Section 388 of the Energy Policy Act of 2005 (EPAct), MMS has certain obligations, such as providing for public notice and comment on the leases and requiring a form of security from leaseholders. Without knowing what the rules will be, the public cannot assess whether MMS has satisfied these requirements.

We would expect to find the following information in a PEIS:

- a clear and detailed description of the proposed program;
- regulatory standards that will apply, including those for project siting, project size, operation, mitigation, and acceptable/unacceptable environmental impacts;
- the potential locations of projects and any excluded or preferred development areas;
- a description of the permitting process and requirements;
- a description of an adaptive management policy including the types of impacts that would trigger adaptive management, the process for triggering an adaptive management requirement, and how the adaptations would be developed;
- the terms, conditions, and limitations of leases, easements, or rights of way;
- requirements for decommissioning and removing installations;
- research and data collection requirements;
- monitoring, oversight, and enforcement activities and standards;
- information on the size, location, and status of potentially impacted natural resources.

This list is not intended to be exhaustive. As noted in our comments below, the draft PEIS provides insufficient information on many of these points. MMS should improve the final PEIS by including more information on these topics, particularly any

information that will clarify the regulatory rules and standards that will be applied to projects.

MMS should develop and analyze a regulatory program that protects environmental resources while also facilitating the development of alternative energy resources in this PEIS. Under the EAct, MMS must ensure that any program activity is carried out in a manner that provides for “protection of the environment” and “conservation of the natural resources of the outer Continental Shelf.” The alternative energy technologies discussed in this draft PEIS have the potential to make a contribution to meeting the United States’ energy needs and reduce our reliance on other sources of electricity, such as fossil fuels, which create substantial environmental and public health impacts. However, without proper environmental standards, these alternative energy technologies could also pose significant risks to natural resources, particularly since large scale projects may eventually be proposed to significantly offset other forms of power generation. In addition, the proliferation of uses in the ocean and the lack of a comprehensive system of ocean governance heighten the risk of cumulative impacts from these projects. Such cumulative impacts could arise from the presence of multiple projects and uses in an area or from multiple installations associated with one project. MMS should take steps to account for the cumulative impacts of granting multiple leases or permits and take steps to prevent harmful cumulative impacts to the environment through steps such as adaptive management, the use of string environmental standards, and thorough NEPA review.

MMS must create a regulatory system that protects against sustainability in all phases of a project. It is crucial that MMS create concrete standards for permitting and mitigation at the program level to ensure consistency across projects and prevent unintended environmental impacts. These standards should address issues such as: What level of environmental impact would be deemed acceptable for a permit? What level of mitigation will be environments required from projects? What type of potential impact could be subject to adaptive management requirements and how potential adaptations will be developed and triggered? What criteria should be considered when choosing an acceptable site? How will cumulative impacts be assessed?

The regulatory system should also provide for ongoing monitoring and enforcement of developer obligations. Adaptive management should be used carefully to allow projects to proceed only after the best efforts have been made to quantify the risks of impacts and mitigate them. Adaptive management should not be used as an excuse to avoid rigorous study and permitting requirements.

Response: This programmatic EIS takes a first look at the impacts of three alternative energy technologies—wind, wave, and marine current— on the marine and human environment. The EIS assesses, at a high-level, the environmental impacts that are likely to occur at each of the primary stages contemplated in alternative energy development (e.g., technology testing, site assessment, construction, operation, and decommissioning). The EIS identifies the issues and concerns that the decision maker must take into consideration when deciding whether the program can be established, and what form the program should take. The EIS also informs the MMS about the environmental concerns

that may be addressed in the regulations. In addition, the MMS is using this first NEPA document to identify policies and BMPs that may apply to specific activities.

Additional NEPA analyses will be required before any activity occurs on the OCS, and within these future analyses, specific mitigations will be addressed. The MMS originally intended to publish proposed regulations in the *Federal Register* shortly after publication of the draft programmatic EIS. However, the MMS subsequently determined that it would be more appropriate to finalize the programmatic EIS establishing the AEAU Program, and have the document inform the agency as it completes its efforts in drafting a proposed rule for public review and comment. The MMS currently anticipates publishing draft proposed regulations for public review and comment in late 2007 or early 2008. A separate NEPA analysis will be conducted in association with the rulemaking, which may tier off of or incorporate by reference this programmatic EIS as appropriate.

Comment: 80104-004

Comment: Another factor complicating the public's ability to understand and comment on the PEIS is that the document sometimes makes assumptions that cannot be verified in the text. One example of this occurs in the discussion of construction impacts on sea turtles. The analysis assumes that "habitats such as sea-grass beds and live-bottom areas commonly used by turtles for feeding or resting would be avoided during facility siting and cable placement". But the PEIS includes no regulatory standards for choosing project and cable sites.

Response: The final EIS proposes policies and BMPs that may be adopted in the ROD and incorporated into the program. The EIS has been revised to provide discussion of impacts with and without the potential mitigation measures.

Comment: 80104-005

Comment: Similarly, in summarizing impacts on some natural resources, MMS assumes that mitigation measures will be in place when determining that no population-level effects will occur. However, the PEIS does not specify the standards that the mitigation measures must meet or describe how the possible mitigation measures will be chosen. Without knowing more, readers cannot properly evaluate these types of statements. Furthermore, if MMS fails to impose the standards it presupposes, the PEIS analysis would be inaccurate and larger impacts could be expected.

Response: The programmatic EIS will not result in the authorization of any activities on the OCS. The EIS has been revised to provide discussion of impacts with and without the potential mitigation measures. The final EIS proposes policies and BMPs that may be adopted in the ROD and incorporated into the program. Subsequent NEPA analyses would be conducted and specific mitigation measures applied as appropriate.

Comment: 80104-021

Comment: We also note that Section 388 of the EPAct requires MMS to issue any regulations necessary to carry out this section within 270 days from the date of enactment. This 270-day period expired on May 8, 2006, but MMS has not yet published draft regulations. MMS did publish an Advanced Notice of Proposed Rulemaking in 2006, and we encourage MMS to proceed in a more timely fashion with this rulemaking to avoid further delay in realizing the benefits of this promising program. We look forward to reviewing the proposed rules soon.

Response: The MMS has found that developing an effective and meaningful rule that covers diverse industries and a broad spectrum of activities that use new and unproven technologies requires a thorough and deliberate approach that necessarily will take more time than envisioned in the legislation. The MMS originally intended to publish proposed regulations in the *Federal Register* shortly after publication of the draft programmatic EIS. However, the MMS subsequently determined that it would be more appropriate to finalize the programmatic EIS establishing the AEAU Program, and have the document inform the agency as it completes its efforts in drafting a proposed rule for public review and comment. The MMS currently anticipates publishing draft proposed regulations for public review and comment in late 2007 or early 2008. A separate NEPA analysis will be conducted in association with the rulemaking, which may tier off of or incorporate by reference this programmatic EIS as appropriate.

Comment: 80108-002

Comment: “FPL Energy recommends that MMS step out of the issue of economic viability entirely. The federal government is never going to have the same information or incentives that the private sector developer has to weigh.”

The DPEIS acquiesces, offering not a word on the economics of offshore wind.

Response: It is not the intent of the MMS to suggest what is economically viable to the private sector. The MMS concurs that this involves confidential and financial information to which the Federal Government does not have access. However, it is the responsibility of the Federal Government to provide a set of reasonable alternatives to assess as part of the requirements under NEPA. To narrow the range of possible alternatives from technologies that have not been developed in the United States, it is important that the MMS understand economic performance in terms of ranking.

Comment: 80113-001

Comment: With the MMS’ indulgence, the IAGC again provides the following general comments regarding the rulemaking process associated with the multiple use / activity of the OCS.

Areas of the OCS that have existing oil and gas activity, as well as those areas that have oil and gas potential but currently are not productive, are under moratoria or are not scheduled for leasing are important to meeting near term U.S. energy demands. Therefore as MMS develops processes and regulations for alternate energy related uses, access to those areas for natural gas and oil exploration and production should be given priority.

In considering multiple use of an area of the OCS, the federal government should consider the most productive use of the area (i.e. hydrocarbon resource versus alternative energy generation).

If an OCS block is removed or significantly limited or impaired from hydrocarbon development due to the siting of an alternate use structure, the revenue generated from that use should be sufficient to compensate the federal government for the potential lost revenue from hydrocarbon production.

If an OCS block is removed or significantly limited or impaired from hydrocarbon development due to alternate energy uses, it will have a chilling effect on exploration for and production of natural gas and oil, and on the acquisition and ownership of non-exclusive geophysical data.

The availability of non-exclusive data has become an important component of the exploration for and production of natural gas and oil. The underlying assumption supporting non-exclusive data investments is that by lowering the cost of obtaining (licensing) high quality seismic data, E&P companies will be able to afford to license seismic data and use it to explore over a particular OCS block or area in order to assess hydrocarbon potential. By utilizing latest technologies, E&P companies find and produce more of the existing resource base, supplying the U.S. with this critical resource. If blocks are removed or impaired by alternative uses such that oil and gas activity is limited, it will significantly affect the ability to meet the sales projections on which the seismic surveys were founded and upon which investments were made (financial impairment).

Response: The MMS will conduct thorough analyses of information, including multiple-use issues, in its leasing and plan review decision processes. The goal will be to accommodate multiple uses and to mitigate unavoidable conflicts to the maximum extent practicable.

Comment: 80113-002

Comment: In conclusion, the MMS should take into consideration seismic operations when considering multiple uses and should attempt to minimize possible logistical encumbrances of future seismic data acquisition programs. Pushing seismic data acquisitions to those more costly techniques should be minimized wherever possible. If and when existing non-exclusive seismic data surveys are financially impaired (given today's extensive coverage this seems unavoidable), MMS should fairly compensate the owners of the data. Compensation should be based upon a method that considers full

project costs (including the time value and the lost opportunity of the investment) as well as project revenues.

Response: The MMS will conduct thorough analyses of information, including multiple-use issues, in its leasing and plan review decision processes. The goal will be to accommodate multiple uses and to mitigate unavoidable conflicts to the maximum extent practicable.

Comment: 80115-004

Comment: 4. CCE opposes any “no-public access zone” or any “no fishing zone” surrounding above water projects. Below water projects need to be evaluated on a case by case basis but the greatest level of consideration should be given to eliminate a need for such zones.

Response: Currently, the MMS is assessing all options for multiple use of areas and it does not have any policy for creating exclusionary zones for a particular use. All potential projects will be considered on a case-by-case basis, and site-specific analyses will determine whether any areas are appropriately restricted for particular uses.

Comment: 80118-004

Comment: The Fish and Wildlife Service (Service) generally favors the action proposed by MMS to establish an Alternative Energy and Alternative Use Program on the OCS and promulgate associated regulations pursuant to the authority granted the Secretary of the Interior in the EPAct. However, the Service recommends sections of the DPEIS be significantly strengthened (e.g., regulatory framework, affected environment, potential and cumulative impacts, analysis of the proposed action and its alternatives). The Service recommends that the DPEIS sufficiently address both resource development and resource conservation, as is discussed in more detail below, particularly under sections 2.2, 2.3, 2.4.1, and 2.4.2. The Service would be willing to assist MMS to improve the final analysis.

Because there are no renewable energy facilities currently on the OCS, environmental impacts due to such establishment of facilities on the OCS are uncertain. However, a number of migratory bird species and other wildlife, including endangered and threatened species, that frequent the OCS (and coastal areas) are undergoing declines due to adverse past, present, and ongoing cumulative effects. The Service supports MMS’ development of a new program and associated regulations. We encourage MMS, to the extent possible, to avoid environmental impacts to Federal trust wildlife resources including their habitat on the OCS and affected coastal areas.

Response: The MMS appreciates all of the comments received from USFWS and has revised the draft programmatic EIS accordingly. On the basis of public comments, including those of the USFWS, and further environmental analysis, the MMS has developed proposed policies and BMPs, which are incorporated in the final EIS, to

initially define measures that may be taken to ensure protection of Federal trust wildlife resources. The MMS will also continue to work closely with the USFWS as individual projects are evaluated.

Comment: 80118-032

Comment: Table 1.6-1, beginning on page 1-14: This table lists Federal legal authorities relevant to activities on the OCS. The Service recommends that the National Wildlife Refuge System Administration Act and Refuge Improvement Act of 1997 be added to the table. Among other things, they provide that no use on refuge lands be allowed unless it is compatible; i.e., would not materially interfere with or detract from the fulfillment of the mission of the system or the purposes of the refuge. The Service will provide copies of these laws, as well as pertinent regulations and administrative procedures, to MMS upon request. MMS is aware that Congress has created an extensive system of land-based, coastal NWRs for the purpose of protecting and conserving migratory birds and other wildlife and their habitats. In other sections, the DPEIS acknowledges that, to be located on a NWR, OCS-related activities, transmission, and infrastructure would have to be found by the Service to be compatible with the purposes of the refuge. From a programmatic view, the Service recommends that the final PEIS and regulations programmatically exclude OCS-related activities and infrastructure from all NWRs, not just those on the OCS as stated on page ES-1

Response: The MMS is aware of the extensive wildlife refuge system along the coasts of the United States, which is identified in the maps in the EIS. Section 388 of EPA Act explicitly requires that activities authorized by this new authority not occur within the boundaries of wildlife refuges on the OCS. The MMS would not have the authority to authorize any activities within the existing National Wildlife Refuge (NWR) system because it is outside of the jurisdiction of the MMS. The laws and executive orders discussed in Table 1.6-1 of the draft EIS are those that the MMS must ensure compliance with activities for which it has jurisdiction. The portions of transmission lines that are located on State-owned submerged lands are outside of the MMS's jurisdiction, and any proponent would need to work directly with the States and other Federal agencies, such as the USFWS, should these activities cross into a refuge or other designated areas. The MMS will work with all State and Federal agencies to ensure proper compliance with all applicable legal authorities.

Comment: 80118-034

Comment: Chapter 2 Proposed Action and Alternatives

The Service is concerned that the DPEIS lacks balance between resource development and resource conservation interests.

Pages 2-3 — 2-4, Sections 2.2 and 2.3 Case-by-case alternative and No Action Alternative: One issue in this Chapter and also in Chapter 7 is the discussion for energy development without a counterbalance for energy conservation. Specifically, Sections 2.2

and 2.3 state that any increased power demand would have to be met by other sources, including fossil fuels, nuclear fuels, and onshore alternative energy sources. Energy conservation is not mentioned. This DPEIS has the potential for a well rounded discussion of the role that energy conservation could serve in meeting the Nation's energy demand, particularly as a component of the No Action Alternative.

Response: A discussion of energy conservation has been incorporated into the no action alternative.

B.2.7 General Agreement

Group Comment: A002

OCS04-002	OCS22-002	OCS29-001	OCS31-001	OCS43-003	OCS47-001
OCS50-003	OCS54-001	OCS54-003	OCS58-001	OCS70-001	OCS76-001
OCS76-002	OCS82-002	OCS82-005	OCS83-003	OCS83-019	OCS83-021
OCS83-051	OCS84-001	OCS86-001	OCS87-001	OCS89-001	OCS89-003
OCS89-004	OCS92-001	80003-001	80006-001	80011-001	80011-002
80015-001	80016-001	80020-001	80021-001	80022-001	80024-001
80025-001	80027-001	80029-001	80032-001	80059-001	80064-001
80074-002	80084-001	80086-001	80087-163	80092-001	

Comment Summary: A number of comments supported the development of alternative energy and/or agreed with some aspect of the draft EIS, such as the assessment approach taken and/or the impacts assessed.

Response: Commentors' general agreement with the MMS's Alternative Energy and Alternate Use Program on the OCS or the approach taken by the MMS in the programmatic EIS in evaluating the impacts of the potential projects on the OCS is noted. Also noted are statements made by some of the commentors that deployment of renewable energy projects on the OCS such as wind, wave, and ocean current energy would reduce the greenhouse gas emissions to the atmosphere and could help the United States achieve energy independence.

B.2.8 Insufficient Data

There is a broad sense that our knowledge of the impacts of the new alternative energy technologies on the OCS environment is lacking in a number of areas.

Group Comment: A015

OCS05-002	OCS07-007	OCS08-001	OCS08-006	OCS16-001	OCS16-002
OCS24-001	OCS37-002	OCS37-003	OCS44-003	OCS49-001	OCS50-004
OCS62-001	OCS80-026	OCS87-005	OCS88-002	80032-003	80052-004
80058-030	80068-013	80072-001	80073-001	80073-002	80079-007
80079-008	80084-003	80087-004	80087-012	80087-036	80087-075
80087-102	80088-008	80092-002	80094-004	80094-005	80096-014
80101-003	80101-008	80105-003	80105-010	80109-005	80111-001
80118-008					

Comment Summary: More data are needed to support conclusions in the EIS. Studies should be undertaken. Monitoring before, during, and after development should be required.

Response: The programmatic EIS presents a high-level analysis of the potential impacts from the types of technologies described in it. This EIS is not meant to be a detailed document applicable to a specific location; it is prepared as part of a process to include the public early in the development of the program and to assist the MMS in establishing processes and procedures to ensure that the environment is protected. The MMS plans to prepare or require the preparation of separate NEPA documents for lease sales and projects resulting from this new program. In addition, the MMS is using this first NEPA document to identify policies and BMPs that would apply to specific activities.

Group Comment: A016

OCS02-002	OCS27-001	OCS36-002	OCS45-003	OCS53-002	OCS54-002
OCS55-001	OCS80-012	OCS85-004	OCS92-004	80017-003	80058-037
80081-001	80089-003	80102-002	80103-008		

Comment Summary: Because of our lack of knowledge, projects should begin on a small scale (including wind projects) so as to monitor for unforeseen impacts, especially those of a site-specific nature. Some comments advocated the streamlining of demonstration scale project permitting to more quickly collect data, although others advocated the use of a categorical exclusion for demonstration and test facilities so that real-world data could be collected and factored into the decision-making more quickly.

Response: Care must be taken to protect the environment while allowing alternative energy activities. This final programmatic EIS contains proposed policies and BMPs to be used in the program as the initial steps to ensure that alternative energy-related activities are conducted in an environmentally sound manner. Furthermore, any alternative energy activities must comply with all relevant Federal statutes such as the CZMA, ESA, MMPA, and CWA. The MMS plans to prepare or require the preparation of separate NEPA documents for any activities resulting from this new program, including individual lease sales and required plan submittals. As well, the MMS intends to use an adaptive management approach to regulate alternative energy activities by using

a system whereby the operating industries can demonstrate and validate their performance. The MMS then would require adjustments to mitigation and monitoring activities on a case-by-case basis based on operating experiences. These efforts would involve reassessing the program and regulations as new information becomes available. Creation of a Categorical Exclusion involves a long process that requires an agency to conduct several environmental assessments to demonstrate that a particular activity consistently results in a Finding of No Significant Impact. This process can be used as the program evolves, but for the first few projects, a more detailed analysis would be required.

Comment: OCS07-008

Comment: So, again, to conclude that there is minimal risks with these types of mitigation presumes that you understand how that mitigation might play out, which by your own admission in the document, you don't have the information to do.

Response: The mitigation measures proposed in the programmatic EIS reflect the extensive experience of MMS in overseeing oil and gas exploration, construction, and production activities on the OCS as well as practices used for renewable energy development and generation overseas. Many of the mitigations proposed involve proper siting of facilities to avoid impacts to sensitive areas or the application of existing mitigation measures used in other situations. The MMS intends to use an adaptive management approach to regulate alternative energy activities by using a system whereby the operating industries can demonstrate and validate their performance. The MMS then will require adjustments to mitigation and monitoring activities on a case-by-case basis based on operating experiences. These efforts will involve reassessing the program and regulations as new information becomes available. Additionally, both lease sale and site-specific analyses will be required to propose applicable mitigation measures. The final EIS will propose policies and BMPs that may be adopted in the ROD and incorporated into the program. The EIS has been revised to provide discussion of impacts with and without the potential mitigation measures.

B.2.9 Site-Specific Environmental Studies

Group Comment: A008

OCS79-001	OCS83-001	OCS83-043	80004-001	80052-009	80058-008
80070-001	80087-027	80094-002	80101-002	80104-002	80104-003
80115-001					

Comment Summary: Commentors noted that individual reviews would still be required for each proposed project on the OCS. Site-specific environmental studies on impacts will be needed.

Response: Commentors suggest that individual and project- and site-specific environmental reviews be conducted in the future when such projects are proposed. This

is consistent with the approach the MMS is proposing. The text given under the Proposed Action and Alternative Section in the Executive Summary of the programmatic EIS states that “The programmatic nature of the EIS requires that the examination of environmental consequences and potential mitigation measures be conducted at a higher scale than would be appropriate for site-specific projects. Therefore, additional environmental review pursuant to the National Environmental Policy Act (NEPA) will be required for all future site-specific projects on the OCS.”

B.2.10 Facility Location

Group Comment: A013

OCS07-005	OCS17-002	OCS32-002	OCS34-001	OCS67-004	OCS67-005
OCS80-003	OCS81-002	OCS81-005	OCS85-002	OCS94-001	80047-003
80056-002	80057-001	80058-002	80066-003	80068-021	80079-005
80084-002	80085-002	80087-008	80087-026	80087-039	80087-061
80093-002	80093-003	80102-003	80104-010	80104-017	80105-002
80106-004	80106-011	80109-007	80118-005	80118-035	

Comment Summary: Interest was expressed that MMS should designate areas on the OCS as either preferred for alternative energy development or off limits for such development. Such designations (zoning) would have to take into account the renewable resource potential, sensitive areas, as well as present and potential future space/use conflicts.

Response: Section 388 of EPLA explicitly states that “This subsection does not apply to any area on the outer Continental Shelf within the exterior boundaries of any unit of the National Park System, National Wildlife Refuge System, or National Marine Sanctuary System, or any National Monument.” In addition to excluding these areas, the final EIS describes policies and BMPs that may be adopted in the ROD and incorporated into the program. Incorporating these policies and BMPs into the final EIS and subsequent ROD will inform stakeholders about protective measure that will be included, such as avoidance of areas of biological concern (e.g., coral reefs), archaeological features, and other areas that could pose conflicts (e.g., shipping fairways). These policies and practices help identify where development may not occur. The regulatory framework that is being developed by the MMS will take into account the importance of State and local government involvement with the MMS to help identify and addresses issues associated with alternative energy program activities. The MMS will decide where to proceed with development based on comprehensive analysis of relevant issues and information, which would include industry interest as expressed by potential lessees. The MMS may take a national, regional, or more localized approach to the leasing analysis and decision process.

The MMS originally intended to publish proposed regulations in the *Federal Register* shortly after publication of the draft programmatic EIS. However, MMS subsequently determined that it would be more appropriate to finalize the programmatic EIS

establishing the AEAU Program, and have the document inform the agency as it completes its efforts in drafting a proposed rule for public review and comment. The MMS currently anticipates publishing draft proposed regulations for public review and comment in late 2007 or early 2008. A separate NEPA analysis will be conducted in association with the rulemaking, which may tier off of or incorporate by reference this programmatic EIS as appropriate.

Comment: OCS32-003

Comment: The deference that MMS has given the industry violates both the agency's public trust obligation and congressional intent. In particular, MMS's re-review on this section, and this is what I would hope for, of the scope of the PEIS purpose and need statement, and I would like to remind MMS of the need for objective standards for a review. I'm also concerned about our observation of industry wisdom reflecting in siting guideline recommendations of the Department of Interior, U.S. Fish and Wildlife Service, GreenPeace, Sierra Club, American Bird Conservancy and Mass Audubon avoid areas in siting wind towers that have a con, that will conflict with endangered species.

Response: In the course of offering areas of the OCS for development, the MMS will issue a public Call for Information and Nominations, followed by an Area Identification for a specific lease sale. The MMS will then prepare a Lease Sale Environmental Impact Statement to assess potential environmental impacts, mitigation measures, and alternatives. Additionally, the lease sale must comply with all relevant Federal statutes such as the CZMA, ESA, MMPA, and CWA. Consultations with appropriate agencies would be required to ensure that protective measures are being taken for threatened and endangered species. Following this, site-specific environmental reviews would be conducted for each proposed project.

Comment: OCS35-003

Comment: It emphasizes proper siting of facilities but does not define what that means. It includes, at best, minimal and incomplete baseline information about sensitive resources across the OCS, it provides nothing regarding potential conflicting public uses of the waters. In short, the current draft PEIS does not inform the regulation of the OCS resource in a useful way. Instead of helping to inform and move forward the streamlining of project review and production of environmental resources, the PEIS just discusses the regulations benefits.

Because it fails to inform or address the impact of specific national regulations, either the draft PEIS would need to be redone or a second PEIS will be required to address the draft regulations when they are published. As it is still in draft form and there is time to correct the current draft, the alliance calls upon MMS to supplement the draft PEIS and produce a document which can inform specific national regulations for development of alternative energy on the OCS and the protection of the environment. For specific issues which need to be addressed in the supplemental, I refer you to the alliance's comments of May, 2006

on the scope and to our comments in response to the advanced notice of proposed rule making submitted in February, 2006.

Response: The programmatic EIS takes a first look at the impacts of three alternative energy technologies—wind, wave, and marine current—on the marine and human environment. The EIS assesses, at a high-level, the environmental impacts that are likely to occur at each of the primary stages considered in alternative energy development (e.g., technology testing, site characterization, construction, operation, and decommissioning). The EIS identifies the issues and concerns that the decision maker must consider when deciding whether the program can be established, and what form the program should take. The EIS also informs the MMS about the environmental concerns that may be addressed in the regulations. In addition, this first NEPA document is being used to identify policies and BMPs that may apply to specific activities.

This programmatic EIS is not meant to be a detailed document applicable to a specific location; it is prepared as part of a process to include the public early in the development of the program and to assist the MMS in establishing processes and procedures to ensure that the environment is protected. The MMS intends to prepare or require the preparation of separate NEPA documents for any activities resulting from this new program, including individual lease sales and required plan submittals. It is at this project level that the MMS believes that regional issues, such as competing or conflicting uses (as well as specific areas of environmental concern), are best identified and evaluated. For example, the MMS is preparing two separate EISs for individual projects proposed off the coasts of Massachusetts and New York; each of these project-specific EISs is being prepared to identify and evaluate the environmental impacts associated with these individual projects proposals.

The MMS originally intended to publish proposed regulations in the *Federal Register* shortly after publication of the draft programmatic EIS. However, the MMS subsequently determined that it would be more appropriate to finalize the programmatic EIS establishing the AEAU Program, and have the document inform the agency as it completes its efforts in drafting a proposed rule for public review and comment. The MMS currently anticipates publishing draft proposed regulations for public review and comment in late 2007 or early 2008. A separate NEPA analysis will be conducted in association with the rulemaking, which may tier off of or incorporate by reference this programmatic EIS as appropriate.

Comment: OCS59-002

Comment: Secondly, I'd like to talk a little bit about how I got here tonight. I found out about it on an article on the internet. But then last night, I watched the 11 o'clock news, and they did a clip from Martha's Vineyard instead of talking about what was going to happen here locally tonight.

And I wanted to say that I think the placement of the windmills would be tremendously important not to generate that kind of community backlash that goes, "Not in my

backyard,” because the aesthetics, of course, are going to be extremely important. There were specifics tonight that you didn’t address that I would have liked to have heard more about, particularly about placement, how far offshore, so that we could avoid some of these controversies about people not having their beachfront properties overlooking that, and the kind of backlash that’s invariably going to happen when people think that their property values are at risk.

So I think the thing that I’d like to proceed with is, What can we do to get this to work? We all recognize how important it is right now to reduce the carbon emissions. And just what can we do to make this a good alternative?

Response: Thank you for your comments. Your participation in the process is important to make it work.

MMS jurisdiction begins at least 3 nautical mi (3.5 mi; 5.6 km) from shore, so the development would not be that close to the beach. Some currently proposed projects are 10 km (6 mi) or more from shore. Visibility will depend on the level of haze and on the reflection of sunlight. At night, there will be lights that may be visible from shore. Current technology for wind development is limited to relatively shallow water depths (around 18 m [60 ft] and, therefore, limited as to how far from shore.

Comment: 80047-007

Comment: 8. The DEIS should contain more maps showing key ocean resources like areas of high use by marine mammals, turtles, fish, and sea birds, etc. and the location of possible OCS developments. Geographic overlap is a good way to capture an overview of cumulative impacts.

Response: The amount of detail required for such maps is beyond the scope of this programmatic EIS that is taking a first look at alternative energy development on the OCS from a national perspective. The maps in the EIS give a broader perspective and include such areas as national marine sanctuaries and wildlife refuges. Such detail is more appropriate and will be needed when proposals are submitted for site-specific projects.

Comment: 80047-019

Comment: 20. Consider the impacts of tsunamis, especially in seismically active areas such as the West Coast or near the mouths of large rivers where large amounts of sediment are deposited and poised for mass movement. Building hard structures in this area is not wise, nor would it be wise to store hydrogen in this area.

Response: The impacts of natural phenomena events, including tsunamis, are considered in Sections 5.2.24, 5.3.24, 5.4.24, and 6.5 of the programmatic EIS.

Comment: 80087-046

Comment: Siting in Pacific Northwest waters: Given the diversity of project types and technologies, it seems that “class by class” or regional alternatives may be more applicable.

Response: The programmatic EIS is a first look at the potential impacts of the new alternative energy technologies on the OCS that could be initiated in the next 5 to 7 years. Detailed analyses for specific activities are more appropriately conducted at the regional or site-specific level. The MMS intends to require these more detailed analyses in subsequent NEPA reviews conducted at the lease sale and project level.

Comment: 80096-003

Comment: Response 3: In several areas of the EIS, the following is stated “for the technologies being assessed within the time horizon for this EIS, development is expected to occur nearer to shore where maximum water depth would be 100 m or less for wind and wave technologies and 500 m for ocean current technology (the only OCS area where ocean current technology is feasible for development is in the Florida current, located off the eastern coast of North America).”

The depth offshore South Florida can exceed 1000 m in places. FAU’s Center of Excellence and its partners may install test turbines and commercial grade turbines in depths greater than 500 m.

Response: For the purposes of taking this first look at potential development over the next 5 to 7 years, a depth limit of 500 m (300 ft) was chosen for marine current, based on preliminary permit applications currently on file. Not including a larger geographic area or water depth does not preclude these activities from occurring in those areas. Should these activities require a lease from the MMS, a more detailed, site-specific analysis would be required.

Comment: 80108-001

Comment: “It would be a waste of time for MMS to contemplate as alternatives to actual proposed projects certain hypotheticals,” FPL stated.

The DPEIS concurs: “MMS does not have (and cannot reasonably attain) the requisite information to ‘map-out’ the best areas for alternative energy project activity. The MMS is hoping that such information will be developed in the future with the assistance of...potential applicants.”

“FPL Energy does not recommend that MMS launch a comprehensive assessment of the OCS for wind energy potential.... The best approach would be for MMS to encourage the wind industry to conduct the necessary due diligence.” Furthermore, “The information collected by potential developers as to the wind and other characteristics of a site is

critical business information and should, without question, be treated as the property of the potential developer.”

The DPEIS obliges: “For the present, the MMS intends to ask industry to identify those areas with the most potential for development.”

Response: Thank you for your comment. The MMS is considering this and all other comments in the formulation of the rulemaking.

B.2.11 Structure Removal

Group Comment: A020

OCS03-004	OCS03-005	OCS03-006	OCS71-004	OCS73-001	OCS87-003
OCS93-001	80034-001	80035-001	80037-001	80038-001	80039-001
80040-001	80041-001	80042-001	80043-001	80044-001	80050-001
80051-001	80063-001	80068-003	80068-005	80071-002	80072-004
80075-001	80078-002	80079-014	80085-012	80093-004	80104-011
80104-019	80106-006	80118-030			

Comment Summary: Abandonment of oil and gas platforms on the OCS is seen as a result of alternate use by many commentors. Others were concerned that alternative energy structures would also be left on the OCS after their useful lifetime.

Response: Decommissioning of alternative energy facilities in a timely manner at the end of their operating lifetimes will be required. The decommissioning will include removal of any structures from the OCS as discussed in Section 3.5.5 of the draft EIS. Any exception to this requirement would require its own consideration and analysis by MMS on a case-by-case basis in the future.

The permitting of alternate uses of oil and gas structures on the OCS will not absolve obligations for ultimate removal of the structures from the OCS. The alternate use of an oil and gas structure will extend its useful lifetime, but at the end of such alternate use, the structure must be removed and the seafloor returned to preconstruction conditions.

B.2.12 Technology

Comment: OCS02-001

Comment: I’m Max Chamovits speaking on behalf of the Ocean Renewable Energy Coalition. First, we are glad to see that MMS has included wave technologies along with offshore wind in its five-year planning cycle. Wave, as well as other ocean technologies, are advancing at a rapid clip with projects ready for testing and deployment. These technologies, for the most part, are being promoted by small companies that do not have the resources to undergo and survive a five-year long permitting process.

Response: As stated in the draft programmatic EIS, the analysis addresses alternative energy activities and technologies that are likely to be pursued on the OCS over the next 5 to 7 years. There is no 5-year planning cycle for the OCS alternative energy program, and the proposed process for authorizing projects is not expected to take 5 years.

Comment: OCS07-006

Comment: There is no discussion about the level of service vessels. There is a discussion, I'm sorry. But I think it underestimates the experience at Horns Rev where they programmed in two visits per turbine per year and found they had five unscheduled ones because of technical difficulties. All of the service vessels have to go in some dock space somewhere and as anybody knows it works on water dependent use protection. Dock space for commercial boats is becoming more and more scarce. So what is the displacement there. Those types of issues were not dealt with and those are the real ones that really ought to be brought into play in this calculus because they are the ones that are related back to the acceptability, back to the alternatives and really are the things that need to be done through this kind of work.

Response: The MMS plans to conduct a site-specific EIS for any project proposal that is submitted for an alternative energy facility on the OCS. The nature and amount of vessel traffic associated with the construction, operation and maintenance, and decommissioning phases would be evaluated on a site-specific basis. These EISs would consider the impacts of additional traffic on the shore-side facilities (e.g., docks and harbors) that would be affected by these proposals. The degree of impact would depend on the types and numbers of devices proposed by a given facility.

Comment: OCS08-003

Comment: Again, on the frequency of maintenance trips, the PEIS states that human activity will be relatively low on the wind turbines. Well, the Long Island Power Authority did their, in their planning document said that there would be over 400 trips per year to the wind turbine facility that turbines and as Tim Dillingham pointed out, there were over 75,000 trips to Horns Rev and those were by helicopter. When you start to imagine the emissions coming from these trips, you know, those have to be added into the overall goal of reducing fossil fuel emissions and to that point, you know, the no action alternative sites, the fact that we are going to have a lot more impact from emissions from coal and natural gas et cetera. But again, the PEIS does not provide any evidence to that statement and nor does it clarify how alternative energy production on the OCS will reduce that impact. And I think those are real questions that we are finding as we evaluate our own projects off New Jersey.

Response: Emissions from service trips are expected to be low because of the limited activity (about 1 or 2 service trips per working day at a wind facility). The 75,000 trips to Horns Rev were in part a result of transformer and generator failures because of manufacturing problems, which eventually led to the return of all 80 nacelles to shore for

refurbishment. Later wind facilities incorporating the same manufacturer's turbines and those by others have not encountered a similar problem.

Current maintenance trips are estimated at 2 service inspections per turbine per year at Horns Rev in Denmark (with possibly an extra 1 to 3 trips per year) and at Kentish Flats in the United Kingdom. Thus, slightly more than 1 service trip per day could be expected at Horns Rev. At the Nysted wind facility in Denmark with 72 wind turbines, as many as 2 service vessels may be in operation during workdays, with the potential for each vessel to service up to 2 turbines a day.

Specific air, water quality, ecological, socioeconomic, and other impacts of proposed facilities and activities associated with them would be examined as part of the site-specific EIS process. Issues such as air emissions associated with increased vessel traffic, fish migrations over transmission lines, and a variety of other site- and project-specific impacts would be examined before any permit is issued.

Comment: OCS13-003

Comment: Scope – Data

However, in the programmatic, despite these things, you do go on to make representations that I think even the most unabashed supporter of wind energy would not make. And specifically I am citing a reference to load capacity in which in the programmatic you cite a Danish, an IEA report, Internal Energy Agency report, that is unreferenced, citing a 53 percent load capacity for wind. Now LIPA, which is not known for conservative estimations, itself has said that they are not going to produce more than 35 percent load capacity. Yet, in your programmatic, you cite a Danish, an IEA study, citing a Danish facility at a 53 percent load capacity. But if you look at the British experience or the Danish experience, in fact, the load capacity is between 20 and 25 percent. Moreover, MMS might seriously consider removing all industry friendly references from your programmatic. Particularly these of the visual impact. The draft programmatic cites, among others, Dung energy, which is to cite visual impact, Dung energy, of course, is the owner of several offshore wind facilities.

Response: The comment refers to an “unreferenced” 53% load capacity factor, suggesting that the source is an “industry-friendly” reference, and requests that the MMS consider removing all industry-friendly references from the EIS.

The 53% load capacity factor (and other capacity factors included in the same discussion in the EIS) is referenced in the programmatic EIS as IEA 2005 (“IEA [International Energy Agency], 2005, *Offshore Wind Experiences*, June. Available at <http://www.iaea.org/textbase/papers/2005/offshore.pdf>. Accessed Dec. 14, 2006.”). The following paragraph from IEA (2005) was used to derive the 53% factor:

“Operational phase. . . Production data are available for the Nysted and Horns Rev wind farms in Denmark. In 2004 Nysted saw a capacity factor of just under 40% while

production in the first four months of 2005 yielded a capacity factor of over 47%. Horns Rev saw major technology problems in 2004 resulting in unavailability of 30%–50% of the turbines throughout the year. Thus, its full-year capacity factor is only 26% in 2004, while during the first four months of 2005, when the turbines were fully operational at all times, the capacity factor reached just over 53%. Given that 2004 was considered an average windspeed year for the Danish climate, long-term capacity factors can be expected at around 40% for Nysted and around 45% for Horns Rev, meeting or even exceeding initial expectations” (page 23).

Regarding the IEA, its affiliations, and its objectives, the following information comes from the IEA’s home page (<http://www.iea.org/Textbase/about/index.asp>). The IEA acts as energy policy advisor to 26 member countries in their effort to ensure reliable, affordable, and clean energy for their citizens. Founded during the oil crisis of 1973–1974, the IEA’s initial role was to coordinate measures in times of oil supply emergencies. As energy markets have changed, so has the IEA. Its mandate has broadened to incorporate the “Three E’s” of balanced energy policy making: energy security, economic development, and environmental protection. Current work focuses on climate change policies, market reform, energy technology collaboration, and outreach to the rest of the world. With a staff of around 150, mainly energy experts and statisticians from its 26 member countries, the IEA conducts a broad program of energy research, data compilation, publications, and public dissemination of the latest energy policy analysis and recommendations on good practices.

Comment: OCS27-002

Comment: I would also suggest that the United Kingdom’s Department of Trade and Industry, which oversees renewables and is really very forthright and very clear with the statistics. Specifically, I think you heard the citation before of the UK load capacity of 25 percent. That’s representation by DTI, United Kingdom. It’s at odds with the excerpt, the unsource excerpt you cite in you programmatic. I think it’s very important that at the very least you be thorough in that regard because clearly what is left with as far as an impression is that there has perhaps not been very thorough homework done in this programmatic and that a lot of the citations are very industry friendly and I’m sure that you don’t want to give the appearance of that kind of conflict.

Response: The comment suggests that the United Kingdom’s Department of Trade and Industry (DTI) estimate of a 25% load factor was at odds with the excerpted “unsourced” citation in the programmatic EIS. An August 2001 DTI report, *Efficiency and Performance – Wind Energy Fact Sheet 14*, states that European capacity factors usually vary between 20% and 40%. These factors include both onshore and offshore wind turbine generators (WTGs). The DTI report also notes, as does the EIS, that capacity factors vary with wind speed, season, and turbine design. Because offshore wind speeds are generally higher than onshore wind speeds and because offshore turbine designs can be more flexible, offshore capacity factors are typically greater than onshore capacity factors. The Danish figures cited in the draft EIS are for offshore turbines, and the reference (also noted in the EIS) for these capacity factors is IEA (2005) (“IEA

[International Energy Agency], 2005, *Offshore Wind Experiences*, June. Available at <http://www.iea.org/textbase/papers/2005/offshore.pdf>. Accessed Dec. 14, 2006.”). The following paragraph from IEA (2005) was used to derive the 53% factor:

“Operational phase. . . . Production data are available for the Nysted and Horns Rev wind farms in Denmark. In 2004 Nysted saw a capacity factor of just under 40% while production in the first four months of 2005 yielded a capacity factor of over 47%. Horns Rev saw major technology problems in 2004 resulting in unavailability of 30%–50% of the turbines throughout the year. Thus, its full-year capacity factor is only 26% in 2004, while during the first four months of 2005, when the turbines were fully operational at all times, the capacity factor reached just over 53%. Given that 2004 was considered an average windspeed year for the Danish climate, long-term capacity factors can be expected at around 40% for Nysted and around 45% for Horns Rev, meeting or even exceeding initial expectations.” (page 23).

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Comment: OCS57-001

Comment: If you don’t have the proper contrast on these wind turbines along with the lighting, under bad weather conditions, you’re asking for a huge fiasco. And as far as what is under the water level, what is actually under the water level, it should be and it can -- well, I’ll put it this way. It can be made so it is very proactive to the environment.

And especially when you’re dealing with mammals, the whales, the surfaces and the texture of the material that is under the water need to be almost an incredibly slick surface. And it also needs to be very shock-absorbing. And I would even go so far as to -- knowing the actual size of it is the main part of it. If you don’t know the actual size of it, you have to have a certain amount of shock-absorbing power between the actual impact -- it’s like cars that get in a wreck. You’ve got the bumper, and you have a certain amount of room there that you have to have.

If you don’t have that amount of room -- say you have a commercial liner that gets in bad weather and runs into one of these things. That’s going to be a disaster especially if it’s an oil tanker.

Response: The MMS appreciates the commentor's concerns regarding visibility and potential impacts with marine mammals and vessels. These issues are being considered as the MMS writes the regulations for OCS alternative energy permits.

Comment: OCS85-011

Comment: 11. Question -Why is the lifespan of a wind park averaged at 20 -25 years? Given this knowledge, DNR recommends basing the life of the MMS lease upon 1/2 of the entire lifespan. This would provide MMS with an opportunity to re-evaluate the lease and impacts in 10 -12.5 years. As a general rule, the DNR generally does not issue bedland leases for longer than 12 years without adequate justification.

Response: The expected life of a WTG is 20 to 25 years. This is based on onshore experience and is expected to apply to offshore turbines as well. While the offshore environment may be harsher than the onshore environment, the wind conditions are steadier offshore, so that in general, the lifespan for both onshore and offshore turbines is expected to be about the same. The foundation upon which an offshore WTG is built may last longer (50 years or more), but the WTGs themselves are expected to be replaced after the end of their useful lives.

The proposed activities would be occurring beyond the State/Federal boundary and not within State waters, where the Department of Natural Resources has jurisdiction. The MMS will work closely with the State regarding any transmission lines that would go across State lands between the State/Federal boundary and the substation connection.

Comment: 80052-013

Comment: MMS's suggested mitigation measures include scour protection devices and routine inspections (See Section 5.2.1.6, Page 5-7). Hard scour protection devices such as riprap can actually increase erosion over time. Ecology recommends adding softer approaches to the potential mitigation measures for sediment and erosion management such as natural, softer materials or sediment nourishment.

Response: The MMS agrees with the comment and has added the suggested mitigation measures to the discussion in Section 5.2.1.6.

Comment: 80055-002

Comment: Section 3 Overview of Potential Alternative Energy Technologies on the OCS Section 3.2 Wind p. 3-8

As noted above, the Wind White Paper¹ recognizes the need for major modifications of European WTG and ESP designs because of the harsher U.S. environment (waves, ice, hurricanes, temperature extremes, etc.) Therefore the skipping of pilot and demonstration phases and the statements throughout Section 5.2 Technology Testing that "there should be little need to prove the concept on the OCS" is incorrect. Full equipment certification

to expected U.S. conditions, based on European certification examples, should be required.

Response: When it is stated that technology testing is not expected, the MMS means that offshore wind technologies are proven to be commercially viable whereas other technologies, such as wave, still need to be proven in the marine environment. Technology testing of wave devices is already occurring in Europe and in coastal Hawaii. As the program is developed, the MMS is also reviewing and revising the design standards based on its experience with offshore oil and gas activities in the marine environment and the international standards that are being developed for wind turbines. However, the programmatic EIS does acknowledge that for wind, technology testing may be required for new types of foundation structures that would be used in deeper environments.

Comment: 80055-006

Comment: Section 7.4 Impacts of Other Energy Sources 7.4.3 Nuclear Power Plant Generation p. 7-18

This section is not up-to-date in light of the 30 nuclear power plants planned for construction by a group of Southern power companies and the ambitious nuclear power plants planned in Texas.

Response: The most recent data from the USDOE (EIA 2007) projects U.S. nuclear generating capacity to increase from 100 GW in 2005 to 112.6 GW in 2030. Assuming that each new plant is about 1 GW would suggest about 12 new plants. Electricity generation from nuclear power plants is expected to account for 15% of total generation in 2030.

Comment: 80055-009

Comment: Technology Testing p. ES-5: The White Paper on Wind Energy states that “Important differences exist between Europe and the United States regarding offshore wind environments. U.S. waters are generally deeper than those off the European coasts, and ocean conditions on the U.S. OCS are more severe than those in Europe. Thus, the technologies designed for European offshore environments will need to be modified to adapt to the harsher U.S. OCS conditions.” Therefore, the statement on page ES-5 that “developers would likely skip the pilot and demonstration phase and move directly to commercial operations,” is not acceptable! The MMS should require developers to fully certify the equipment to be placed on the OCS. European countries provide excellent examples of such certification requirements.

Response: When it is stated that technology testing is not expected, the MMS means that offshore wind technologies are proven to be commercially viable whereas other technologies, such as wave, still need to be proven in the marine environment. Technology testing of wave devices is already occurring in Europe and in coastal Hawaii.

As the program is developed, the MMS is also reviewing and revising the design standards based on its experience with offshore oil and gas activities in the marine environment and the international standards that are being developed for wind turbines. However, the programmatic EIS does acknowledge that for wind, technology testing may be required for new types of foundation structures that would be used in deeper environments.

Comment: 80069-003

Comment: Figure 3.2-4, a simplified drawing of an offshore wind energy facility, identifies undersea collection cables, at-sea transformer stations and undersea cables to bring electricity to land as project elements. Additional discussion at this point indicating the project footprint for a reasonable range of wind farm projects (e.g., demonstration to full commercial scale at 100m) would be useful to give a sense of the ocean area such projects may occupy.

At a couple of points, the DPEIS suggests that commercial and demonstration projects covered by MMS' new program may affect or directly involve state-owned submerged lands and state waters as well as coastal land areas. While the DPEIS does not appear to suggest that MMS would have authority to create private rights in state-owned submerged lands (areas landward of the three-mile limit), use of state submerged lands and mainland areas may well be proposed for project infrastructure and facilities to support projects on the OCS. Further and more detailed characterization of MMS' understanding of the nature, scale and potential environmental effects of on-shore and near shore energy infrastructure and facilities that would be needed to support reasonably foreseeable wind power and other alternative energy development projects on the OCS would be useful.

Response: The footprint of a given project will depend on the design characteristics of that project. The MMS does not know the sizes of the wind facilities that will be proposed, and therefore cannot estimate the size of the ocean area that will be required. However, on the basis of existing facilities, the following information regarding ocean area occupied during operations may be useful. Individual WTGs are spaced at intervals to allow for the efficient use of wind and the passage of recreational boats. The surface area occupied by an individual turbine is the area of the tower at the water line (estimated diameter of about 3 m [10 ft] and estimated area of about 7.5 m² [80 ft²]). The area for the electric service platform can be about 550 to 2,000 m² [6,000 to 20,000 ft²]. The ocean area occupied by an entire facility is generally rectangular; the size depends on the number of turbines and their spacing. A rule of thumb for spacing is to allow seven rotor (blade) diameters between units. (Each of the 80-WTG Horns Rev and 72-WTG Nysted offshore wind facilities in Denmark covers an area of about 28 km² [about 11 mi²], including the 200-m-[656-ft]-wide exclusion zone.)

Because the MMS does not know the sizes or locations of specific projects that may be proposed, it cannot characterize the nature, scale, and environmental effects of the needed on- and near-shore infrastructure and facilities. Nonetheless, Section 5.2.13 describes

potential, generic impacts to coastal habitats during testing, construction, operations and decommissioning, and Section 5.2.20 describes potential impacts during testing, construction, operations, and decommissioning for land use and existing infrastructures.

Comment: 80074-003

Comment: With respect to the DPEIS' analyses of the potential environmental impacts of wave and ocean current energy capture technologies, PG&E believes that the DPEIS provides a very good starting point for a comprehensive treatment of these issues. PG&E also believes that the DPEIS' method for characterizing the potential degree of impacts on various resources generally appears reasonable and sound. The method should produce an environmental review document that is comprehensive, accurate and of high value to developers, regulators and the public. It will be critically important for MMS to have, at the conclusion of its EIS process, a programmatic document that is carefully reviewed with an eye towards maximizing its accuracy (The DPEIS states, for example, at page 5-151, "The facility would require 2,500 mooring lines and anchors." This seems high, and a more reasonable statement might be "2-4 mooring lines per unit."), usefulness and value.

Response: The MMS has clarified the text to state that "A typical mooring design would require 2 to 3 mooring lines per device; thus a 100-device facility would require about 200 to 300 mooring lines . . ."

Comment: 80085-008

Comment: DPEIS Sec. 3.2: "Offshore wind turbines have not yet been optimized for energy production at sea, and therefore, as the technology matures, new designs may possibly deviate from this proven land-based architecture." (3-2) This statement is incorrect and contradicts another statement made later in the DPEIS (cited below, page 3-9). In Europe, offshore wind turbines are considered an off-the-shelf technology, and that will likely be the case for offshore turbines in the U.S, as noted in the DPEIS: "European pilot and commercial offshore wind projects have provided information to demonstrate the feasibility of offshore wind power generation. This experience, combined with the fact that a large portion of the costs of development are for offshore activities that require expensive installation equipment, means that developers in the United States would likely skip the pilot and demonstration phase and move directly to commercial operations."(3-9)

Response: The MMS has deleted the sentence, "Offshore wind turbines have not yet been optimized for energy production at sea, and, therefore, as the technology matures, new designs may possibly deviate from this proven land-based architecture" from Section 3.2.

Comment: 80085-009

Comment: DPEIS Sec. 3.2: “In offshore applications, where only two wind directions are likely to predominate, it may be possible to shorten the distances [less than 10 rotor diameters found on land] between turbines arranged in a line. A spacing of seven rotor diameters between units has been used in Denmark.” (3-3). AWEA does not believe that, even in those offshore instances where there may be two predominant wind directions, it is likely that shortened turbine spacing intervals would be appropriate or efficient. The optimal spacing between turbines is typically determined on a case-by-case basis, and is driven largely by the efficiency gains achieved by increasing output by minimizing the wake effects related to the nearby turbines, and thereby also reducing unit wear and tear and associated maintenance requirements. Further, it is likely that the larger turbines and rotors designed for the offshore market will have greater wake effect, thereby resulting in associated increases in the recommended spacing of such offshore turbines.

Response: The MMS has modified the text to state the following: In Denmark’s offshore applications, a spacing of seven rotor diameters between units has been used. (The 160-MW Horns Rev and Nysted offshore wind facilities in Denmark each cover an area of about 28 km² [about 11 mi²], including the 200-m-wide [660-ft-wide] exclusion zone). The optimal spacing between turbines is typically determined on a case-by-case basis and is driven largely by the efficiency gains achieved by increasing output by minimizing the wake effects related to the nearby turbines, and thereby also reducing unit wear and tear and associated maintenance requirements.

Comment: 80085-010

Comment: DPEIS Sec. 3.2: “Today, more than 600 MW of offshore wind energy capacity is installed worldwide.” (3-4) This figure should be updated to 900 MW, and any future documents or drafts should ensure this figure is current as development is continuing in Europe. (Musial, W, Bonnie, R, et al. (Mar 2007). Large-scale offshore wind power in the United States: Assessment of opportunities and barriers, (in peer review). *National Renewable Energy Laboratory*)

Response: The MMS strives to use the most current data and, therefore, appreciates the comment. Unfortunately, the MMS cannot cite a document that is still in peer review. However, another National Renewable Energy Laboratory document, *Energy from Offshore Wind*, by Musial and Butterfield, February 2006, cites 804 MW of existing capacity in 2005. The text of the EIS has been changed to state, “Today, more than 800 MW of offshore wind energy capacity is installed worldwide.”

Comment: 80085-011

Comment: “Periodic maintenance and inspection would be required. Wind turbines, for example, would be inspected and serviced about twice a year... Together, such services may average about 1 wk/yr per turbine.” (3-25) It should be noted here that periodic turbine maintenance does not imply that the subject wind farm would be out of service.

Unlike a traditional thermal plant which must shut down for outages, wind farms would continue production, with the exception of the unit undergoing maintenance.

Response: The MMS has added the following sentence to the text in Section 3.5.4: “It should be noted that the wind facility would continue production during scheduled maintenance activities; only the unit undergoing maintenance would be shut down.”

Comment: 80087-056

Comment: Page ES-8, Operation – The DPEIS states that “minimal maintenance vessel activity and underwater disturbance during operation is expected.” MMS needs to provide information in the PEIS to support this statement. Long-term maintenance will have some impact on the surrounding environment of an alternative energy facility and should be considered with the overall impacts of each project.

Response: The MMS has rephrased the sentence to state, “Minimal maintenance vessel activity and underwater disturbance during operation is expected, resulting in generally negligible to minor impacts from vessel traffic (noise and collisions with marine mammals and sea turtles).”

Comment: 80087-063

Comment: 3 – The photographs help visualize what the new technology looks like and are a very helpful part of the document.

Response: The MMS appreciates the comment.

Comment: 80087-064

Comment: 3.1 – A 1-megawatt generating device would provide sufficient energy for ~770 households in 2003. MMS should use this information instead of the 1000 household assumption in the first paragraph of section 3.1.

Response: The 1,000-household assumption is based on the latest referenceable data available. The suggested 770-household value is not useable without a valid reference.

Comment: 80087-065

Comment: 3.5.3, Pg 3-23 Subsea Cables – MMS should state how deep the cables would be buried using the jet-plow technique. Fishes and fisheries would generally be less impacted if cables were buried.

Response: Cables would be buried about 1 to 3 m (3 to 10 ft). The subject discussion has been rephrased to state, “Special cable-laying vessels designed specifically for both transport and installation would likely be used if the cables were buried, and generally

these cables would be buried using a jet-plow technique in the seafloor about 1 to 3 m (3 to 10 ft). This technique simultaneously lays . . .”

Comment: 80092-003

Comment: As a specific example of this, at page 5-151 the draft EIS describes a potential OCS commercial facility stating, “The facility would require 2500 mooring lines and anchors.” The number of mooring lines is likely to vary by technology and this may be a high number for certain applications and for smaller sized projects.

Response: The text has been rephrased to emphasize the site-specific nature of individual projects and their requirements. The revised text is as follows: “An OCS commercial facility may consist of up to four rows of floating wave devices (buoys) spaced 100 m (328 ft) apart in water 50 m (164 ft) deep. A typical mooring design would require 2 to 3 mooring lines per device, thus a 100-device facility would require about 200 to 300 mooring lines and anchors. A facility of this scale would occupy an ocean bottom area of about 2 km (1.25 mi) by 305 m (1,000 ft) (Elcock 2006). However, the number of mooring lines is likely to vary by technology and project size.”

Comment: 80096-007

Comment: Response 7 - Under the various construction sections, explosive embedment anchors should be considered for installing the sea floor mooring points.

Response: The MMS does not foresee the use of explosive devices as part of construction for offshore energy facilities.

Comment: 80096-010

Comment: Response 10 - In the site characterization sections, autonomous underwater vehicles and manned submersibles should be considered as a platform that will be used. Operating with a cabled instrument in a high shear environment can be difficult and problematic. Experience has shown that both AUVs and manned submersibles are excellent platforms for operating in the Straits of Florida. As well, AUVs are now being used extensively as survey vehicles in the oil industry and military.

Response: The MMS appreciates the comment and has added the following bullet discussion to Section 3.5.2., p. 3-22, just above the sentence that begins, “Data would also need . . .”

- The above technologies generally require tethering of the survey instrument to a vessel. Autonomous underwater vehicles (AUVs) are robots that can operate in water as deep as 6,000 m (19,700 ft). Powered by batteries or fuel cells, AUVs can be used to study the ocean and ocean floor. They carry sensors such as magnetometers, compasses, depth sensors, side-scan and other sonars to navigate autonomously and map features of the ocean. The oil and gas

industry has used AUVs to characterize potential drilling sites, using them as a substitute for conventional ship-born hydrographic survey tasks and for conventional tethered remotely operated vehicle tasks. AUVs may also be appropriate for characterization of alternative energy facilities on the OCS, particularly marine current facilities

Comment: 80096-012

Comment: Response 12 - Page 5-266, “After a technology has been tested, site-specific characterization would need to be conducted to collect data on ocean-bottom characteristics ...” It is not clear what testing means. If testing of a turbine on site is included in the definition, should site-specific characterization occur before or during testing?

Response: As described in Section 3.5.1, before a technology can be deemed feasible for commercial energy production, it must be tested in the OCS environment. A demonstration-scale test for ocean current technologies would most likely involve the deployment of one or two devices per test—with or without an undersea transmission connection to the shore. (Because undersea transmission would be similar for all three resource technologies, wave and ocean current demonstrations may not include installation of cable transmission lines until the technologies themselves have been demonstrated.) Limited site characterization, such as verifying that placement is not on top of a shipwreck or sensitive biological area (e.g., coral reef), will need to be conducted prior to placing a test device on the OCS. Additional information regarding activities that would occur during the testing are found in Section 3.5.1. Site characterization refers to the detailed analyses of ocean-bottom characteristics and unidentified hazards (e.g., for mooring and undersea transmission), potential environmental impacts (e.g., to migratory bird routes, benthic habitats, and coastal sediment transport processes), potential archaeological impacts, and possible conflicting uses (e.g., radar interferences and commercial fishing) that would be needed prior to development of a commercial size facility.

The first sentence in Sections 5.4.1.2 and 5.3.1.2 has been revised to state, “After a technology has been tested, site-specific characterization would need to be conducted to collect data on ocean-bottom characteristics and unidentified hazards, potential environmental impacts, potential archaeological impacts, and possible conflicting uses before commercial development.”

Comment: 80106-005

Comment: The PEIS should also include this same type of evaluation for different facility designs. Although many proposed projects are still in the design stage, there is enough known about certain types of proposed facilities to identify likely impacts and necessary mitigation measures. For example, several wave energy devices depend on pumping seawater in and out of structures, which could cause significant entrainment impacts to planktonic organisms and have a substantial adverse effect on nearby or

regional ecosystems dependent on those organisms. Other wave energy designs completely avoid this type of impact. Similarly, the document should describe standard wind energy devices and evaluate which designs would minimize bird strikes (e.g., larger and slower blades vs. shorter and faster blades). The PEIS should therefore include evaluations of known or likely facility designs, what impacts are most likely from those designs, and what mitigation measures may be needed.

Response: As a programmatic EIS, this EIS evaluates the potential effects of a broad agency action (i.e., the establishment of the MMS AEAU Program). It evaluates the generic impacts from potential activities occurring in the environment. Specific discussions of localized impacts are deferred to subsequent analyses. It also serves to identify potential impact factors and key resources that could be impacted; these elements will be examined more extensively in future assessments.

At this time, the MMS knows neither the specific offshore technologies that will be proposed, nor the specific offshore locations for which they will be proposed. Offshore technology designs are constantly being refined to improve efficiency and reduce potential impacts. Specific impacts and mitigation measures will depend on the site-specific technologies and designs and on the specific environmental characteristics and conditions of proposed locations. Given the rapidly evolving nature of this nascent industry, the MMS cannot reasonably anticipate and assess the potential environmental impacts of the various technologies and potential OCS locations where these alternative energy projects could someday be proposed. Therefore, it is not appropriate to attempt to identify and evaluate the impacts and mitigating approaches for a range of technology designs until the specific designs and locations for which they are proposed are known.

Once proposals are received for specific technology designs in specific locations, the MMS will carefully evaluate the proposed design, identify the most likely impacts, and identify appropriate mitigation measures. For each offshore proposal, a site-specific EIS will be prepared that evaluates the specific technology and location that an applicant is proposing.

Comment: 80108-003

Comment: “MMS should not,” FPL wrote, “view pilot projects as mandatory precursors to full-scale development.... Europe is, in effect, serving as a pilot project for offshore wind development in the United States.... There is no reason for MMS to mandate pilot projects, given the industry’s operational experience.” [p.21]

In the DPEIS, MMS concurs: “European pilot and commercial offshore wind projects have provided information to demonstrate the feasibility of offshore wind power generation.”

Response: Thank you for the comment. The MMS is considering this and all other comments in the formulation of the rulemaking.

Comment: 80108-007

Comment: Take another glaring example from the DPEIS that reprinted a passage about the load capacity of offshore wind projects in Europe. It was lifted virtually verbatim from a 2005 International Energy Agency glossy which itself did not provide specific references for its data: *“For onshore WTGs, reasonable capacity factors are 0.25 to 0.3, and a good capacity factor would be 0.4 (AWEA 1998). The potential capacity factors for offshore WTGs are greater: in 2004, the capacity factor for the Nysted Wind Facility in Denmark was just under 40%; in the first four months of 2005, the capacity factor was more than 47%. For the Hors Rev Wind Facility in Denmark, the full-year 2004 capacity factor was 26%, but major technical problems caused 30% to 50% of the turbines to be unavailable throughout the year; when the turbines were fully operational at all times, the capacity factor reached just over 53%. Because 2004 was considered to be an average wind-speed year for the Danish climate, long-term capacity factors are estimated to be about 40% for Nysted and about 45% for Horns Rev (IEA 2005).”*

“Offshore Wind Experience” 2005 -International Energy Agency, p23:

“While there is limited information, the anticipated wind energy resource does seem to be apparent. Production data are available for the Nysted and Horns Rev wind farms in Denmark. In 2004 Nysted saw a capacity factor of just under 40% while production in the first four months of 2005 yielded a capacity factor of over 47%. Horns Rev saw major technology problems in 2004 resulting in unavailability of 30%-50% of the turbines throughout the year. Thus, its full-year capacity factor is only 26% in 2004, while during the first four months of 2005, when the turbines were fully operational at all times, the capacity factor reached just over 53%. Given that 2004 was considered an average windspeed year for the Danish climate, long-term capacity factors can be expected at around 40% for Nysted and around 45% for Horns Rev, meeting or even exceeding initial expectations.”

Now go to http://www.dtistats.net/energystats/dukes7_4.xls at the UK’s Department of Trade & Industry to ascertain that Britain’s offshore load capacity for ‘04-’05 was approximately 26%.

Response: The commentor appears to be confusing the terms “load factor” and “capacity factor.” The quoted passage in the draft EIS pertains to capacity factor; the table at the URL (http://www.dtistats.net/energystats/dukes7_4.xls) pertains to load factor. Capacity factor, as stated in the draft EIS, is the WTG’s actual annual energy output divided by the energy output that would be produced if it operated at its rated power for the entire year. The table at the URL does not define load factor, and the document from which it was taken is not referenced. However, load factor is generally considered to be the ratio of average load (demand) to peak load (demand) during a specified time interval. Even if the definitions were the same, the table indicates “load factors” of 24.2% for 2004 and 27.2% for 2005. These factors are very close to the stated full-year capacity factor of 26% for the Horns Rev facility in the draft EIS. Without more details regarding the

derivation of the numbers in the table at the URL, it appears that the data in the EIS are not inconsistent with the data in the table.

Comment: 80115-003

Comment: 3. CCE supports a demonstration project for deep-water wind technology. However, CCE does not believe that current wind technology should be halted until newer technology is developed.

Response: It is not the intent of the EIS to imply that current wind technology should be halted until newer technology is developed. The MMS plans to evaluate site-specific alternative energy projects for the OCS as they are received.

Comment: 80118-012

Comment: The section in the DPEIS that references principal components of wind farms did not identify the cable system that connects the wind turbine generators to the central electric service platform and the cables that connect the wind operation to an onshore substation. The impacts of the cable system are detailed in other sections of the document and should be mentioned as a principle component feature of a wind-farm operation.

Response: Starting on p. 3-6, Section 3.2 describes the principal components of wind facilities. Page 3-7 contains a detailed discussion of the cabling system options. Section 3.5.3 (pp. 3-23 to 3-24) of the draft EIS discusses cable installation.

Comment: 80118-037

Comment: Page 3-3, Section 3.2 Wind: At the bottom of page 3-3 in this section, an exclusion zone (200 meters wide) is mentioned in association with the Horns Rev and Nysted offshore wind projects in Denmark. The purpose, extent in space and time, and prohibited uses at these exclusion zones should be explained. Whether MMS intends to exclude other uses, such as fishing, from areas leased for wind energy should be specified in the final PEIS.

Response: Mention of the exclusion zone in this context was merely to clarify what was included in the area covered by an existing wind facility—which happens to be in Denmark. The existence of exclusion zones in other countries has no bearing on what, if any, exclusion zones would be required by the MMS. Any exclusion zones required by the MMS would be discussed in the proposed regulations and would be subject to public review and comment.

Comment: 80118-040

Comment: Page 3-9, Second Paragraph: There is a discussion on the extreme requirements placed on tower foundations that are important constraints on OCS wind development. It is stated that gravity foundations pose greater environmental impacts due

to their large diameters (about 66 feet). Gravity foundations weigh between 500 and 1000 tons. Seabed preparation is required and divers must remove silt and prepare a smooth bed to ensure uniform loading. The amount of material to be removed, the method of removal, and placement and location of disposal material is not mentioned, and should be clarified in the final PEIS. The potential impacts on the benthos as a function of substrate type should also be described in detail in Chapter 4: Affected Environment.

Response: The amount of material to be removed, the method of removal, and placement and location of disposal material would depend on the design characteristics of specific proposed projects and would be evaluated on a site-specific basis for any proposals that incorporate gravity foundations. The extent of impacts would also depend on the type of seabed and site-specific sensitivities such as the seasonal sensitivity of young/larvae and adult organisms, and the recovery rate of any species lost. Further discussion of this issue can be found in *Turning the Tide—Power from the Sea and Protection for Nature*, by Iwan Ball, December 2002, available at <http://www.tidalelectric.com/WWFturningthetide.pdf>. As one example of removal amounts and potential impacts, the Environmental Impact Assessment of Hydrography conducted for the Horns Rev Wind Power Plant in Denmark (http://www.hornsrev.dk/Miljoeforhold/miljoerapporter/Baggrundsrapport_8.pdf) estimated that a total 80,000 m³ (104,636 yd³) would be dredged if gravity foundations were chosen. Worst-case simulations concluded that a spill from dredging would have “only a very small impact in the immediate vicinity of the dredger” and that the estimated concentrations were within the same order of magnitude as the normal variation in suspended material concentrations in the area. (The modeled Horns Rev facility consisted of 80 2-MW units).

Comment: 80118-041

Comment: Page 3-12, Section 3.3.2 Attenuators, Figure 3.3-2: Please elaborate and clarify how the umbilical cable attachment connects between the junction box and the floating structure. (How does the umbilical cable maintain a clear connection without wrapping around other objects?) Please clarify and describe whether or not birds and seals can roost on top of the multi-segmented floating structures. If so, what is the potential for birds or seals to become ensnared and crushed?

Response: An umbilical riser cable connects the attenuator to a junction box on the ocean floor. According to an attenuator vendor, power from all the joints is fed down a single umbilical cable to a junction on the seabed. Several devices can be connected together and linked to shore through a single seabed cable. A novel joint configuration is used to induce a tuneable, cross-coupled resonant response, which greatly increases power capture in small seas. Control of the restraint applied to the joints allows this resonant response to be “turned up” in small seas where capture efficiency must be maximized, or “turned down” to limit loads and motions in survival conditions. The machine is held in position by a mooring system, for which a patent has been applied, composed of a combination of floats and weights that prevent the mooring cables from becoming taut. It maintains enough restraint to keep the attenuator positioned, but allows the machine to

swing head on to oncoming waves (Ocean Power Delivery Web site [<http://www.oceanpd.com/Pelamis/default.html>], accessed July 20, 2007.)

The potential for birds and marine mammals to use above-water structures, as well as potential impacts to birds, marine mammals, and sea turtles, from striking or becoming entangled in underwater structures, is discussed in Sections 5.2.8, 5.2.9, and 5.2.12.

B.2.13 General Wildlife

Comment: OCS08-002

Comment: Just a couple of specific examples. Again, I concur that you know, in the PEIS you've stated that the impacts are expected to be negligible to minor. We couldn't disagree more and you know, for example, you know, there are only nine offshore wind turbines in the entire world that over three miles offshore. Recent data has become available from the experience off of Denmark that raises serious questions about ecological impacts. Fish migration over transmission lines, birds avoiding areas. So I think those studies need to be taken into consideration and you know, they cannot be described as negligible to minor.

Response: Although experiences from other offshore energy facilities have been considered in the analyses presented in the programmatic EIS, the commentor is correct that uncertainties remain regarding potential impacts to specific resources. Additional site-specific evaluations of potential impacts would be conducted as individual projects are proposed.

Comment: OCS11-001

Comment: One of things that I am not really understanding in a brief lookover of the programmatic EIS is whether or not the MMS would actually ever deny a permit because the ecological impact is too great to acceptable. We all understand the problems with claimant change and the need to wean ourselves from fossil fuels, but that doesn't mean that every project should proceed no matter the cost. A major impact -- the impact would describe from minor to major and so forth. A major impact, hundreds of thousands of individuals could seriously degrade the ability of any species to adapt to a changing world. The fewer individuals left, the less genetic diversity and adaptation is all about genetic diversity. I'm not seeing any discussion about the auto migratory route of the black-pole warbler and the reason I mentioned this particular bird is that it basically flies straight off our coastlines over the water to its winter range any where from Nova Scotia down to about Cape Hatteras, so it goes right off our coast. Information is easily found on the Internet because I was looking today again.

I'm not seeing any explanation in terms of impact to birds about the lighting in the way, other than any direct collisions because the lights fool them, lures the birds in, they fly around in circles and drop of exhaustion. They have so little fat on their bodies that they don't have margins for error and they really get exhausted too easily during their

migration. Humming birds, for example, fly over the Gulf of Mexico. Any interruption in that, they can't make it. In 5.2.9.6, the mitigation measures for birds, it talks about avoid locating facilities in areas of known high migratory bird use. Well, that's about pretty much our Atlantic and Gulf Coasts because they are all high migratory bird use areas. The birds from here frequently fly across the Gulf to get to their winter areas. Why wouldn't any construction be completely prohibited in or through nesting area during the nesting season?

I remember the impact of the construction of the outfield pipe for the Southwest District that went right through the Cedar Beach Tern Colony. I was working out there for a professor at the time and the construction wasn't done during the nesting season, but the upheaval meant that there was a strip straight through the colony, right smack in the middle of it with no vegetation and it was years before any terns, commons and roseate, which nested there in great numbers, returned to nest in that part of the colony.

I don't know very much about sea turtles, because they aren't any on our Long Island shores, but it seems like the same kind of rule should apply. Mitigation isn't the same as leaving things undisturbed. It also seems to me that the mitigation measures talked about are all about may include and avoid, nothing that says it will, you must and that concerns me greatly because I think it is very important that projects be required to follow any studies or recommendations made by the U.S. Fish & Wildlife Service. I think they should be required to seek out the last impacting routes for transmission cables, for example. Nothing in here says they must and that concerns me greatly. I'm concerned that there are a lot of these pieces that are missing from any specific studies and that all projects will be given a green light no matter how major the impact is. And I really fear that the next great wave of extinctions will be traced back to our greed and short sidedness.

Response: Thank you very much for your comments and for sharing your concern about migratory birds, amongst other species. This programmatic EIS is taking a first look at the potential impacts of these new technologies and is being used by the MMS as a planning tool during the development of the Alternative Energy and Alternate Use Program. More detailed analyses will be conducted at the regional and project-specific levels as the program evolves. The MMS will also consult with appropriate Federal and State agencies to ensure that impacts to wildlife are negligible to minor, which may involve not siting a specific facility at a particular location.

Comment: OCS21-002

Comment: My second concern is that as a nation it took us a long time to come to understand the value of our costal environments in ecology and or near shore environments and that's really not since the 70s that we really began to understand that. And I don't want to see that recent awareness turned back, you know, quickly and without real serious consideration. One or two other things.

Response: The MMS shares the reviewers concern that ecological conditions be protected from adverse effects. Mitigation measures and BMPs identified in the programmatic EIS would require additional site-specific evaluations of potential effects for individual projects, and these evaluations would incorporate the knowledge of environmental conditions and ecological resources available at the time of project planning and development. The collection of appropriate additional site-specific information could be required for evaluating impacts in many cases.

Comment: OCS24-002

Comment: Section 8.3.1. It would be helpful to all applicants if MMS, in their ESA consultations, Energy EIS could lay out the endangered species by region, such as the Atlantic region, the Gulf of Mexico region and the Pacific region. By laying this out first, the applicant would be able to address this most important consultation in the Section 7 part of any application that goes in, in a consistent manner which would create a thorough review.

Response: Potentially affected resources are discussed in the programmatic EIS for each of the regions identified in the comment. As identified in the programmatic EIS, additional NEPA evaluations and ESA consultation on potential impacts to threatened and endangered species would be required for specific projects.

Comment: OCS66-002

Comment: As to wave energy, many safety features would need to be implemented to protect endangered and threatened marine wildlife.

Response: Comment noted. As identified in the programmatic EIS, additional evaluations of potential effects on threatened and endangered species would be conducted prior to development of individual projects. These evaluations would consider project-specific technologies and designs, including features intended to eliminate, reduce, or mitigate potential impacts to biota.

Comment: OCS83-012

Comment: (ii) Point Absorbers. These systems use wave energy to pressurize a hydraulic fluid that is used to drive a turbine generator. The structures used to capture the wave energy include a buoy at the surface moored to the sea floor with four concrete anchors. Although the Draft PEIS states that the anchoring system is “a proprietary system that avoids any damage or threat to the sea bed or sea life,” DGIF remains concerned about the mooring system and the entanglement of sea life. As described in the “Wind Energy” section of these comments (item 2(c), above), the waters off the coast of Virginia and the Eastern Shore are home to numerous wildlife species, aquatic and terrestrial, listed and non-listed.

(iii) Attenuators. It appears these structures are long, multisegment floating structures that are placed parallel to the direction of wave travel. As they ride the waves, they flex and this flexing activates hydraulic pumps or other energy converters. DGIF is less concerned with this system than with the other wave energy capture systems, but continues to have concerns related to species entanglement and behavior changes for many of the same reasons as described above.

(iv) Overtopping Devices. It appears these structures are comprised of partially submerged walls over which the waves topple, filling the reservoir and creating a head of water. As this water is released, from the reservoir it turns conversion devices thus capturing the energy of the released water. This system causes us a great deal of concern. It appears to be a huge construction project with a number of construction related impacts; the reservoirs are enormous and may serve as a total impediment to sea wildlife movement. In addition, we have concerns that some species could actually become trapped, along with the water, in the reservoir.

(v) Terminators. Terminators appear to be devices installed perpendicular to the direction of wave travel, on or near the shoreline. Floating versions have been designed for offshore uses. One form of terminator allows water to enter through a sub-surface opening into a chamber with air trapped above it. The water column moves up and down, forcing the air through an opening connected to a turbine. DGIF has concerns about terminators for the same reasons as described above, i.e. potential trapping of marine species, disruption of species behavior, and impacts to seabed resources.

Response: Potential impacts to fish and wildlife from the devices mentioned in the comment above were discussed in general terms within the programmatic EIS. Project-specific evaluations would consider potential impacts in greater detail once specific project designs and placement locations are identified.

The mitigation measures included in this programmatic EIS are broad in scope. More specific, detailed mitigation will be identified and analyzed in subsequent NEPA analyses at the project-specific level. Some of the specific mitigation measures would be formulated for the type of system and devices used to generate electricity (e.g., such as those identified in the comment above).

Comment: OCS83-013

Comment: (e) General Wildlife Concerns. In general, DGIF supports research into and development of alternative energy sources, and agrees with the list of potential impacts of alternative energy industries (Draft PEIS, section 7.1.1). The research scope needs to be broadened, however, to include the following types of wildlife impacts, and consideration of mitigation therefore:

- physical impediment
- lighting

- artificial prey species congregation, and
- physical entanglement.

Response: Potential impacts of physical impediment, lighting, introduction of invasive species, and physical entanglement are considered, as appropriate, in Section 5 of the programmatic EIS for each of the evaluated technologies. In addition, site-specific NEPA evaluations and, potentially, additional surveys and studies would be conducted for individual projects as they are proposed.

Comment: OCS83-038

Comment: Little to no information exists on potential impacts that offshore wind projects may have on marine mammals and sea turtles. We recommend that the applicant examine the effects of construction activities, lighting, and turbine operations on sea turtles and marine mammals, their habitats and the natural movements of their prey.

Because little or no information exists concerning potential impacts a wind project may have on any of the wildlife resources described above, we recommend that the Alternative Energy Development and Production and Alternate Use of Facilities on the Outer Continental Shelf (OCS) program and any regulations promulgated around this program effectively address the potential ecological impacts associated with this project and offer sound alternatives to affect avoidance, minimization, and if necessary, mitigation of these impacts.

Response: The MMS agrees with the commentor that there is limited information about the interactions between offshore wind projects and wildlife. However, the MMS has extensive experience with the placement of structures in the marine environment for oil and gas activities. Some similar interactions are expected. On the basis of this experience, mitigations are proposed in Chapter 5 to minimize impacts, along with proposed BMPs, including the use of a qualified observer approved by the MMS and NMFS during construction activities.

Comment: OCS83-040

Comment: Point absorbers: Based on the information provided, it appears these systems use the wave energy to pressurize a hydraulic fluid that is used to drive a turbine generator. The structures used to capture the wave energy include a buoy at the surface moored to the sea floor with four concrete anchors. Although it states in the PEIS that the anchoring system is “a proprietary system that avoids any damage or threat to the sea bed or sea life” we continue to have concerns related to the mooring system and the entanglement of sea life. As described in the “Wind Energy” section of these comments, the waters off the coast of Virginia and the Eastern Shore are home to numerous wildlife species, both aquatic and terrestrial, listed and non-listed. We recommend that research be performed by any applicant or the MMS to evaluate the potential of point absorbers to harm wildlife through physical entanglements and vessel strikes. We further recommend research into how or if the point absorbers may alter these species’ normal behaviors by

the addition of under water or above water lighting, impediments that are imposed by the structures or how the structures and associated infrastructures may change the natural movements of prey species. Further, MMS and/or an applicant should evaluate the impacts associated with the infrastructure needed to transfer captured energy to shore, to include onshore impacts.

Attenuators: Based on the information provided, it appears these structures are long, multi-segment floating structures that are placed parallel to the direction of wave travel. As they ride the waves, they flex and this flexing activates hydraulic pumps or other energy converters. We have less of a concern with this system than with the other wave energy capture system, but continue to have concerns related to species entanglement and behavior changes for many of the same reasons as described above. We recommend that research be performed by any applicant or the MMS to evaluate the potential of attenuators to harm wildlife through physical entanglements and vessel strikes. We further recommend research into how or if the point absorbers may alter these species' normal behaviors by the addition of under water or above water lighting, impediments that are imposed by the structures or how the structures and associated infrastructures may change the natural movements of prey species. Further, MMS and/or an applicant should evaluate the impacts associated with the infrastructure needed to transfer captured energy to shore, to include onshore impacts.

Overtopping Devices: Based on the information provided, it appears these structures are comprised of partially submerged walls over which the waves topple, filling the reservoir and creating a head of water. As this water is released, from the reservoir it turns conversion devices thus capturing the energy of the released water. This system causes us a great deal of concern. It appears to be a huge construction project with a number of construction related impacts, the reservoirs are enormous and may serve as a total impediment to sea wildlife movement. In addition, we have concerns that some species could actually become trapped, along with the water, in the reservoir. Again, we recommend that research be performed by any applicant or the MMS to evaluate the potential of point absorbers to harm wildlife through physical entanglements and vessel strikes. We further recommend research into how or if the point absorbers may alter these species' normal behaviors by the addition of under water or above water lighting, impediments that are imposed by the structures or how the structures and associated infrastructures may change the natural movements of prey species. Further, MMS and/or an applicant should evaluate the impacts associated with the infrastructure needed to transfer captured energy to shore, to include onshore impacts.

Terminators: These cause us concern for the same reasons as described above. Again, we recommend that research be performed by any applicant or the MMS to evaluate the potential of point absorbers to harm wildlife through physical entanglements and vessel strikes. We further recommend research into how or if the point absorbers may alter these species' normal behaviors by the addition of under water or above water lighting, impediments that are imposed by the structures or how the structures and associated infrastructures may change the natural movements of prey species. Further, MMS and/or

an applicant should evaluate the impacts associated with the infrastructure needed to transfer captured energy to shore, to include onshore impacts.

Response: The MMS has an active environmental studies program to collect information about the interaction of technologies with the marine environment. Your suggestions will be included as a potential area of study.

Comment: OCS83-041

Comment: In general, we support the research into and development of alternative energies. However, the technologies associated with alternative energy capture are new and are still in need of much research. It needs to be determined what wildlife are known from these waters, nearby lands and the air and how they may be impacted by proposed wind and/or wave energy projects, the associated infrastructure and associated vessel traffic. We agree with the list of potential impacts resulting from alternative energy industries as described in section 7.1.1. We agree with much of the information presented in section 5 including consideration of water quality and construction methods and the impacts these activities may have on wildlife. We recommend broadening the research scope to include wildlife impacts due to physical impediment, lighting, artificial prey species congregation, and physical entanglement and that mitigation for these impacts are considered.

Response: Changes throughout the document have further addressed issues related to physical impediment, lighting, introduction of invasive species, and entanglement. In addition, potential mitigation measures for minimizing potential impacts are identified throughout Section 5. Additional site-specific evaluations of potential impacts would be conducted when specific projects are proposed.

Comment: 80047-014

Comment: 15. Consider the fish & wildlife impacts. Currents of wind and water are used by a wide variety of fish and wildlife. Exploiting those current to extract energy could interfere with the use of those currents by fish & wildlife. The EIS must consider the unique impacts associated with the conflicting uses of currents for energy production and wildlife.

Response: Comment noted. The programmatic EIS does consider conflicts of energy production with the natural history, behavior, and ecological requirements of vegetation, fish, and wildlife.

Comment: 80047-015

Comment: 16. Please take a “systems view” and an individual species view. The systems view recognizes that small changes in initial conditions can unfold to cause significant wide-spread impacts, a famous example is known as the “butterfly catastrophe.” The ocean is dynamic. Currents change, the ocean floor changes, winds change all these

changes occur on many time scales and spatial scales. Consider nested, multiple scales of ecological organization in your NEPA analysis.

Response: The analyses in the programmatic EIS consider the potential for effects at various scales of ecological organization, including effects on individual organisms, populations, species, communities, and other components of the ecosystem. While the MMS recognizes that there may be a potential for small changes in environmental conditions to result in relatively large ecological effects in some cases, it should also be recognized that many of the ecological components that could be affected by the activities that would occur during alternative energy development are likely to be resilient to environmental perturbations. Given the current uncertainties regarding specific potential locations and designs for alternative energy projects, the analyses for this programmatic EIS necessarily require a coarse look at potential impacts. More detailed NEPA analyses would be conducted prior to development of specific projects.

Comment: 80087-028

Comment: ESA Consultation and Related Issues

The DPEIS reiterates potential impacts for technology testing, site characterization (geological and geophysical surveys, permitted or accidental releases of liquid waste, solid debris, or fuel), construction (noise, vessel traffic, permitted and accidental releases of liquid waste, solid debris, and fuel), operation, and decommissioning. As for the four-level classification scheme (negligible, minor, moderate, or major), the conclusions drawn for ESA-listed species could mislead future project-specific evaluations. This four-level classification scheme is not consistent with the ESA and this disparity should be spelled out in the DPEIS so as not to cause confusion with the need for ESA Section 7 consultation. Any potential take by harassment, harm, or by other means would require a Section 7 consultation under the ESA. Minor is the category for impacts that “could be avoided with proper mitigation” or, “if impacts occur, the affected resource will recover completely without any mitigation once the impacting agent is eliminated.” Although the species as a whole may not suffer significant population declines due to impacts to one or few individuals, there could be consequences from which a species may not recover completely with or without mitigation. Moreover, impacts classified as moderate for some endangered species should probably be characterized as “major.”

The conclusions on impacts to sea turtles and fish, as well as for marine mammals appear to be for the species rather than for populations or individuals, but this is not clear in all cases. This should be clarified.

Also, conclusions that impacts are negligible or minor would be inaccurate if an individual is taken by harassment, harm, wounding, etc. NOAA would not consider the previously listed types of takes to be negligible or minor. For example, for impacts discussed in sections 5.2.12.2.1, 5.2.12.3.1, and others, sea turtles exposed to geological and geophysical surveys could exhibit behavioral responses that result in harassment or

experience impacts to their hearing abilities. Such consequences would be considered a “take” under the ESA.

For each alternative energy project, additional environmental impact evaluations must be conducted under ESA section 7. Additional measures may be required to minimize impacts to listed species or critical habitats. The PEIS should mention that requirements for additional mitigation measures could result from project-specific section 7 consultations. During section 7 consultations, assessments will describe how listed species may be taken and jeopardized and how designated critical habitat may be destroyed or adversely modified, unless listed species or critical habitat are not likely to be adversely affected. If the ESA-listed species would be taken incidentally, an incidental take statement will be issued that contains terms and conditions for minimizing the impact of the take. If the species would likely be jeopardized or their critical habitat destroyed or adversely modified, then NMFS will develop reasonable and prudent alternatives to the proposed action.

As alternative energy projects are proposed, a separate Biological Assessment may need to be prepared in accordance with the regulations for interagency cooperation (50 CFR Part 402). Biological Assessments are required for “major construction activities” and should describe the listed and proposed species and designated and proposed critical habitat that may be present in the action area and the evaluation of potential effects of the action on such species and habitat. The purpose and content of Biological Assessments are contained in 50 CFR Part 402.12.

Response: The classification scheme for impact levels is meant to apply to multiple resources, many of which do not fall under the jurisdiction of the ESA. Site-specific ESA Section 7 consultations would occur at the project level and are outside the scope of the programmatic EIS analyses conducted and presented in this document. Impact-level definitions have been revised to clarify that impacts for biological resources apply to populations, not individuals.

Text has been added to multiple sections to clarify that conclusions on impacts to various resources would be greater if ESA-listed species are affected, primarily because impacts to even one or a few individuals can be considered a major impact to populations of listed species.

Comment: 80087-030

Comment: ESA Consultation and Related Issues

The accuracy of the accounts for threatened and endangered species must be verified. For example, Table 4.3.8-1 (Page 4-141) lists the fin whale as present in the Gulf of Mexico from December to March. This species is rare in the Gulf, as noted in the text in section 4.3.8.2.1 (bottom of Page 4-143). Also, the fin whale does not appear to undertake distinct annual migrations as stated in this section.

Response: Table 4.3.8-1 has been revised to indicate that the occurrence of the fin whale in the GOM is uncommon. Also, the text in Sections 4.2.8.1.1, 4.3.8.2.1, and 4.4.8.1.1 referring to the migratory nature of the fin whale has been deleted.

Comment: 80087-032

Comment: ESA Consultation and Related Issues

The analysis generally describes the impacts to listed species or similar taxa. For a section 7 consultation on the program, NMFS would need additional details on the extent of activities and impacts to listed species and designated critical habitat. The information in the DPEIS does not appear to be sufficient to conduct a consultation and determine whether a species would be jeopardized or critical habitat destroyed or adversely modified. Additional information on the number, type, and locations of potential projects within the timeframe of the PEIS would be helpful, including map products that show at least the general geographic locations and spatial extent of proposed activities. The DPEIS does not provide enough information to conduct a Section 7 consultation on site characterization studies that may be conducted in the near future. In order to conduct a meaningful analysis on the impacts to marine mammals and endangered and threatened species, MMS needs to provide information on the locations, extent of area covered and duration of seismic surveys, the number and sizes of airgun arrays, and other related information.

Response: Text has been added to impact analysis sections dealing with fish, birds, terrestrial biota, marine mammals, and sea turtles to recognize that the MMS would initiate ESA consultation with the USFWS and the NMFS when additional site-specific evaluations are conducted for individual projects. Text has also been added to Section 8 to describe the process for initiating such consultations on individual projects.

Comment: 80087-047

Comment: Siting in Pacific Northwest Waters: Site characterizations are limited to geological, geotechnical and/or geophysical aspects while biological habitat or living resource considerations are not elevated to a suitable level of importance. (Regional example: Gray whale migratory routes or feeding habitats are not called out for special consideration or site restrictions).

Response: Contrary to the comment, recommended mitigation measures in the various sections of the programmatic EIS include biological evaluations to determine sensitive species and habitats that could be affected by proposed projects.

Comment: 80087-051

Comment: Siting in Southeast U.S. Waters: The Atlantic Region Planning Area divided into North, Mid, and South Atlantic areas (Chapter 4) is artificial with respect to biological communities. North Carolina south of Cape Hatteras should be grouped with

South Carolina, Georgia, and Florida to approximately Cape Canaveral (or all of Florida for convenience, although the distributions of many sub-tropical and tropical fauna begin to appear around Cape Canaveral), while North Carolina north of Cape Hatteras is appropriately grouped with Virginia, Maryland, and Delaware. The distinction is based on the presence of a warm temperate fauna in the former grouping and a more strictly temperate fauna in the latter grouping. These biological groupings are well known and are based on the distribution of fish, mollusks, and decapod crustaceans (Briggs, 1974).

Response: The MMS agrees that the Atlantic Planning Region divisions do not reflect distributional patterns in offshore biological communities. These divisions were discussed in Section 4.1 as part of the MMS's oversight of oil and gas leasing. No such divisions are envisioned for alternative energy development as covered in Section 4.2.

Comment: 80087-066

Comment: 4 & 5 – The marine resources that might be affected by development of alternative energy sources in the OCS have been described and potential impacts have also been listed. However, the impacts to the different biological resources and their habitats are treated in isolation from each other. The physical, geological, chemical, and biological resources in marine environment are interactive and dynamic. This should be addressed in this DPEIS in terms of description and potential impact. The difficulty in quantitatively determining impact at this level should also be addressed. Pertinent literature should also be cited.

Response: The linkages among various physical and biological components are identified throughout the programmatic EIS, although the large geographic scope of the programmatic EIS evaluation precludes a comprehensive treatment of these linkages. More detailed information would be developed and presented in site-specific NEPA evaluations for individual proposed projects.

Comment: 80098-005

Comment: 1. Impacts on biological resources would not be significant, as:

- Neither threatened nor endangered species would be adversely affected;
- The cable-laying process will not threaten marine mammals;
- Prior monitoring confirmed no adverse effects of cable-laying on sea otters watching the operation;
- There is no significant risk of whale entanglement from the proposed cables;
- The impact of plow burial on benthic organisms will be so limited and temporary as to not be significant;

- There will be no significant impacts from laying cable across hard-bottom areas (either because the project avoids those areas or because the impacts of such crossing will be less than significant); and
- There will be no significant impacts on managed fish and invertebrate species or Essential Fish Habitat.

Response: Thank you for your comments regarding the potential effects of laying of undersea cables. We recognize that the assessment described in your comment applies to telecommunications cables, which have been addressed in other NEPA documents. The analyses in this programmatic EIS are not meant to either analyze telecommunications cables or to apply to telecommunications cables. The types of activities analyzed include the laying of cables for the transmission of electricity, which raises many of the same issues. While the actual burial of the cable would have only short-term and negligible effects, the fact that these cables transmit electricity raises other issues about EMF, which does not apply to telecommunication cables but does need to be addressed for power transmission cables. Also, some moored technologies, such as certain wave devices, will have power cables extending from the device to the seafloor, which is a very different situation than cable laying. The activity of cable laying of telecommunications cables, is, however, included in the cumulative analysis, which must take into account all OCS activities.

Comment: 80102-005

Comment: Given the significant uncertainty related to the magnitude and distance of pile-driving noise impact on local populations, we highly recommend the MMS gather additional data from actual projects to support its conclusions (5-24).

Response: Distances traveled by noise sources, including pile driving, are very site-specific and include such factors as proximity to the SOund Fixing And Ranging (SOFAR) channel or other relevant circumstantial factors.

The draft EIS in Section 5.2.5.3.2 estimated a range of up to 2000 km (1,243 mi) where pile-driving noise might be discernible using a simple attenuation formula. A further estimate of the range that might be perceptible to marine mammals of tens to hundreds of km has been added to the final EIS, taken from Koschinski et al. (2003), along with the potential associated adverse effects. Thus, the nature and range of potential impacts of pile-driving noise are fully analyzed in the programmatic EIS, as are mitigation measures to reduce them should sensitive marine species be present. Citing data from specific projects would not change the conclusions in the EIS, as such data would be encompassed in the current analysis.

Comment: 80104-006

Comment: Additionally, the PEIS sometimes improperly assumes that effects will be minimal without substantiating these assumptions. In discussing the potential impacts of

electromagnetic fields, the text states that “[a]lthough individual organisms could be attracted to or avoid cables, the potential for population-level effects on fishes or invertebrates from such electromagnetic fields is largely unknown”. It continues, “[h]owever, it is likely that enough individuals would successfully pass over buried cables to preclude detectable population-level effects for sensitive species”. The text does not provide any citation or support for this conclusion and could not, since it has just indicated that the effects are unknown.

Response: The sentences that are the subject of the comment have been deleted.

Comment: 80104-015

Comment: Finally, we question MMS’s finding that the impact to marine and biological resources would not constitute an irreversible and irretrievable commitment of resources. As one example, to the extent that MMS decides to allow equipment to remain past the lease expiration, this would limit future options for use of a specific area of OCS and would seem to qualify as an irreversible commitment as defined on p. 7-43. Likewise, projects could have consequences that could fit within the definition of irretrievable commitment of resources (for example, an impact that reduces the population of an endangered species or causes a permanent loss of habitat).

Response: As discussed in Section 3.5.5 of the programmatic EIS, once an OCS alternative energy facility reaches the end of its useful life, it would be decommissioned. Decommissioning would entail dismantling and removal of the energy conversion devices, the electric service platforms (or transformers), their foundations, scour protection devices, and transmission cables, and the subsequent transport of these materials to shore for reuse, recycling, or disposal. Under these circumstances, the conditions on the OCS would be restored to what they were before the alternative energy facilities were constructed, and the marine and biological resources would return to their original condition. If decommissioning of the facilities is delayed or conducted in a different way than that described above, the environmental impacts of the proposed activity would be evaluated and appropriate action would be taken at the time of the proposal.

Comment: 80104-016

Comment: 8. The PEIS should recognize the severity of potential harms that may be caused by AERU projects. We are concerned that the tone and wording of the draft PEIS downplays some potential environmental impacts that could be quite serious. As one example, MMS defines “minor” impacts as those that could be avoided by mitigation or those for which the affected resource would recover without mitigation after the stressor was eliminated. Thus, the label “minor” is assigned to impacts that could encompass significant damages.

Similarly, MMS frequently minimizes the impact of a stressor on species by assuming that the likelihood of such an event is low, ignoring the important instances where the

rarity of the species makes the likelihood of the impact low, but its relative importance very large. For example, consider the following two excerpts from the draft PEIS:

1) As with wind and wave energy development, not all of the marine mammals that occur off the Atlantic coasts would be expected to be equally exposed to or affected by activities associated with the development of current energy in OCS waters. A number of species are extremely rare or considered extralimital, while others are very uncommon or very limited in their distributions. As a result, it is unlikely that these species would be regularly present, if at all, where current energy facilities may be implemented.³⁷

2) Current energy facilities may utilize mooring lines to secure the turbines to the ocean floor, and sea turtles swimming through a current energy facility may strike and become entangled in these lines, becoming injured or drowning. Because they are relatively slow swimming, sea turtles may be expected to detect and avoid mooring cables. Thus, impacts to sea turtles from entanglement with mooring cables may be expected to be negligible.

These sections fail to recognize that these species are particularly sensitive because of their rarity. Even if the relative harm is small, the absolute harm may be large, especially for listed species. Thus, injury to only a few could be considered quite serious. We urge MMS to recognize the difference between the relative importance of an impact and its absolute scale (e.g., killing 1 percent of a population and one animal) and adopt a tone, and possibly a rating, more appropriate to the potential severity of any damage that projects may cause.

MMS should set standards for leases and access rights that are consistent with the Marine Mammal Protection Act and the Endangered Species Act, and offer real protection for these animals, rather than downplay the risks.

Response: Text has been changed to acknowledge that potential impacts to various biotic resources (birds, sea turtles, marine mammals, terrestrial biota, and fishes) identified in the programmatic EIS could be greater in instances where unique or rare habitats are affected or if listed species are affected. Evaluations of the potential for such impacts require site-specific analyses for individual projects since the distribution, abundance, and/or behavior of particular resources in the project vicinity would need to be identified. Additional BMPs have been identified in the programmatic EIS to further address these concerns.

Comment: 80106-010

Comment: Effects on Plankton: The document briefly describes potential turbidity effects on plankton, but does not evaluate the effects some projects would have on local or regional planktonic communities. Several wave energy designs provide energy by moving seawater in and out of various structures, which would result in the entrainment of numerous planktonic organisms. The entrainment effects of larger wave energy facilities could be substantial; however, the PEIS includes no discussion of this issue. We

recommend the document be revised to include evaluation of this issue, and we recommend that the MMS use several recent studies conducted at California coastal power plants as the basis of its review.

Response: The text in Section 5.3.11.4 has been revised to recognize that there is a potential for entraining and entrapping planktonic organisms in wave energy structures and that the potential for localized or population-level effects are unknown.

Comment: 80118-019

Comment: The impact of artificial lighting at facilities upon wildlife is an issue that is not discussed in the DPEIS. For example, lighting can increase incidence of bird collisions. It may attract birds (and other marine life) to platforms and structures and cause collisions or exhaustion and other impacts. We recommend text be added to discuss this issue.

Response: The programmatic EIS addresses potential collision for marine and coastal birds in Section 5.2.9.4, while Section 5.2.9.6 includes a mitigation measure that specifically addresses reducing light-related attractiveness of platforms to marine and coastal birds. Similar impact and mitigation text has been added to Section 5.2.10 for terrestrial birds and bats. The effect of onshore facility lighting on nesting sea turtles and emerging young is discussed in Section 5.2.12.4.4. The mitigation measure presented in Section 5.2.12.6, which calls for reducing potential impacts to nesting turtles and emerging hatchlings through compliance with applicable Federal, State, and local regulations that govern construction and operation activities in sea turtle nest areas, has been revised to more clearly delineate the considerations to mitigate lighting impacts.

Comment: 80118-026

Comment: Page ES-10, 3rd Paragraph, Operations of Ocean Current Energy: There would be direct physical impacts to aquatic species from underwater turbine-like generators located in ocean currents which are important migratory corridors. These underwater structures might have impacts similar to turbines in river dams. Ocean turbines would need screening or directional vanes to keep aquatic animals and drifting plants out of structures which might harm the animals or damage the turbine. It has been postulated that the sound from turbines and generators may affect passage of some fish species in dam fishways. Assessment of the effects of generator sounds on marine aquatic species should be evaluated.

The Service recommends impacts to the migration patterns of aquatic animals (such as tuna and marine mammals) from power generating turbines located in important migratory corridors be evaluated. It also would be prudent to evaluate the effects of disrupting ocean current energy on productivity. (For example, how would the disruption of ocean current energy affect the flow of nutrients, forage, and organic material in the ocean?)

Response: The programmatic EIS identified, in general, the potential for impacts to marine biota from turbine strikes and noise. As identified in the PEIS, site-specific evaluations of potential effects to biota would be required as part of development for individual alternative energy projects.

B.2.14 Cumulative Impacts

Group Comment: A023

OCS07-001	OCS08-005	OCS09-002	OCS48-001	OCS87-006	OCS94-003
80047-006	80068-003	80068-012	80068-015	80068-020	80068-034
80079-011	80087-006	80087-171	80094-009	80101-006	80105-005

Comment Summary: Several comments were received indicating that the cumulative impact discussion was inadequate. Some of the most common concerns were that there was insufficient information given on the potential extent of alternative energy development, that the 5 to 7 year time frame addressed by the programmatic EIS was inadequate for cumulative impact analyses, that the impacts from climate change should be included in the cumulative impact analyses, and that the MMS should analyze a projected development scenario.

Response: The cumulative impact section has been revised to address many of the concerns stated in the comments. For example, a more extensive list of proposed alternative energy projects on the OCS and in State waters has been provided in Section 7.6.1.1 of the Final EIS, along with additional discussion of where these proposed projects would occur.

The time frame evaluated for cumulative impact analyses has been clarified. Although not specifically stated in the draft EIS, the analyses were not limited to the 5- to 7-year time frame, but to the projects likely to be proposed and/or initiated in that time frame. The cumulative impacts from these projects over the project lifetimes (considered to be 20 to 40 years) were considered. Additionally, information on the potential impacts from climate change has been added as Section 7.6.1.4 in the Final EIS. However, for most resource areas addressed in the programmatic EIS, the cumulative impact assessment is necessarily qualitative because of a lack of project-specific data (such as location, size, and infrastructure design).

A specific scenario projecting the level and location of development has not been included in the programmatic EIS. Typically, the MMS analyzes any reasonably foreseeable activities, defining “reasonably foreseeable” as those activities for which the proponent has submitted an application to a regulatory agency for permitting. The MMS will be preparing NEPA documents for lease sales and site-specific projects as a follow-on to this programmatic EIS; these documents will focus in more detail on the key issues of a smaller geographic area. Additionally, if numerous facilities are proposed in a relatively small geographic location, more data will be available to carefully analyze

issues such as multiple-use conflicts with navigation, fisheries, recreation, and military; interference with migratory pathways; and visual impacts from multiple sites.

The MMS is in the process of identifying a suite of BMPs that may be required as a condition of leasing. These BMPs will minimize cumulative impacts of multiple facilities and will include protective measures to reduce adverse impacts to marine life from noise, vessel collisions, lighting, electromagnetic fields (EMFs), and seafloor disturbance; measures to reduce visual impacts; and measures to reduce impacts to fisheries and transportation.

Comment: OCS04-001

Comment: Thank you. As the gentleman stated, my name is Glenn Arthur, New Jersey Council of Diving Clubs on Sherman. In going through the sections of the EIS that pertain to our sport, we would ask that you add a little bit to it as far as under your summary in the beginning, your cumulative impacts of the proposed action. We would ask that you add in recreationally behind the words commercial where they describe fisheries to include both anglers and ourselves in the summary. There's two points on that. And also in Section 4.2.14.2, benthic communities, adding in recreationally behind the word commercially where it describes important species. I kind of feel that we got left out on that section.

Response: References to recreational fishing and diving have been added to the Executive Summary.

Comment: OCS05-003

Comment: Perhaps more difficult to quantify are the cumulative impact of decisions. The actual impact of this program will not be fully evident within the time frame discussed in the EIS but rather many years in the future. I would like to emphasize that New Jersey strongly feels that cumulative impact analyses are an essential element that must be considered in siting offshore energy projects. The Department of Environmental Protection looks forward to pursuing technical and call sharing opportunities with MMS to advance these goals of environmental responsible offshore energy production. The department is pleased to announce that the division of science, research and technology issued its elicitation for research proposals less than a week ago on April 19. The objective of this approximately 4.5 million dollar study slandered with the approval of Governor Corzine is to conduct these baseline studies in the waters off New Jersey's coast to elucidate the use of the area by marine and marine associated species. This investigation will include a collection of data on the distribution, abundance and migratory patterns of avian and marine mammal, sea turtles and other species in the study area during an 18-month period. The SRP can be viewed online at www.nj.gov/dep/dsr. The department established an internal technical review committee, which was responsible for drafting the SRP and will review the proposals and select a contractor to undertake this important work. Because of the importance of this project, New Jersey felt

it was appropriate to request the involvement of federal agencies including the National Marine Fisheries Service, United States Fish and Wellness Service and of course MMS. Once again the department would like to thank Minerals Management Service for agreeing to serve as part of New Jersey review committee. The baseline ecological study, such as the one New Jersey has initiated, are essential to an appropriate and functional alternative energy program on the OCS. We vigorously encourage MMS to urge other states to undertake similar endeavors.

Response: The MMS thanks you for your comment. The MMS will be working closely with States through the CZM process as well as with regional task forces to ensure coordination and integration of nearshore and offshore policies and standards.

Comment: OCS07-003

Comment: But again, I think the fundamental flaw is that the EIS doesn't establish a benchmark or an overall alternative energy development goal that it wants to analyze these impacts around. And I think that was very doable, at least at a certain level. Most of the states, if we take the Atlantic region and the Northeast, most of the states, I believe, are participants in the regional greenhouse gas initiatives, they have renewable portfolio standards, all of which have linkages back to estimations of power that these types of facilities ostensibly are going to provide. So there is an ability to take that benchmark or that goal, relay it back to the number of turbines that you need at some given capacity factor. The PJM Grid that feeds New Jersey only credits offshore wind with 20 percent of the nameplate capacity. Estimate how many turbines you are talking about and the back of the envelope, we are talking about thousands at times. Estimate how much ocean area that it is going to occupy. Where it might be located because as you recognize it can only be so far offshore. And then start to look at what the impacts are going to be, where that's displacement of traditional uses of the ocean or impacts upon marine mammals, migratory birds or fisheries. EIS doesn't do that. Again, so the conclusion of the document at the moment that the risks are minimal is really, just can't be supported by the methodology that's put out there.

Response: With respect to projecting levels of development by state, although many states do have renewable energy goals, currently there is no way to predict whether the renewable energy will come from onshore or offshore sources, and what technologies will be used. Furthermore, some states may achieve greenhouse gas emission reductions through increasing conservation measures. Therefore, it is premature to estimate levels of development at this time.

A specific scenario projecting the level and location of development has not been included in the programmatic EIS. The MMS will be preparing NEPA documents for lease sales and site-specific projects as a follow-on to this programmatic EIS. These documents will focus in more detail on the key issues of a smaller geographic area where regional energy goals can be taken into consideration. Additionally, if numerous facilities are proposed in a relatively small geographic location, more data will be available to carefully analyze issues such as multiple-use conflicts with navigation, fisheries,

recreation, and military uses; interference with migratory pathways; and visual impacts from multiple sites.

Comment: OCS18-004

Comment: Also, the fact that the two offshore projects were left out this study, the LIPA project and Cape Cod shows part of the problem here because you also left out of the study, a proposed offshore gas project. For example, there is a proposed island a few miles off Long Beach which they are going to construct for a natural gas terminal. So you are going to set off one set of energy factories in the ocean and you are going to ignore the other set.

Response: The cumulative impacts section includes a brief discussion of proposed liquefied natural gas terminals and their potential impacts (Section 7.6.1.3.4). The LIOWP and Cape Wind projects are included in a summary of proposed alternative energy projects discussed in Section 7.6.1.1 (previously part of Section 7.5.1.3 in the draft). For most ocean resource areas addressed in the programmatic EIS, the cumulative impact evaluations are qualitative because of the lack of project-specific data (such as siting, size, and infrastructure design).

Comment: OCS18-006

Comment: This is amazing. Now, I asked for the first slide to be displayed because it shows offshore we now have 400,000 production platforms. We have 33,000 miles of pipeline. 8,500 leases and 43 million acres leased already. I'm not happy about that because what the MMS study envisions is 30 to 40 thousand windmills, from Maine to Florida, around the Gulf Coast and up the California Coast. Only off public beaches, of course. Private beaches will be excluded because no private beach will want them. Every public beach in this country will have wind factories off it. I compare this to the last half of the 19th century, to the railroad barons greedily dividing up this country to build the railroads and making obscene profits. These projects, just like someone said Haliburton before, will make a lot of investors very rich but it will destroy the aesthetics and the environment along our entire sea board.

Response: Although it is true that there has been a large amount of development and use of the OCS, the statements made (e.g., on numbers of offshore platforms and extent of wind facility development planned) are not in line with MMS knowledge of development levels. There are about 3,900 oil and gas structures in the GOM (Section 7.6.1.2), 23 in the Pacific, and none in the Atlantic. There are currently 3 wind facilities proposed for the Atlantic region with a total of about 350 wind turbines (Section 7.6.1.1). Cumulative impacts of these projects will be evaluated in future site-specific NEPA evaluations. Additionally, the MMS will be identifying a suite of BMPs that may be required as a condition of leasing that will minimize cumulative impacts of multiple facilities, including multiple-use conflicts with navigation, fisheries, recreation, and military; interference with migratory pathways; and visual impacts from multiple sites.

Comment: OCS70-005

Comment: MMLC recommends that the Alternative Energy EIS be expanded to address the potential for coexistence of wind/wave farms and commercial marine aquaculture operations, including a determination of the potential power loss of WEC technology operating within a fish enclosure.

Response: While the coexistence of wind/wave facilities with commercial marine aquaculture operations would tend to maximize available resources and their use, such a combination is not expected within the 5- to 7-year time period covered by the EIS. Offshore aquaculture, whether associated with the alternate use of oil and gas structures or not, is still in its infancy as is wave energy conversion (WEC) technology and offshore wind technology in the United States. It is expected that gaining a better understanding of the technologies (e.g., operational experience) is prudent before attempting the suggested coexistence.

Comment: OCS80-022

Comment: 7.5 Cumulative Impacts: The discussion of cumulative impacts on marine mammals (7.5.2.8) is dissatisfying. It is overly general and says, in essence “there will be impacts but what they might be depends entirely on where the project is located, how big it is, and what technology is used.” This is true, but unhelpful. This DEIS is so general in its description of the distribution and status of marine mammals that might be affected, so vague in its allusion to impacts that might or might not occur depending on the site chosen, and so broad and general (and incomplete) in its listing of possible mitigation that it is barely better than saying to the public and developers “there are marine mammals everywhere, but how they will be affected will depend entirely on the rigor of your site analysis and what exactly you want to do on what scale.” This leaves them in no better position than they were prior to construction of the DEIS.

One hopes that MMS will require specific information on the species, status, local distribution and habitat of animals that may be affected by projects that it will permit. It should also require a thorough analysis of the potential risks to which they may be subjected as well as specific mitigation. This DEIS provides little direction to that end. It appears that MMS intends that each project developer should determine ad hoc which areas have “low usage” by marine mammals or birds or are out of key migratory areas. That approach would seem to obviate the purpose of doing a programmatic DEIS. Because the MMS provides no guidance as to where projects might best be sited to be risk averse to wildlife or land what forms of the technology are most risk averse for certain settings, it provides no assistance to either reviewers or developers to reduce the burden of risk assessment as projects are proposed ad hoc. Each developer will still be asked to provide data on the animals (their status, abundance, seasonal distribution and habitat use patterns and threats that they face). They will still need to provide in-depth information regarding the source and degree of risk that their project proposes beyond vague references to entanglement or possible collision risk or noise having a possibility of displacing animals temporarily. The MMS has provided no guidance as to how much

risk or mortality a species can withstand (e.g., within the Potential Biological Removal level (PBR) that is set for marine mammals; or with regard to previous determinations made under Section 7 consultations that have set jeopardy standards; or how NMFS has set noise impact standards). It has provided no general guidance on which types of technology might pose greater or lesser risk to certain species or fragile areas, nor has it speculated on how many projects or devices might be sited in a particular area or region to help gauge the cumulative impacts of this type of additional development of the OCS.

Similarly, the discussion of cumulative impacts to birds in 7.5.2.9 is overbroad. It provides information on how many birds are killed in collisions with buildings and other structures. But in earlier sections the DEIS provided no estimate of a range of the number of birds that might be at risk per turbine such that a general estimate of cumulative impact from additional offshore wind energy development could be attempted. Instead it simply says that impacts could be “minor to major” and says that whether impacts are at the population level “would depend on the numbers killed from a single species” (page 38) which will, in turn, depend on a particular project’s siting relative to the local avian species and their use of the habitat. This is intuitive and does not require a DEIS to understand. The DEIS could have and should have provided parameters for understanding risk. At what level would deaths from wind turbines affect species of particular concern (e.g. locally resident endangered terns or wintering long-tailed ducks) such that a developer should consider size and location of his/her project? What areas pose highest risk such that cumulative population level impacts are more likely (e.g, identifying high use wintering areas or specific migratory corridors)? The DEIS fails to provide any of this or other information to help in understanding where, what type and how much development should occur in various portions of the OCS.

Response: This programmatic EIS is meant to be a first look at the issues and concerns regarding the potential environmental impacts of these new technologies in the marine environment. The analyses identify key areas for future, more detailed analysis and are being used by the MMS to establish a program. Because it is a national document and is taking a broad look, the details discussed in your comments are more appropriate in future regional and site-specific discussions where specific information about a particular activity and location will be available. In addition, all projects would be required to undergo ESA Section 7 consultation with the USFWS and NMFS, as appropriate, to ensure that proposed projects would not pose unacceptable threats to endangered biota. The MMS would also consult with applicable State fish and wildlife agencies to help develop final design and siting project parameters, to identify applicable mitigation measures, and develop monitoring programs.

Comment: OCS80-025

Comment: Table 7.5.1-2 summarizes proposed projects. It omits mention of a proposal in Maine for current energy generation, discussions with Georgia Department of Natural Resources regarding a wind facility off Georgia, a facility near a naval base in Hawaii and others.

Response: The projects listed in Table 7.5.1-2 of the draft EIS do not represent an exhaustive list, because the MMS and/or the states can receive new proposals at any given time. The table has been updated (Table 7.5.1-1 in the final EIS) to include several new projects proposed since publication of the draft. However, none of the three projects listed in the comment are included in the table. The Hawaiian project is outside of the geographic range of the EIS, and projects in Maine are for tidal energy. The project in Georgia is being discussed, but no formal application has been submitted to any State or Federal agency and is therefore not considered “reasonably foreseeable.”

Comment: 80047-018

Comment: 19. Consider issues of scale, cumulative impacts, climate variability (both the impacts of climate variability ON these technologies (i.e. will the currents and waves still be there in the future?), and the impacts of these technologies on climate variability). As the climate warms, the temperature gradient between the equator and the poles is expected to diminish and with it some of the dynamics of the ocean/atmospheric system. Will this mean it will be harder to extract energy from the ocean?

Response: The programmatic EIS focuses on the potential projects that may be initiated in the time frame of 5 to 7 years. The MMS does not expect a level of development to occur that could affect the climate, particularly wind and wave. The potential impacts on climate of extracting energy from marine currents are discussed briefly in Section 5.4.3.4.

The impact of climate change on the ability to utilize alternative energy on the OCS will be dependent on location-specific changes, which are also not expected to occur at a scale large enough to interfere with energy extraction in the near term, given that optimal locations would be utilized for development. Again, the impacts of climate change at a specific location would be evaluated in future site-specific NEPA evaluations.

Comment: 80068-011

Comment: Page ES-2. Tide energy is excluded from the analysis because of it will be pursued nearshore outside MMS jurisdiction. However, can offshore projects of sufficient scale interact with nearshore projects, necessitating some coordination and integration of nearshore and offshore standards and policies?

Response: The MMS does not anticipate a large amount of activity for any one technology or in any given area in the foreseeable future. The agency will be preparing NEPA documents for lease sales and site-specific projects as a follow-on to this programmatic EIS; these documents will focus in more detail on the key issues of a smaller geographic area. Any site-specific proposals received would consider nearby existing or proposed tidal energy projects in site-specific NEPA cumulative impact evaluations.

The MMS will be working closely with states through the CZM process, as well as with regional task forces to ensure coordination and integration of nearshore and offshore policies and standards.

Comment: 80068-016

Comment: Page ES-8. There is a distressing lack of attention to the effects of wave attenuation itself, as opposed to impacts associated with siting and other facets of wave energy. At large geographic scales (again, the cumulative impacts associated with regional-scale projects) or at high intensity levels (facilities that very efficiently attenuate waves and capture energy from them) or in sites where waves are highly focused, large impacts on sediment transport, surf breaks, sediment type, etc. – attributes that are exceedingly important for the distribution and abundance of marine organisms as well as for proper ecosystem functioning – would be expected.

Response: Although the potential effects of wave attenuation were not stated in the Executive Summary, these effects are discussed in Section 5.3.1.4, where it is stated that a large wave energy facility could cause a 10 to 15% reduction in wave height and a lowering of wave energy levels reaching the coast, which could in turn result in the interruption of sediment transport. Further, the text notes that floating devices that are within a mile of shore, and those that extend perpendicular to the direction of wave travel (parallel to the shoreline) have a greater potential to adversely impact coastal processes than do those that extend parallel to the direction of wave travel, vertically, or intermittently. Mitigation measures suggested in Section 5.3.1.6 include altering the design and locations of facilities, especially in areas where loss of beach sand is of concern. A brief statement regarding potential impacts of wave attenuation has been added to the Executive Summary.

It should also be noted that such large-scale wave energy facilities are generally not anticipated to be built over the 5- to 7-year time frame addressed in this programmatic EIS. Although several facilities are proposed along the coast of northern California, Oregon, and Washington (see Section 7.6.1.1 of the programmatic EIS), the final facility designs are as yet unknown. Potential impacts of individual facilities and cumulative impacts with respect to wave attenuation will be addressed in site-specific NEPA evaluations.

Comment: 80073-004

Comment: Section 7.5.1.2 Non-Oil-and-Gas Activities: Virtually all material ocean dumped in the United States today is dredged material (sediments) removed from the bottom of waterbodies in order to maintain navigation channels and berthing areas. Other materials that are currently ocean dumped include fish wastes, human remains, and vessels. Certain materials, such as high-level radioactive waste, medical waste, sewage sludge, and industrial waste, may not be dumped in the ocean. Ocean dumping of dredged material is regulated under Title I of the Marine Protection, Research, and Sanctuaries Act of 1972, as amended (33 USC 1401 et seq.).

Most of the dredged material dumped in the ocean is disposed at ocean dumping sites specifically designated by EPA for dredged material disposal under Section 102 of the Marine Protection, Research, and Sanctuaries Act (MPRSA). The Army Corps of Engineers is required to use such sites for ocean disposal to the extent feasible. EPA's ocean dumping regulations at 40 C.F.R. Part 228 provide the criteria and procedures for the designation and management of ocean disposal sites, and list the currently designated sites by EPA region. There are 36 dredged material disposal sites designated in the Atlantic region, 28 in the Gulf of Mexico region, and 22 in the Pacific region.

Response: Thank you for the additional information on disposal of dredged materials. This information has been added to the text in Section 7.6.1.3.1.

Comment: 80087-172

Comment: 7.5.1.1, Pg 7-29 – GOM is also an acronym for the “Gulf of Maine.”

Response: The acronym “GOM” is in common use by the MMS for “Gulf of Mexico.” The acronym is defined at first use in the programmatic EIS and in the “Notation” section.

Comment: 80087-173

Comment: 7.5.1.1.2 – There should be a specific discussion on the cumulative impacts of oil and gas exploration on the marine habitats and biological resources in the Gulf of Mexico.

Response: Section 7.6.1 summarizes and discusses the most prevalent activities and processes on the OCS that could have cumulative impacts on ocean resources, including marine habitats and biological resources. The potential cumulative impacts on these specific resources are discussed in Section 7.6.2.

Comment: 80087-174

Comment: 7.5.2 – The cumulative impacts analyses of most concern to NMFS (marine mammals, sea turtles, marine and coastal birds, fish resources and EFH, and fisheries) are very brief. There are little to no data available to assess whether extensive development of the OCS for power production will have population-level effects on any of these resources. Cumulative impacts could be significant if multiple alternative energy projects are located relatively close to each other, although each project by itself may not pose any significant concerns. MMS should describe plans to address this issue in its program. MMS should consider including a thorough cost-benefit comparison of OCS development to land-based power generation.

Also, the DPEIS's discussion of cumulative impacts should be expanded, as described below, to address impacts to National Marine Sanctuaries from activities occurring both within and outside their boundaries.

Response: The cumulative impact section has been revised to include a more extensive list of proposed alternative energy projects on the OCS and in state waters in Section 7.6.1.1, along with additional discussion of where these proposed projects would occur.

For most resource areas addressed in the programmatic EIS (including biota), the cumulative impact assessment is necessarily qualitative because of a lack of project-specific data (such as location, size, and infrastructure design). The MMS will be preparing NEPA documents for lease sales and site-specific projects as a follow-on to this programmatic EIS. These documents will focus in more detail on the key issues of a smaller geographic area. Additionally, if numerous facilities are proposed in a relatively small geographic location, more data will be available to carefully analyze issues such as multiple-use conflicts with navigation, fisheries, recreation, and military; interference with migratory pathways; and visual impacts from multiple sites.

A cost-benefit comparison of OCS developments with land-based power generation is discussed and cited in Section 7.5.6 of the programmatic EIS. At the time of site-specific analyses when specific project locations are known, the potential cumulative impacts to National Marine Sanctuaries would be assessed.

Comment: 80087-175

Comment: 7.5.2.15, Pg 7-40 -- “Areas of Special Concern” includes the following statement: For all types of activities on and near the OCS, impacts to areas of special concern are site-specific impacts that depend on locations of facilities and activities. ... Impacts from construction, other noise-generating activities or activities that release wastes to the water (in State-regulated and OCS waters)...are expected to be minimal assuming that facilities would not be sited in the immediate vicinity of special marine-protected areas.

It is unclear which marine-protected areas would be classified as “special” in the final sentence of this statement, however the term “immediate” vicinity does not adequately capture the range of distances over which some impacts from alternative energy construction and operation are estimated to be of concern. Initial determination of the spatial and temporal extents of the proposed development should be conservative. Thus, all activities taking place within the largest scientifically-supported area to be affected should be evaluated relatively to cumulative affects on areas of concern and their resources (many of which are not contained by the boundaries of protected areas).

Response: It is acknowledged that the distance of other activities from areas of special concern may not always be the determining factor with respect to cumulative impacts. However, in follow-on NEPA documents for lease sales and site-specific projects, impacts of other activities on areas of special concern will be evaluated appropriately in a context where the actual distance and potential for cumulative impacts is better known.

Comment: 80090-007

Comment: Cumulative impacts are inadequately considered or acknowledged in this EIS. While ES-14 does state that Cumulative impacts to commercial fisheries could be of concern if several large exclusion areas were established close to one another, there is no consideration given to the fact that the exclusion areas could result in increased fishing, or shipping effort outside the exclusion area thereby increasing risk to marine mammals from entanglement and vessel strike as well as having a major impact for other users of the water.

Furthermore, it appears that MMS is planning on evaluating proposals by planning areas (NA, MA, SA, Straits of FL and Gulf of Mexico.) To adequately consider the impact on the species, one must consider their entire migratory range and, therefore, planning regions need to be reviewed cumulatively, not individually. For instance, the critically endangered North Atlantic right whale utilizes the entire east coast (NA, MA and SA) and has also been reported in the Eastern Gulf of Mexico. As such, any proposals in these areas should be considered as potentially impact this species and multiple proposals must be considered as additive impact, regardless from which of the aforementioned region the proposal is sited.

We believe that the MMS must also, when reviewing cumulative impacts consider other OCS proposals, regardless of whether they are alternative energy based or not. The impacts that result from the industrialization of the OCS are additive and must be viewed as such.

Response: The cumulative impact section has been revised to include a more extensive list of proposed alternative energy projects on the OCS and in State waters in Section 7.6.1.1, along with additional discussion of where these proposed projects would occur. The following sentence has also been added on page ES-16 and in Section 7.6.2.23 (Cumulative Impacts to Fisheries) to address the concerns expressed in this comment: “Also, assuming exclusion of commercial fishing within alternative energy facilities, increased fishing and shipping pressure may occur in areas outside of alternative energy facilities because of displacement of these activities from within exclusion areas.”

For most resource areas addressed in the programmatic EIS, the cumulative impact assessment is necessarily qualitative because of a lack of project-specific data (such as location, size, and infrastructure design). The impacts of other activities on the OCS and in coastal waters are considered. The MMS will be preparing NEPA documents for lease sales and site-specific projects as a follow-on to this programmatic EIS. These documents will focus in more detail on the key issues of a smaller geographic area. Additionally, if numerous facilities are proposed in a relatively small geographic location, more data will be available to carefully analyze issues such as multiple-use conflicts with navigation, fisheries, recreation, and military; interference with migratory pathways; and visual impacts from multiple sites. In these follow-on NEPA evaluations, the potential cumulative impacts on endangered species will extend beyond the borders of each region

and look at the entire migration range. In addition, all projects would be required to undergo ESA Section 7 consultation with the USFWS and NMFS, as appropriate, to ensure that proposed projects would not pose unacceptable threats to endangered biota.

Comment: 80098-002

Comment: Second, consistent with current scientific and regulatory findings, MMS should delete from the PEIS unsubstantiated assertions regarding the environmental impact of undersea telecommunications cables. NASCA reserves the right to supplement these comments as necessary to ensure MMS has a complete record before it.

Response: The sentence in Section 7.5.2.14 of the draft EIS stating that EMFs can disorient some ray and shark species has been deleted. Communications cables are not generally considered an EMF hazard to marine life, while the EMFs associated with power cables may disorient some ray and shark species if the cables are not shielded. However, communications cables are considered in the cumulative section because cable laying is one of the many OCS activities that needs to be considered and a source of impacts to benthic communities, although ultimately short-term and negligible as determined from other analyses.

Comment: 80098-004

Comment: II. MMS Should Delete Unsubstantiated Assertions Regarding the Environmental Impact of Undersea Telecommunications Cables

NASCA urges MMS to revise its environmental analyses to eliminate unsubstantiated assertions regarding the environmental impacts of undersea telecommunications cables. As presently drafted, the Draft PEIS makes internally inconsistent assertions regarding undersea telecommunications cables and electromagnetic fields. Draft PEIS Section 4.2.7, which covers electromagnetic fields in the Atlantic region, states that the region is home to a “large set of submarine cables used for communications . . . but [it] generates negligible EMF fields.” This statement contrasts sharply with Draft PEIS Section 7.5.2.14, which states that “[undersea telecommunications] structures and activities can adversely affect benthic organisms by occupying their habitat and/or injuring them. EM fields can also disorient some ray and shark species.” At the very least, MMS should delete these sentences in Draft PEIS Section 7.5.2.14 as unsupported in the text and inconsistent with well-known scientific analyses considering such issues.

Response: The sentence in Section 7.5.2.14 of the draft EIS stating that EMFs can disorient some ray and shark species has been deleted. However, cables are considered in the cumulative section because cable laying is one of many OCS activities that needs to be considered and a source of impacts to benthic communities, although ultimately short-term and negligible as determined from other analyses.

Comment: 80103-002

Comment: The analyses of existing activities in the OCS showed that already-permitted activities such as offshore oil and gas have far greater impacts that could ever be imagined for offshore renewable energy projects. An example is bird mortality in the Gulf of Mexico (DP EIS 7.5.2.9), where the annual avian mortality is estimated to be 200,000 birds per year for about 4,500 platforms. The worldwide total number of bird kills from wind turbines has been estimated to be about 29,000 per year, caused by collisions with approximately 75,000 wind turbines. Overall, the percentage of avian deaths due to wind turbines is estimated to be 0.003% annually.

More than two billion birds have migrated past the Horns Rev and Nysted offshore wind farms, resulting in no more than six fatalities recorded in over four years of operation.

The return of formerly absent sea mammals (seals in the Baltic) and the diminishing of fears regarding habitat loss (the return of sea ducks to the Horns Rev site) have amply demonstrated that fears regarding short- and long-term negative impacts are unfounded.

Cumulative impacts of clusters of industrial scale offshore renewable energy production facilities are still unknown. At lower levels, however, no significant negative impacts have been observed.

Response: Thank you for your comments. The MMS recognizes the importance of applying lessons learned from other offshore alternative energy projects and offshore oil and gas development to identify, evaluate, and mitigate potential impacts of development under the proposed OCS alternative energy program.

Comment: 80103-004

Comment: Cumulative impacts may arise from the installation of a multitude of anchoring and cable systems, which may have minor to moderate impacts on benthic and demersal communities, as well as migratory pathways of pelagic and mammalian species. On the other hand, the presence of such fixed structures would mitigate against the practice of drag netting and thus also against the significant diminution of pelagic species in areas where such fishing technologies are used.

Response: The cumulative impacts to seafloor habitats from anchoring and cable systems are discussed in Section 7.6.2.14. Text acknowledging the potential benefits from decreased fishing pressure has been added as follows: “However, there may be a positive impact for some benthic species due to the fact that some types of fishing (e.g., trawling) may not be allowed or not preferred by fisherman over areas where cable is present, because of the risk of equipment hangup on exposed cable (Michel et al. 2007).”

Comment: 80104-013

Comment: The cumulative impacts analysis is also inadequate. As defined in 40 CFR §1508.7, “cumulative impact” is defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency [...] or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.” One limitation of the draft PEIS inheres in the impossibility of considering cumulative impacts when projects have not yet been proposed and MMS does not know how many proposals it will receive, how many units and how much area each proposal will encompass, or the proposed sites. The draft PEIS commits to analyzing the cumulative impacts of proposed projects at a later date; these analyses must discuss all past, present, and future uses likely to impact the affected area.

The frequent allusion to the contribution of alternative energy projects to a given impact in comparison to other contributors poses another problem with the cumulative impacts analysis.

For example, in discussing cumulative impacts on marine mammals, the draft PEIS first lists impacts from alternative energy facilities and then from other uses. It then concludes that “[i]mpacts to marine mammals from alternative energy facilities are likely to contribute a minor proportion of the impacts.” But the pertinent (and here unanswered) question for cumulative impacts analysis under 40 CFR §1508.7 is not what proportion of the damage a proposed action contributes, but rather what the resulting overall environmental impact is.

Response: The MMS agrees that in future regional and site-specific analyses, all past, present, and reasonably foreseeable activities must be discussed for resources where the incremental impact for the proposed action may add to the overall impact to that resource. The MMS also agrees that the cumulative impact analysis must incorporate in the discussion the overall impacts to a resource, including the incremental impact from the proposed action. All resource discussions are being reviewed and revised as appropriate.

The MMS will be preparing NEPA documents for lease sales and site-specific projects as a follow-on to this programmatic EIS. These documents will focus in more detail on the key issues of a smaller geographic area. Additionally, if numerous facilities are proposed in a relatively small geographic location, more data will be available to carefully analyze issues such as multiple-use conflicts with navigation, fisheries, recreation, and military; interference with migratory pathways; and visual impacts from multiple sites.

Comment: 80118-028

Comment: Page ES-14, Cumulative Impacts: “[Cumulative impacts] to some terrestrial birds migrating over the OCS... .” The Service recommends cumulative impacts be

considered for all avian species — landbirds, songbirds, waterbirds, raptors, shorebirds, seabirds, and other suites of avifauna. These cumulative impacts to be assessed include (1) the cumulative impacts of each wind facility on avifauna, (2) the cumulative impacts of all offshore wind facilities on birds, (3) the cumulative impacts of all terrestrially-operating wind facilities, and (4) the combined impacts of all anthropocentric structures on birds. The cumulative impacts to populations of bats should be considered in the same manner as impacts assessed for birds. Migratory bats can be found far out to sea during seasonal migrations, especially if prevailing winds force them offshore.

Response: The extensive cumulative impacts to birds and bats requested in this comment cannot be assessed at the programmatic level. The specific locations and sizes of the facilities must be known in order to make these assessments. The MMS will be preparing NEPA documents for lease sales and site-specific projects as a follow-on to this programmatic EIS. These documents will focus in more detail on cumulative impacts (including to birds and bats) in smaller geographic areas. If numerous facilities are proposed in a relatively small geographic location, cumulative impacts to all types of birds with habitats within that area will need to be analyzed carefully.

B.2.15 Nonroutine Events

Group Comment: A022

OCS16-003 OCS19-001 OCS66-003 OCS71-003 80055-010 80068-014
80118-017

Comment Summary: Concerns were raised over adverse impacts caused by accidents and natural hazardous events such as hurricanes.

Response: Impacts associated with nonroutine conditions are discussed in the programmatic EIS in Section 5.2.24 for wind energy activities, Section 5.3.24 for wave energy development, Section 5.3.24 for ocean current energy development, and Section 6.5 for alternate uses of existing oil and natural gas platforms on the OCS. The impacts associated with potential oil spills in and around these facilities on the OCS on various resource areas are also discussed in their respective sections throughout the EIS. The primary hazards considered include (1) industrial hazards similar to those of most large industrial facilities and infrastructure projects; (2) collisions between marine vessels and either fixed components of the wind facility or vessels constructing, servicing, or maintaining the facility; (3) natural events, such as hurricanes and earthquakes; and (4) sabotage or terrorism events. By necessity, the impacts are discussed at a fairly general level in the programmatic EIS. It is stated that “Both the probability of nonroutine events occurring and the potential consequences if they did occur are project- and site-specific. Therefore, the risk posed by such events must be evaluated on a project-specific basis.” It is expected that when the tiered NEPA evaluations are performed for specific projects at specific locations in the future, additional details will be provided on the potential impacts and the safety features incorporated into the facility designs and procedural requirements to reduce the risks associated with nonroutine events.

Comments specific to the Cape Wind or the LIOWP projects are considered out of scope for this programmatic EIS. Each of these projects has its own NEPA process. The MMS strongly encourages everyone to participate in that process and to submit comments during open comment periods for each project. An announcement of the comment period will be made in the *Federal Register* as well as on the MMS Web site. Such comments have been forwarded to the NEPA coordinators for these projects for their consideration.

B.2.16 Specific Resource Areas

B.2.16.1 Ocean Surface and Sediments

Comment: OCS14-002

Comment: You know, they are talking about putting up sand bars to try and protect these windmills. That's going to change the whole ecosystem of the ocean. We've learned that from over the years with when they try and put jetties up to stop erosions or try and shift things around. Let's change this and maybe it will do that. It is something else that we have to worry about.

Response: Comment has been noted. Sediment transport processes along the coast are important for providing sand for beaches. When these processes are interrupted, either by activities offshore or by construction of structures like jetties along the shoreline, erosion may be reduced in some areas but increased in other areas. Fortunately, environmental impacts must be evaluated before an offshore energy project can be constructed. The ultimate purpose of this kind of evaluation is to develop measures to avoid or minimize impacts to the natural resources and processes that could be affected.

Comment: OCS20-002

Comment: The other thing that I am thinking of is something this big. I live on the south shore. I live on Sand in a Bug. How deep do you have to go down, something so big with so much torque, how far down offshore are you going to have to drill and change the bed, the sea bed, to anchor these things and keep them stable in a high wind condition. There's a lot of torque going on something of that magnitude spinning at whatever speed. How are you going to keep that thing fast and secure?

Response: Foundation structures supporting technologies like wind turbines are chosen on the basis of the requirements of the technology and site-specific conditions. As an example, wind turbines may be installed on steel monopiles that are hammered, vibrated, or drilled into the seabed. The depth is determined by the height of the monopile and could be as deep as 30 m (100 ft). In shallow water, gravity foundation (concrete structures that are stabilized by their weight or additional ballast) may be used. See also Section 3 of the programmatic EIS for descriptions of foundation structures and their emplacement for each of the alternative energy technologies.

Comment: OCS68-002

Comment: A number of potential impacts from renewable ocean energy development of particular interest to Hawaii were examined in the DPEIS document. These include changes to seafloor topography caused by scouring, and the related potential impacts to sediment transport processes along the coast. Interruptions to the natural seasonal migration of beach sand could exacerbate beach erosion.

Response: The comment has been noted; it is true that interrupting sediment transport processes along the coast could exacerbate beach erosion. A statement was added to the introductory text to the impact sections to better explain the potential negative impacts associated with changes to the littoral transport system.

Comment: OCS85-008

Comment: 8. Comment/Question -Wave Height Impact Analysis - It is not clear from the document where the analysis on wave height impacts was derived from (section 5.3.1.3, p. 5-152). The analysis states a “large” wave energy facility could cause a reduction in wave height by 10 -15% and a lowering of wave energy with the greatest impacts occurring within 1.2 miles of the device. DNR recommends that MMS provide citations for these numbers, and explain what “large” means (meters, acres, square feet).

MMS also states that in areas with a narrow continental shelf, such as Washington, it may be necessary to site wave energy facilities closer to shore. Therefore, it is imperative that MMS provide more information on how large wave energy facilities, placed close to shore, and are likely to influence wave energy and height.

Response: The statement in Section 5.3.1.3 regarding wave height impacts was taken from two sources as cited in the second paragraph: a white paper on wave energy potential on the OCS, prepared by the USDOI/MMS (USDOI/MMS 2006m), and a report on offshore wave power in the United States by the Electric Research Power Institute and Global Energy Partners LLC (Hagerman and Bedard 2004). The full citations for these papers are provided in the reference list in Chapter 9. A statement has been added to the section to define the term “large” as a commercial-scale facility, such as the one described in the previous text and in Chapter 3 (consisting of up to four rows of floating wave devices spaced 100 m (328 ft) apart in water 50 m (164 ft) deep).

The importance of facility placement (e.g., distance offshore, water depth, and orientation relative to the predominant wave direction) to impacts onshore, particularly sediment transport processes along the coast, is acknowledged. The MMS will collect information and further evaluate the potential impacts of the wave devices through funding of specific studies before installation as well as monitoring of devices during both technology testing and future operations.

Comment: 80047-020

Comment: 21. Please consider that wave action is needed to move littoral material. Technologies that dampen wave energy may limit the natural littoral processes such as the replenishment of beach sand and the opening and closing of the mouths of rivers and streams.

Response: Changes in the transport of littoral material along the coast were identified as potential impacts associated with the reduction in wave energy and changes to seafloor topography that could result from energy development on the OCS. These impacts are discussed for each of the technology types in Sections 5.2.1, 5.3.1, and 5.4.1. A statement was added to the introductory text to these sections to highlight why changes to littoral transport are important (e.g., beach nourishment).

Comment: 80052-011

Comment: MMS's draft PEIS states that large, wave-energy facilities could: 1) reduce wave height by 10 to 15 percent, and 2) lower wave energy, especially within 1.2 miles of the facility. (See Section 5.3.1.3; page 5-152.). Ecology requests MMS provide citations for this wave-height impact analysis.. Ecology recommends MMS require site-specific information on impact to wave height and energy for facilities sited closer to shore.

Response: Citations were provided at the end of the sentence. They include USDOJ/MMS (2006m) and Hagerman and Bedard (2004) (see the reference list in Chapter 9). The MMS will collect information and further evaluate the potential impacts of the wave devices through funding of specific studies before installation as well as monitoring of devices during both technology testing and future operations.

Comment: 80087-145

Comment: 5.3.1.4 – In this section, the DPEIS needs to discuss in detail how the conclusion of minimal impact was developed for geohazards such as storm surge. MMS should consider including a discussion of climate change and its impacts on ocean and coastal conditions to better address this issue.

Response: Section 5.3.1.4 states only that “the risk of impacts due to seafloor instability are assumed to be minimal” since the site would be chosen to avoid or minimize such hazards. While storm surges may be increasing in intensity and frequency as a result of climate change, it is not expected that climate change will be a major factor over the next 5 to 7 years, the period of analysis for this programmatic EIS.

Comment: 80087-146

Comment: MMS needs to evaluate whether decommissioning is actually a realistic requirement. Section 5.3.1.5 states, “During decommissioning, the wave energy facility

and its mooring and scour protection systems would be removed ...shore.” This is not the case for the proposed wave energy project off the Oregon coast at Reedsport. The company informed NOAA that if the project is decommissioned, even with 14 buoys (rather than the 200 buoy potential build out), it would be cost prohibitive to remove the concrete moorings placed on the seafloor.

Response: All facilities must be removed to at least 5 m (15 ft) below the mudline under regulations proposed by the MMS. However, there are two main exceptions: (1) the MMS may approve an alternate removal depth if the remaining structure would not become an obstruction to other users of the seafloor or area, and it is demonstrated that erosional processes capable of exposing the obstructions are not expected, and (2) the structure could become part of a State artificial reef program, and the State acquires a permit from the USACE and accepts title and liability for the structure. The structure would also be required to satisfy any USCG navigational requirements for the structure.

Comment: 80087-147

Comment: Section 5.3.1.6 states, “Potential impacts to littoral (longshore) sediment transport could be mitigated by altering the design and location of the facility.” This mitigation measure may not be possible because wave energy devices need to be situated in the water at a certain depth and angle from shore to maximize their energy production. MMS needs to analyze existing wave energy facilities (as a start) to explore the real potential for carrying out this mitigation measure.

Response: Potential impacts to littoral sediment transport are an important consideration in the design and location of offshore (especially nearshore) energy facilities. Given that energy development on the OCS is a fairly new venture, the MMS will collect information and further evaluate the potential impacts of the wave devices through funding of specific studies before installation as well as monitoring of devices during both technology testing and future operations.

Comment: 80096-009

Comment: Response 9 - In Section 4.2, it is unclear if the geology within the Straits of Florida is reviewed. Is the geology within the Straits of Florida the same as in the South Atlantic Region?

Response: A new section (Section 4.2.1.1.3) has been added to Section 4.2 to describe the physiography of the Straits of Florida.

B.2.16.2 Air Quality

Comment: OCS83-015

Comment: 4. Air Quality. Depending on the location and extent to which new wind and wave technologies are put to practice in offshore waters of the Mid-Atlantic area, the

Hampton Roads region of Virginia may be affected by ozone exceedances. On-shore construction activity may generate volatile organic compounds and oxides of nitrogen, which will adversely affect air quality; but longer-term impacts from cleaner energy generation would be positive, according to DEQ's Air Quality Division.

Response: The potential for air quality impacts of the type noted in the comment has been recognized and discussed in the document. However, precise quantification of those impacts is not possible at this time. Applicants will be responsible for providing a comprehensive inventory of equipment that might emit air pollutants, as well as a detailed operating plan on which they will be asked to base an anticipated impact on air quality throughout the lifetime of their facility. Applicants will also be required to secure the necessary permits from environmental regulatory authorities within whose jurisdiction the facility will be installed.

Comment: OCS83-028

Comment: Hampton Roads area in the state of Virginia is likely to be affected in terms of ozone exceedance depending on the location and extent to which the new wind and wave technologies are put to practice in Mid Atlantic off shore waters. While the related onshore activity initially during construction period many have adverse effect through generation of volatile organic compounds (VOC) and oxides of nitrogen (NOX) long range impact in terms of generation of clean energy could be positive.

Response: Comment noted. Potential impacts to air quality from the construction and operation of offshore facilities have been acknowledged and discussed in the programmatic EIS. Precise quantitation of those impacts is not possible at this time. However, applicants will be required to develop a comprehensive inventory of all equipment or activity that may result in the release of air pollutants as well as a detailed plan of operation from which they will be able to quantify air quality impacts throughout the lifetime of their project. Applicants will also be responsible for securing all necessary permits from the environmental regulatory authorities in whose jurisdiction their facility will be installed.

Comment: 80070-003

Comment: In addition to fugitive dust emissions during construction, exhaust emissions from site preparation and construction equipment could add to local air quality impacts. If any facility other than a power substation is constructed and operation of that facility has the potential to result in emissions of regulated air pollutants, air quality permits for construction and operation may be required under the Georgia Air Quality Control Act (O.C.G.A. §12-9-1, et seq.) and associated regulations.

Response: The commentor correctly points out that in addition to fugitive dust emissions during construction, exhaust emissions from site preparation and construction equipment could add to local air quality impacts. The programmatic EIS includes an inventory of air pollution sources likely to be operational during each of the phases of an offshore energy

development project (technology testing, site characterization, construction, operation, and decommissioning), including any emissions from the construction equipment. It is also correct that permits may be required by local regulatory authorities under whose jurisdiction these activities take place. Applicants will be responsible for identifying and satisfying all of their environmental regulatory responsibilities.

Comment: 80087-148

Comment: 5.3.2.4 – MMS needs to establish a minimum number of inspections performed by the operator of a wave energy facility and a detailed list of inspection requirements for maintenance.

Response: Applicants will be required to develop detailed plans of operation consistent with the operational requirements of their particular offshore energy system. Included in those plans of operation will be the nature and frequency of inspection, monitoring, and preventative maintenance events.

Comment: 80098-006

Comment: 2. Air emission impacts will not be significant or will be so short-term and localized as to be acceptable to the local jurisdiction;

Response: Comment noted. The applicants will nevertheless be required to submit detailed plans of operation wherein they will itemize the types and number of equipment that will be operating that has the potential to release air contaminants. Applicants must also secure all necessary permits from the relevant authorities.

B.2.16.3 Ocean Currents and Movements

Comment: OCS85-009

Comment: 9. Comment/Suggestion -Relationship of Wind, Wave energy to Climate Processes

DNR requests that MMS provide a clear analysis of how large wind and wave projects off the coast of Washington could influence (if at all) the California and Davidson current, local thermocline currents, and Rossby waves, at multiple spatial scales. DNR suggests that MMS also consider adding a section that addresses potential impacts of wind, wave and ocean current energy projects on climate processes.

Response: The local impacts of projects in specific locations are the focus of future site-specific EISs and related analyses when an actual alternative energy project has been proposed.

The programmatic EIS focuses on the potential projects that may be initiated in the time frame of 5 to 7 years. The MMS does not expect a level of development to occur that

could affect the climate, particularly wind and wave. The potential impacts on climate of extracting energy from marine currents are discussed briefly in Section 5.4.3.4.

Comment: 80067-004

Comment: My fourth and final comment concerns a study referenced about extracting 4% of the energy from the Florida Current. This study is about a third of a century old. This analysis needs to be revisited.

Response: The study is recognized as being old. However, currently available information that is relevant to the draft programmatic EIS was used in the report's preparation. As noted in Section 5.4.3.4 (p. 5-274) following mention of the 1974 study, such impacts would be quantified along with their uncertainties in appropriate, site-specific EISs as follow-on work should an actual facility be proposed.

Comment: 80068-017

Comment: Page ES-9. Is the Florida current really the only OCS current that provides strong, steady flows?

Response: Yes, the Florida Current and Gulf Stream are the only currents that sustain a reasonable speed and maintain a consistent geographic position near the coast. This will be the first area for development, should it occur.

Comment: 80096-004

Comment: Response 4 - In several areas of the EIS, ocean currents are characterized as "relatively constant and flow in one direction only." The Florida Current in the Straits of Florida is somewhat constant in volumetric flow rate and predominantly flows in one direction. Because of meandering, vortex shedding, instabilities, and the influence of tides, the flow and fixed locations can vary significantly in magnitude and direction. Outside of the Straits of Florida, these fluctuations increase. FAU has performed a two year study that measured the Florida Current offshore Fort Lauderdale, FL. We can make this report available to the MMS.

Response: Thank you for your comment, the MMS will be requesting the report.

Comment: 80096-005

Comment: Response 5 -The EIS states that "extraction of energy from ocean currents requires a location that has strong, steady currents." While the best location to develop ocean current energy technology is in the Florida Current because it is the most energy dense and steady current in the world, the technology is applicable to other currents that may not be characterized as steady or strong. As technology is advanced and the cost per kWh decreases, slower currents may be developed.

Response: It is recognized that slower currents may be developed in the future, but the focus of this EIS is on the near term (next 5 to 7 years), when development of ocean current energy is expected to occur using the Florida Current as the technology initially develops and matures.

Comment: 80096-011

Comment: Response 11 - Page 4-22, the description of the Gulf Stream needs to include that vorticity plays a dominant roll in Western Intensification.

Response: Text was modified per the comment to include the effect of vorticity on Western intensification in the Gulf Stream.

Comment: 80096-013

Comment: Response 13 - Section 5.4.3.4 overviews the loss of energy and resulting local and global environmental impacts. The ending sentence states “These impacts and their associated uncertainties would be quantified in appropriate, site specific EISs.” We believe that an independent and comprehensive review must be conducted that investigates the local and basin wide impact of extracting ocean energy. This should be conducted by an independent and impartial entity with the necessary expertise. This would help to lead to a global plan for siting and cumulative energy extraction.

Response: The MMS recognizes the need to further investigate the potential environmental impacts from the extraction of a large amount of energy from a major ocean current. As commercial ocean current technology facilities come closer to being a reality, the MMS will initiate an independent, scientific, peer-reviewed study through the MMS Environmental Studies Program to closely examine the potential effects.

B.2.16.4 Water Quality

Comment: OCS70-003

Comment: Section 5.3.4.4 reads, in part, “Most antifouling coatings work by gradually leaching toxic components to the water layer adjacent to the coating, thereby inhibiting fouling organisms.” In our research we found a URL,

<<http://www.awi-bremerhaven.de/TT/antifouling/index-e.html>>

which claims there is a biocide-free antifouling coating. If this is so, use of such a coating should be included in the list of mitigation measures in Section 5.3.4.6.

Response: The closest match we could find was <http://www.awi-bremerhaven.de/TT/afpaste/index-e.html>. This Web page, viewed on July 13, 2007, lists research by a scientist at the Alfred Wegener Institute in Germany on viscoelastic polymer coating pastes that reduce fouling through making a very slippery surface. Such coatings may

have future application but are not currently in common use in the marine and shipping industries.

Section 5.3.4.6 was revised by adding the following text “Operators should consider using antifouling coatings with the lowest practical degree of toxic releases, as long as those coatings provide effective antifouling control.” Section 5.4.4.6 also was revised to include the same text.

Comment: OCS83-016

Comment: 5. Water Quality. According to DEQ’s Division of Water Resources, the issuance of leases, easements, and rights-of-way for the production of energy from sources other than oil and gas will not negatively affect Virginia’s water resources. To the extent that non-traditional energy resources such as wind and wave energy supplant traditional sources, the water resources of Virginia may be beneficially affected. However DEQ’s Tidewater Regional Office indicates that ancillary activities such as installation of buried electrical transmission lines and petroleum pipelines will require permit review and authorization because they may affect state waters, including tidal and non-tidal wetlands. See “Regulatory and Coordination Needs,” item 4, below.

Response: Thank you for your comment. Developers installing electrical transmission lines or pipelines (e.g., for hydrogen) will be required to obtain all appropriate state permits prior to construction.

Comment: OCS83-029

Comment: The issuance of leases, easements, and right of way for the production on energy from sources other than oil and gas will not effect the water resources of Virginia negatively. To the extent that non traditional energy resources such as wind and wave energy supplant traditional sources, the water resources of Virginia may be slightly positively impacted.

Response: Thank you for your comment.

Comment: 80098-007

Comment: 3. Water quality impacts will not be significant.

Response: Thank you for your comment.

Comment: 80087-149

Comment: Section 5.3.4.4 states that, “routine wastewater discharges would be regulated under the NPDES program.” MMS needs to provide an analysis of how NPDES permits would be used in the context of an offshore wave energy facility and how, in particular, mixing zones would be considered.

Response: Section 5.3.4.4 states that “Routine wastewater discharges are not anticipated, but if they did occur, they would be regulated under National Pollutant Discharge Elimination System (NPDES) permits.” As stated, we do not anticipate discharges, and, therefore, a detailed analysis of how NPDES permits would be used is not warranted at this time. Lessees would be instructed to contact Regional USEPA staff to further discuss the need for an NPDES permit. Should the USEPA determine that one is necessary, then appropriate calculations would be performed.

B.2.16.5 Acoustic Environment

Comment: OCS80-006

Comment: For all regions, there was a discussion of the acoustic environment. We wish to emphasize that there are data indicating that the marine environment is increasingly noisy. Ambient noise levels in the ocean have risen by approximately 3-4 decibels each decade, with increasing use of the ocean by ships, military activities, acoustic exploration of the ocean environment (e.g. seismic and SONAR) and extraction activities. (Southall, 2004) Discussion such as that on page 40, which identifies two of the three “predominant contributors to ambient noise” as vocalizations of marine mammals, and movements of shrimp, inappropriately trivialize a very real problem that exists in the ocean environment where increasing levels of anthropogenic noise, particularly in certain frequency bands, are at a level where key biological sounds are masked by the ambient noise levels. (Ibid.) The language in this section should be changed to reflect the fact that, other than wind, anthropogenic sounds are the “predominant contributors to ambient noise” (not shrimp and marine mammal vocalizations).

Response: The text has been revised as suggested.

Comment: 80052-002

Comment: Scale of projects will also influence the level of impact For example, in section 5 3.5 4, MMS states noise generated by attenuators and point absorbers will be similar to that of a boat of the same size The overall noise during operation of a wave project will depend on how many devices are placed in the water and their spacing over a project’s area. Thus, the minor impact could be moderate or even major Without an understanding of how MMS’s program will address project scale, it is impossible to predict the true nature of impacts.

Response: Impacts as a function of the scale of an offshore project cannot adequately be assessed at the programmatic level because the scale of a project will be constrained by site-specific parameters. For example, the number of power generation units may be limited by the available useable area at a given location, and, in the case of acoustic impacts, the attendant noise impacts will be dependent on a number of factors, such as the nearest potential human receptors and local marine wildlife. As a consequence, the scale of an individual offshore alternative energy project will be addressed in follow-on site-specific NEPA analyses.

Comment: 80068-025

Comment: Sec. 4.2.5.5. This section should describe the SOFAR layer (a sound-concentrating layer that can conduct sound over long distances) and whether or not sound emanating from ocean energy facilities during any phase of their construction, operation, or decommissioning could be transmitted beyond a projected sphere of influence based on propagation outside the SOFAR layer.

Response: The MMS agrees with the comment. The text has been expanded to describe the SOFAR layer and its influence on the zone of influence of acoustic impacts from offshore energy systems. However, more appropriately, new text is being added to Section 4.2.5.2, rather than to Section 4.2.5.5 as suggested. Section 4.2.5.2 already includes a discussion of sound propagation in water, focusing particularly on relatively shallow nearshore environments. It is a natural extension of those discussions to introduce the SOFAR layer and describe how it affects sound propagation in shallow waters, and how its existence enhances long-range transport of sound in the deep ocean. The SOFAR discussion also invites the reader to review information presented by the NOAA and Woods Hole Oceanic Institution Web sites for a more in-depth understanding of the SOFAR layer.

Comment: 80087-019

Comment: II. Marine Mammals: Ocean Ambient Noise

In order to fully assess the potential impacts of noise generated from the new alternative energy development and production activities on the existing acoustic environment and marine mammals within the three OCS planning areas, it is imperative to have a good understanding of ambient noise characteristics of these oceans for the purpose of establishing an acoustic environment baseline. The Acoustic Environment sections (Section 4.2.5, Sections 4.3.5, and 4.4.5 for the Atlantic, Gulf of Mexico and Pacific regions, respectively) of Chapter 4 Affected Environment of the DPEIS provides a brief discussion on ocean ambient noise in terms of spectra and major sources, however, it fails to provide any quantitative analysis of ambient noise levels as a whole in these areas.

Although in a later section (Section 5.2.5.3.2 Pile-Driving Noise) in Chapter 5 Potential Impacts of Alternative Energy Development on the OCS and Analysis of Potential Mitigation Measures, the MMS assumes that an ambient noise level in open oceans at 130 dB *re* 1 μ Pa (page 5-23), NOAA considers that assumption inaccurate and believes it may represent an overestimation for most of the open ocean.

The overall open ocean ambient noise levels are summarized by Wenz (1962) in a graph known as the Wenz Curves. The Wenz Curves cover ambient noise source spectra from many sources, including frequencies from 1 Hz to 100 kHz, and spanning five decades. Though it is a generalization of ambient noise levels in a typical ocean environment, it is widely used to approximate and address the acoustic environment (e.g., Richardson et al. 1995; National Research Council, 2003).

Understandably, ambient noise levels in shallow waters (< 200 m) over the continental shelf are more variable, both in time and from place to place, and are highly dependent on wind velocity and breaking waves (Worley and Walker, 1982; Wille and Geyer, 1984; Zakarauskas et al., 1990; Tkalich and Chan, 2002). Nonetheless, many measurements have been made of ambient noise levels in shallow waters off the coast of North America, and the overall results more or less agree with the Wenz Curves (e.g., Knudsen et al., 1948; Piggott, 1964; Worley and Walker, 1982; Zakarauskas et al., 1990; Andrew et al., 2002; Black and Greene, 2002; McDonald et al., 2006; also see review by Urick, 1983; Zakarauskas, 1986). Therefore, NOAA strongly recommends that the MMS provide a more detailed analysis of the ocean ambient noise levels for the three OCS planning regions.

Calculation of Zone of Influence (ZOI)

In calculation of the ZOI, NOAA believes that sound propagation from specific acoustic sources is highly variable and dependent on local bathymetric and environmental conditions. The ranges from sources in various operational areas to specified received levels, and consequently the zone of influence may vary by orders of magnitude depending on these conditions. These zones of influence should properly be determined using empirical measurements and sufficient sound propagation models that consider such factors. NOAA encourages MMS to this approach in its analyses.

Response: The MMS agrees with the commentor that a full understanding of the acoustical impacts of any proposed offshore energy development requires a comprehensive understanding of the existing acoustic environment (the baseline) into which the development will be introduced. However, it is beyond the scope of a programmatic EIS to quantify those acoustic environments. Instead, the discussions in Sections 4.2.5, 4.3.5, and 4.4.5 give a qualitative overview of the types of sound-producing activities currently extant in the planning areas that are major contributors to the ambient acoustic environment. Major anthropogenic contributions to ambient ocean noise have been identified and characterized, and natural sources have also been acknowledged. However, studies involving the measurements of ambient noise levels are limited and not necessarily coordinated. Consequently, the ambient ocean noise levels in specific areas of interest may have not been quantified to any great extent. In fact, the final report of a Symposium recently hosted by NOAA (Shipping Noise and Marine Mammals: A Forum for Science, Management, and Technology, Arlington, Virginia, May 18–19, 2004) acknowledged that acoustic environments have not been sufficiently investigated on a global scale. A panel focusing on this issue identified the establishment of a global passive acoustic monitoring network to measure ambient noise levels in a variety of locations as a research priority.

It is understood that acoustic environments in the areas of interest are dynamic, changing primarily with changes in the nature and intensity of sound-producing anthropogenic activities. The commentor also acknowledges this variability over both time and location, especially in the shallower offshore environments that are the likely locations for future energy development systems. To undertake a more detailed quantization of those acoustic

environments at this point in time may be an exercise in futility since there is no guarantee that the types and levels of sound-producing activities currently extant in a specific area will be generally unchanged at the time an offshore energy development is proposed. Site specificity is essential; however, notwithstanding the establishment of exclusion zones by the MMS and/or other authorities, the locations of any future offshore energy developments cannot be precisely anticipated at this time.

Rather, the programmatic EIS will emphasize the necessity of a comprehensive understanding of pre-existing acoustic conditions before a legitimate calculation of the impact of proposed energy systems can be accomplished. Thus, a likely stipulation of any future MMS lease would require the applicant to complete a comprehensive site characterization, including a survey of existing acoustic conditions (and to provide an analysis of the probable changes in sound-producing activities within the area of influence of the energy system over the expected lifetime of that system). The MMS believes that such an approach is consistent with the intent embodied in the comment; it is the MMS's intent to incorporate adaptive management objectives and strategies in future leases.

Regarding Wenz Curves, the MMS acknowledges the position of prominence the Wenz Curves enjoys within the field of ocean acoustic research and agrees that a brief description of this important reference point is appropriate. The text of Section 4.2.5.3 has been modified accordingly. The text will also be expanded to include data from some of the more recent investigations of ambient ocean noise contained in citations provided by the NOAA commentor, many of which either validated or refined Wenz's original conclusions regarding ambient ocean noise.

Finally, the commentor notes that various circumstantial factors will influence the zone of influence (ZOI) of acoustic impacts from offshore energy developments and that orders of magnitude differences in the geometries of ZOIs can be anticipated. The MMS agrees. However, as suggested above, to determine ZOIs at the programmatic level would be premature and may produce results that would not be relevant to future lease applications. Consequently, a likely stipulation to future leases will obligate the applicant to establish the zone of acoustic influence of the proposed development through actual measurements of sound propagation and modeling where necessary, coincident with establishing ambient background noise as discussed above. The applicant will be responsible for calculating an ambient noise condition (including seasonal variations) through a comprehensive accounting of the ongoing and anticipated anthropogenic and naturally occurring noise sources that can be reasonably expected to exist within, or impact, the ZOI throughout the projected lifetime of the energy facility. The results of such analyses will dictate the nature and severity of mitigation measures for the acoustical impacts of the energy system that must be considered and implemented in the various stages of the energy system's life cycle (site evaluation, construction, operation, and decommissioning). Continued monitoring of acoustic impacts throughout the energy system's lifetime will provide data for adaptive management corrections to mitigation efforts when appropriate.

The MMS will work closely with other Federal agencies, through the consultation process, for site-specific projects where more detailed information can be gathered regarding a specific location. Appropriate mitigation measures will be developed with other Federal agencies as part of the process.

Comment: 80087-029

Comment: ESA Consultation and Related Issues

For all decibel measurements, please provide the reference pressure (i.e., with reference to 1 μ Pa for underwater sounds or 20 μ Pa for sounds in air). Given that the PEIS covers sounds in both air and water, it is difficult to discern in all cases in the DPEIS whether the received or source levels refer to sound in the air or underwater.

Response: Additional clarifications about propagation medium have been added.

Comment: 80087-073

Comment: 4.2.5.1 – The DPEIS states “The threshold of pain is an SPL of 140dB.” MMS should clarify whether this is for humans, and whether it is in air or in water. Discussion should consistently involve information on sound in water, and be focused on marine resources of concern (e.g., marine mammals, sea turtles, fish). Figure 4.2.5-1 should be replaced by something that provides information on sound levels in the water.

Response: The threshold of pain referred to in Section 4.2.5.1 is indeed related to humans and sound propagation in air. The text has been clarified. This portion of the discussion is intended to introduce the reader to the fundamentals of sound. The table provides sound levels of easily identifiable activities or sources, and thus is helpful to the reader in understanding these fundamental sound concepts. There are few examples of human encounters with underwater sounds on which to base the analogous table suggested by the commentor. Because concerns for sounds propagating underwater are focused more on impacts to marine animals, such a table would be of limited value in extending the reader’s appreciation of underwater impacts of sound. Text has been added to emphasize the possible interactions of marine animals with underwater sounds as especially relevant to the evaluation of offshore energy developments.

Comment: 80087-074

Comment: 4.2.5.3, Pg 4-32 – Footnote 17 is key and should be in the main text, not in a footnote.

Response: The information in the footnote has been moved to a text box. The text in the main body of the report refers the reader to the text box for critical information on medium-specific reference standards.

Comment: 80087-107

Comment: 5.2.5 – The DPEIS should estimate Potential Impacts of Alternative Energy Development and Production relative to the Acoustic Environment based on the best available science and/or areas of current scientific uncertainty.

5.2.5.3.1, Pg 5-21 includes the following statement:

Underwater noise from propeller cavitation is the strongest noise from ships. As shown in Table 5.2.5-2, this broadband noise can range from subsonic to ultrasonic frequencies and can reach 160 dB (re 1 μ Pa at 1 m) ... sound levels from ships, including ship sonar, may affect behavior and disturb communication of marine mammals (Thomsen et al. 2006), but not cause physical harm. In areas of existing shipping, these effects would be reduced due to habituation by the animals. In previously undisturbed areas, fish and mammals might avoid the work area or experience some other temporary behavior changes. Such changes would not be expected to affect the survival of these species in the vicinity of projects.

Levels of underwater noise associated with ships can range much higher than 160 dB re 1 μ Pa, with levels varying among ship types, though generally positively correlated with increasing size and/or speed (Richardson et al., 1995; Heitmeyer et al., 2004). Support and supply ships (with lengths between 55 and 85 meters) are likely to represent a large proportion of vessels associated with both alternative energy infrastructure construction and operational maintenance. Source levels of such vessels generally range between 170 and 180 dB re 1 μ Pa at 1 meter, with higher speeds and thruster use increasing source levels significantly (Richardson et al., 1995). Additionally, the concept of marine animals “habituating” to high-noise environments is poorly understood (National Research Council, 2005). Currently, there is little scientific evidence to support hypotheses that the reproductive and/or biological fitness of marine animals commonly exposed to higher background levels of noise is either enhanced or reduced by additional sources of noise (National Research Council, 2005). NOAA is particularly concerned with the addition of stressors to the environment for endangered and/or threatened species that spend some or all of their time within national marine sanctuaries. The information in Table 5.2.5-2 demonstrate that several of the below-water noise sources associated with alternative energy siting, construction and/or operation are above 200 dB re 1 μ Pa. Based on a simplified model of transmission loss (distance to isopleth of frequency $X=10^{((205-X)/15)}$, where propagation model is between cylindrical and spherical) for a source level of 205 dB re 1 μ Pa (as listed as a upper limit for pile driving in Table 5.2.5- 2), an area with a 1 km radius would be ensonified over 160 dB re 1 μ Pa, and an area over 46 kilometers would be ensonified over 120 dB re 1 μ Pa (a level still well above both narrow and broad bandwidths of concern in several areas of the deep and shallow water ocean environment). Studies have shown that intense sources of impulse sound associated with alternative energy construction are likely to disrupt the behavior of marine mammals at ranges of many kilometers (Madsen et al., 2006). Even less intense sources associated with alternative energy operation have documented responses from marine mammal populations in the vicinity of these sites (Koschinski et al., 2003). Thus,

impacts from all sources should be discussed and estimated based on the best available science and, where necessary data is absent, should highlight data needs.

Response: The commentor is correct regarding noise levels for support and supply ships with lengths between 55 m (180 ft) and 85 m (279 ft). Table 5.2.5-2 has been modified to report a range of the peak sound levels for ship/barge/boat of 150–180 dB (re 1 μ Pa). A citation of Richardson et al. (1995) has been added to the table for this higher range. The text in Section 5.2.5.3.1 has been modified to note that ship noise is generally proportional to increasing size and speed and that high speeds and thruster use increase noise levels significantly, also citing Richardson et al. (1995) for this information. Regarding impacts of intense noises from construction on marine mammals, text has been added to Section 5.2.5.3.2 (Pile Driving Noise), citing Koschinski et al. (2003), that notes that pile-driving sounds could be perceptible to harbor seals and harbor porpoises, and probably other mammals, at tens to hundreds of kilometers and that these sounds might exclude these animals from critical habitat, at least temporarily. An additional mitigation measure, which calls for determining the availability of sufficient low noise habitat during construction, has been added to Section 5.2.5.6.

Comment: 80087-108

Comment: 5.2.5.3.1, Pg 5-21, bottom paragraph – The DPEIS states, “In areas of existing shipping, these effects would be reduced due to habituation by the animals.” This is an assumption that may have little scientific support; a literature citation should be provided. Very little is known about animals’ responses to shipping, but much variation has been observed.

Response: The text referred to in the comment has been revised. The statement declaring that the effects “would” be reduced because of habituation of marine mammals to noise in shipping areas has been modified and now indicates that the effects “could” be reduced due to habituation. Further text has been added noting that habituation of marine mammals to noise has not been widely studied, but that it might be expected from observations of harbor porpoises and harbor seals close to shipping routes, citing Koschinski et al. (2003). Finally, the section has been modified to direct the reader to Sections 5.2.8.4, 5.3.8.4, and 5.4.8.4 for additional discussions on animal habituation.

Comment: 80087-109

Comment: Table 5.2.5-2, Below-Water Noise Sources, Pg 5-22 – Seismic airgun arrays emit higher frequencies as well as the frequencies listed. Also, currently seismic explosions are rarely used in the marine environment; this is an outdated method for geological and geophysical surveys.

Response: Section 5.2.5.2 clearly makes the point that air guns are not expected to be used to conduct the necessary seismic surveys. Data for air guns are still included in Table 5.2.5-2 for completeness.

Comment: 80087-110

Comment: 5.2.5.3.2, Pg 5-23, Paragraph 1 – an assumption of 130 dB for ambient ocean noise levels may be artificially high. MMS should use a lower ambient level, particularly one taken from empirical measurements.

Response: The selection of 130 dB as the ambient ocean noise in the open ocean was not intended to imply that this is an average noise level. As it is used here, 130 dB is simply a reference point against which the reader can understand the attenuation of sound as it travels underwater from its source.

Comment: 80087-111

Comment: 5.2.5.3.2, Pg 5-23 includes the following assertion:

Assuming an ambient noise level in open ocean of 130 dB and a transmission loss of 4.5 dB per doubling of distance for a 205-dB source at 30 m (98 ft), a simple transmission model would estimate that pile-driving noise would be distinguishable for up to 2,000 km (1,240 mi)(i.e., 16 doublings of 30 m).

Despite evidence of 20th century increases in the ambient levels of underwater noise (particularly for low frequencies and in areas with high commercial shipping traffic) (Andrew et al., 2002; MacDonald et al., 2006) the value of 130 dB represents an upper limit for only the very lowest frequencies (0-50Hz) and for all other frequencies is far higher than is supported by the literature (Wenz, 1962; Cato, 1976) (including studies that have focused specifically on measuring windfarm related underwater noise in densely populated coastal zones (Thomsen et al., (2006)). Accurate estimation of ambient noise levels is critical to assessing the possible impact of additional noise sources related to alternative energy development. For this reason, the discussion of ambient noise levels in deep ocean and shallow continental shelf marine environments should be expanded to discuss all available information on ambient noise levels currently documented for the range of marine environments of interest for alternative energy development. Citations used in the discussion on the acoustic environment should describe the frequency bandwidths that they are based upon. Finally, this discussion should state that ambient levels are likely to vary significantly among sites due to variation in levels of human activity and environmental conditions affecting noise propagation, and thus evaluations of the spatial extent of noise impacts associated with alternative energy development need to be evaluated site-specifically. Such an expanded discussion will give readers and consulting agencies a general understanding of how individual sources related to alternative energy development will and/or will not add acoustic energy to omnipresent background levels, as well as what specific information will be necessary to evaluate on a case-by-case basis.

Response: The selection of 130 dB as the ambient ocean noise in the open ocean was not intended to imply that this is an average noise level. As it is used here, 130 dB is simply a

reference point against which the reader can understand the attenuation of sound as it travels underwater from its source.

Section 4.2.5.3 provides an extensive discussion of ambient ocean noise. It lists major contributing sources and acknowledging variations based both on changes to levels of human activity and seasonal and other circumstantial factors.

The MMS concurs that a comprehensive understanding of ambient ocean noise in a given environmental setting is necessary for a complete understanding of the impact of energy systems introduced into that setting. Consequently, applicants will be required to compile a comprehensive ambient noise profile as part of their site characterization activities and to project the impacts of additional noise sources on that environment throughout all phases of their proposed energy development.

Comment: 80087-112

Comment: 5.2.5.6 Mitigation Measures, Pgs 5-29 to 5-30 – trained monitors or observers must be used to search areas where fish, mammals, and other marine life may be harmed by pile driving. If sensitive marine life is found, pile driving must be postponed, in addition to being temporarily halted. Additional measures that should be considered for use during pile driving and seismic surveys include the following:

- Passive acoustic monitoring (PAM) is another tool that could alert operators about the presence of vocalizing marine species. PAM use should be considered in conjunction with visual monitoring.
- Limits on nighttime pile driving, seismic surveys, and use of explosives.
- In some cases cutting of foundation pilings is the preferred method of removal rather than the use of explosives.

Response: In response to this comment, text in Section 5.2.5.6 has been modified to indicate that in the event that sensitive marine life is observed in the vicinity of pile-driving activities, such activities would be postponed until it could be confirmed that the animals were no longer present within a radius of concern. In addition, the additional mitigation measures suggested in the comment have been added to this section, including the use of passive acoustic monitoring (PAM) of vocalizing marine species and limits on nighttime pile driving and seismic surveys.

Comment: 80087-157

Comment: 5.4.5.4, Pg 5-279, Paragraph 7 – Underwater noise from ocean current turbines should be measured to verify whether underwater noise from the turbines would be low.

Response: The text in Section 5.4.5.4 has been modified to note that noise produced by underwater turbines would need to be studied further and confirmed to be low before the full impacts of this emerging technology could be assessed.

Comment: 80087-158

Comment: 5.4.5.6 Mitigation Measures, Pg 5-281 includes the following statement:

Impacts to marine species from pile driving or the use of explosives may be mitigated by a number of means involving either removing animals from the work area or reducing sound emissions into water. Mitigation by removal of species would typically involve deterring fish and mammals by various proven means such as horn blasts, charges, strobes, electric seines; avoiding migration periods; or simply ramping up noise levels gradually, in the case of pile driving. Mitigation of piling noise at the source is possible by various means, including the use of bubble curtains, insulated piles, working inside of caissons or coffer dams, or working during periods of slack tide (Lewis 2005). Finally, monitors who have a clear view of the surrounding area can be stationed to alert operators of the presence of sensitive marine life so that pile driving can be halted until the area is clear.

For many of the populations of marine animals whose life histories rely heavily on acoustic reception and transmission, (particularly low-frequency active baleen whales, most of which are endangered or threatened in US waters) the option of “removing the animals from the work area” is impractical and the use of additional acoustic sources to deter their presence may necessitate additional consultation with NOAA under the MMPA, ESA and/or NMSA. Thus, this section of the DPEIS should be expanded to relate possible mitigation measures to classes of marine animals of concern (fish, sea turtles, seabirds, odontocete species, pinnipeds, baleen whales, etc.) according to both the feasibility of available mitigation designs and their effectiveness, including the strengths and weaknesses of all approaches. The list of possible mitigation measures should be expanded to include the use of passive acoustic technology to increase the effectiveness of visual monitoring programs, as well as to monitor the acoustic footprint of the alternative energy site, monitor the presence/absence of vocally-active marine animals in the areas surrounding the site, and/or to mitigate vessel-whale collisions using real-time capabilities.

Response: The MMS agrees that not all mitigation strategies will be effective in all cases. The text that was cited in the comment was intended simply to give the reader an appreciation of the variety of mitigation techniques that might be available. The commentor’s point is well taken, however, and the text has been amended to include suggestions that mitigation strategies will be selected on the basis of consultations with appropriate Federal and State agencies to ensure their effectiveness for the acoustically sensitive species present in the areas of interest.

Section 5.2.5.6, which is referred to in Section 5.4.5.6 mentioned in the comment, has been expanded along the lines suggested in the comment. The section now notes that

removing animals from a work area to mitigate noise impacts may be impractical in some cases and may necessitate consultation with NOAA and others. The feasibility and effectiveness of various mitigation measures for various classes of marine animals are now described in the section. The use of PAM as an aid to visual monitoring and to monitor the noise characteristics of the site and the activities of vocally active marine animals has also been added to this section.

Comment: 80104-020

Comment: The draft PEIS states on p. 4-29 that sound power levels are the appropriate measures of the overall impact of a sound on the environment. For environmental impacts analysis, how the sound affects marine life at the proposed site is an important question to be addressed. Sound pressure levels are better suited to measuring the impacts on marine life than sound power levels because they take into account what marine life is likely to actually experience, given the location of the noise source and the prevalence of nearby sensitive species.

Response: The commentor is correct. The text in the paragraph in question is being amended to indicate that sound pressure level is the more reliable measure of a sound wave's impact on individual environmental receptors.

Comment: 80118-054

Comment: Page 5-18. Section 5.2.5 Acoustic Environment: This section analyzes in a generic fashion the potential effects of noise during construction and operation phases on fish, marine mammals, and humans. However, we could find no discussion of noise effects on birds or bats. We suggest that this be added in the final document.

Response: In response to this comment, text has been added to Section 5.2.5.4, Operation (wind turbines) to address the possible impacts of operating noise on birds and bats. Such impacts would be minor overall and small compared with the effects of the presence of the physical structures associated with alternative energy production, such as wind turbines, on these species.

B.2.16.6 Hazardous Materials and Waste Management

Comment: OCS83-026

Comment: Both solid waste issues and hazardous waste issues were addressed in the report. The report did include a search of waste-related databases. The Waste Division staff also conducted a cursory review of its data files, but did not identify any waste sites that would impact or be impacted by the proposed construction.

Response: The comments note that the Waste Division Staff of the Virginia Department of Environmental Quality reviewed its data files to identify waste sites that would impact or be impacted by the proposed construction but found none.

The MMS appreciates the efforts of the Division Staff to provide data that would assist in the evaluation of potential impact associated with alternative offshore energy development, particularly as it would affect waters off the coast of Virginia.

Comment: OCS83-030

Comment: Petroleum Storage Tank Cleanups: No adverse comments. Potentials for oil and hazardous substance spills from marine vessel traffic and at the proposed Outer Continental Shelf energy facilities are generally addressed. Federally required oil spill and other hazardous substance release response plans are also addressed in this programmatic ER proposal. Any oil spilled within state waters or having the potential to reach state waters should be reported to DEQ at (757) 518-2077 and to other appropriate local, state, and federal authorities.

Response: The MMS appreciates the comments that the draft EIS addresses the potential for oil and hazardous substance spills and federally required oil spill and other hazardous substance release response reports.

The MMS will add, as a mitigating measure for potential hazardous material impacts, in Sections 5.2.6.6, 5.3.6.6, and 5.4.6.6, the requirement to report any oil spilled in State waters or having the potential to reach State waters to the appropriate local, State, and Federal authorities. For example, any oil spilled within Virginia State waters or having the potential to reach such waters should be reported to the Virginia Department of Environmental Quality.

Comment: OCS85-012

Comment: 12. Comment - Spills and Discharges: The PEIS is not clear about what types of hazardous materials will be used, including explosives, hydraulic fluids, or dielectric oils, and how a spill or discharge could potentially influence state owned aquatic land or waters. Mineral oil is referenced (page 5-33, section 5.2.6.3). In the State of California, mineral oil dielectric fluid is listed as a suspected carcinogenic agent. DNR suggests that applicants are provided with information on “green” dielectric fluids such as esterbased projects.

Response: The types of hazardous materials likely to be used at offshore alternative energy facilities—including explosives, hydraulic fluids, and dielectric oils—are identified in Table 4.2.6-1. This table also estimates the quantities of these materials that would be stored at the offshore facilities. As noted in Sections 5.2.6, 5.3.6, and 5.4.6, the amounts of these materials would be small compared with the amounts of dangerous cargo likely to be present at designated waterfront facilities and minuscule compared with the total amount of hazardous materials transported by ocean vessels on the OCS. Potential impacts to coastal habitats from the release or discharge of hazardous materials are described in Sections 5.2.13, 5.3.13, and 5.4.13. Because the storage and use of hazardous materials would be in the OCS, beyond State land and water, spills or discharges that could affect State-owned land or waters would most likely occur during

transportation of the materials. As described in Sections 5.2.17, 5.3.17, and 5.4.17 of the draft EIS, potential impacts from transporting hazardous materials to and from alternative OCS energy sites would be mitigated via compliance with the USCG's NVIC (USCG 2007). This circular provides guidance on information and factors the USCG will consider when reviewing applications for permits to build and operate an Offshore Renewable Energy Installation in the navigable waters of the United States. The USCG will provide the MMS with an evaluation of the potential impacts of the proposed facility on the safety of navigation and the traditional uses of the particular waterway and other USCG missions to help the MMS to prepare its NEPA documentation.

The MMS appreciates the suggestion to provide applicants with information on green dielectric fluids and will add the following mitigating measure to the lists of mitigating measures in Sections 5.1.6.6, 5.2.6.6, and 5.3.6.6 of the EIS: review and incorporate information on environmentally preferable or "green" dielectric fluids such as natural ester dielectric fluids. These materials are derived from renewable, domestically produced seed oils, are not listed as suspected carcinogenic agents, and meet stringent performance requirements. Applicants should substitute such materials for less environmentally friendly dielectric fluid alternatives (e.g., mineral oil) whenever possible.

Comment: 80073-003

Comment: Section 4.2.6.2 Waste Management: There are 36 final dredged material disposal sites designated on the Atlantic OCS (40 CFR 228.15).

Clean Water Act Section 312 requires the use of marine sanitation devices (MSDs). on-board equipment for treating and discharging or storing sewage. on all commercial and recreational vessels that are equipped with installed toilets. There are three types of MSDs. For Type I MSDs (vessels equal to or less than 65 feet) the effluent produced must not have a fecal coliform bacteria count greater than 1000 per 100 milliliters and have no visible floating solids. For Type II MSDs (vessels greater than 65 feet) the effluent produced must not have a fecal coliform bacteria count greater than 200 per 100 milliliters and suspended solids not greater than 150 milligrams per liter. Type III MSDs are designed to prevent the overboard discharge of treated or untreated sewage. They are commonly called holding tanks because the sewage flushed from the marine head is deposited into a tank containing deodorizers and other chemicals. The contents of the holding tank are stored until it can be properly disposed of at a shore-side pumpout facility. Section 312 does not apply to vessels with portable toilets (porta-potties") nor any other on-board portable sewage reception system: gray water from bath or kitchen sinks: nor does it apply to vessels beyond the 3 nautical mile limit of U.S. Territorial waters.

Section 312 also allows EPA or States to establish no-discharge zones in which the discharge of sewage from all vessels into specified waters is prohibited. There are 3 objectives for this designation. Under CWA Section 312 (f)(3), a State may designate portions of their waters as no-discharge zones if the State determines that the protection

and enhancement of the quality of the waters require greater environmental protection than current Federal standards allow. In this instance, EPA is required to determine if there are adequate pumpout facilities available. Additionally, a State may make a written application to the Administrator under CWA Sections 312(f)(4)(A) or 312(f)(4)(B), for the issuance of a regulation completely prohibiting discharges from a vessel of any sewage, whether treated or not, into specified waters that have environmental importance or waters that serve as drinking water intakes, respectively. The application requirements may vary depending on whether its an application under CWA Sections 312 (f)(3), 312 (f)(4)(A), or 312 (f)(4)(B). Currently, the following States in the Atlantic region have designated all or certain segments of their surface waters as no-discharge zones: Rhode Island, Connecticut, Florida, Georgia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, South Carolina, and Virginia.

Section 4.3.6.2 Waste Management: There are 28 final dredged material disposal sites designated on the Gulf of Mexico OCS (40 CFR 228.15).

Clean Water Act Section 312 requires the use of marine sanitation devices (MSDs), on-board equipment for treating and discharging or storing sewage, on all commercial and recreational vessels that are equipped with installed toilets. There are three types of MSDs. For Type I MSDs (vessels equal to or less than 65 feet) the effluent produced must not have a fecal coliform bacteria count greater than 1,000 per 100 milliliters and have no visible floating solids. For Type II MSDs (vessels greater than 65 feet) the effluent produced must not have a fecal coliform bacteria count greater than 200 per 100 milliliters and suspended solids not greater than 150 milligrams per liter. Type III MSDs are designed to prevent the overboard discharge of treated or untreated sewage. They are commonly called holding tanks because the sewage flushed from the marine head is deposited into a tank containing deodorizers and other chemicals. The contents of the holding tank are stored until it can be properly disposed of at a shore-side pumpout facility. Section 312 does not apply to vessels with portable toilets (“porta-potties”) nor any other on-board portable sewage reception system; gray water from bath or kitchen sinks; nor does it apply to vessels beyond the 3 nautical mile limit of U.S. Territorial waters.

Section 312 also allows EPA or States to establish no-discharge zones in which the discharge of sewage from all vessels into specified waters is prohibited. There are 3 objectives for this designation. Under CWA Section 312 (f)(3), a State may designate portions of their waters as no-discharge zones if the State determines that the protection and enhancement of the quality of the waters require greater environmental protection than current Federal standards allow. In this instance, EPA is required to determine if there are adequate pumpout facilities available. Additionally, a State may make a written application to the Administrator under CWA Sections 312 (f)(4)(A) or 312 (f)(4)(B), for the issuance of a regulation completely prohibiting discharges from a vessel of any sewage, whether treated or not, into specified waters that have environmental importance or waters that serve as drinking water intakes, respectively. The application requirements may vary depending on whether it’s an application under CWA Sections 312(f)(3),

312(f)(4)(A), or 312(f)(4)(B). Currently, in the Gulf of Mexico region, Florida and Texas have designated all or certain segments of their surface waters as no- discharge zones.

Section 4.4.6.2 Waste Management: There are 22 final dredged material disposal sites designated on the Pacific OCS (40 CFR 228.15).

Clean Water Act Section 312 requires the use of marine sanitation devices (MSDs), on-board equipment for treating and discharging or storing sewage, on all commercial and recreational vessels that are equipped with installed toilets. There are three types of MSDs. For Type I MSDs (vessels equal to or less than 65 feet) the effluent produced must not have a fecal coliform bacteria count greater than 1,000 per 100 milliliters and have no visible floating solids. For Type II MSDs (vessels greater than 65 feet) the effluent produced must not have a fecal coliform bacteria count greater than 200 per 100 milliliters and suspended solids not greater than 150 milligrams per liter. Type III MSDs are designed to prevent the overboard discharge of treated or untreated sewage. They are commonly called holding tanks because the sewage flushed from the marine head is deposited into a tank containing deodorizers and other chemicals. The contents of the holding tank are stored until it can be properly disposed of at a shore-side pumpout facility. Section 312 does not apply to vessels with portable toilets (“porta-potties”) nor any other on-board portable sewage reception system: gray water from bath or kitchen sinks; nor does it apply to vessels beyond the 3 nautical mile limit of U.S. Territorial waters.

Section 312 also allows EPA or States to establish no-discharge zones in which the discharge of sewage from all vessels into specified waters is prohibited. There are 3 objectives for this designation. Under CWA Section 312(f)(3), a State may designate portions of their waters as no-discharge zones if the State determines that the protection and enhancement of the quality of the waters require greater environmental protection than current Federal standards allow. In this instance, EPA is required to determine if there are adequate pumpout facilities available. Additionally, a State may make a written application to the Administrator under CWA Sections 312(f)(4)(A) or 312(f)(4)(B), for the issuance of a regulation completely prohibiting discharges from a vessel of any sewage, whether treated or not, into specified waters that have environmental importance or waters that serve as drinking water intakes, respectively. The application requirements may vary depending on whether it’s an application under CWA Sections 312(f)(3), 312 (f)(4)(A), or 312(f)(4)(B). Currently, California is the only State in the Pacific region that has designated segments of its surface waters as no-discharge zones.

Response: The comment suggests adding text to the Waste Management Sections in Chapter 4 to properly discuss the requirement of the CWA Section 312, Marine Sanitation Devices. The MMS has incorporated a discussion on Marine Sanitation Devices into Sections 4.2.6.2, 4.3.6.2, and 4.4.6.2.

Comment: 80073-005

Comment: There are a few other changes that we believe should be made throughout the document. These include:

1. In general, where the document refers to “permitted discharges”, reference should be made to the permitting authority.
2. NPDES permits are NOT given for survey vessels, but can be issued for discharges from platform facilities.
3. Where the language refers to survey vessels, it would be better to delete the word “permitted” altogether.

Discharges from survey vessels would be released into the open ocean where they would be rapidly diluted and dispersed, or collected and taken to shore for treatment and disposal. Sanitary and domestic wastes would be processed through on-site waste treatment facilities before being discharged overboard. Deck drainage would also be processed prior to discharge. Thus, impacts to marine and coastal birds from waste discharges from survey vessels are expected to be negligible.

Response: The comment suggests that because National Pollutant Discharge Elimination System (NPDES) permits are not given for vessels (although they can be issued for discharges from platforms), the MMS should delete the word “permitted” when referring to discharges from vessels. The MMS has made the suggested deletions and understands that specific permitting requirements will be identified on a site-specific basis for individual OCS project applications.

Comment: 80118-006

Comment: With regard to antifouling paints and coatings, the Service respectfully suggests that the pesticide tributyltin (TBT) be removed from Table 4.2.6-1 (section 4.2.6.1, page 4-42) as a hazardous material likely to be used at alternative energy project sites on the OCS. Its use continues to be restricted and TBT is not expected to be domestically available. It is highly toxic, has high environmental risks, and alternatives are available. In addition, Service recommends reconsideration of including copper-based antifouling paints and coatings in the same table, and the need for antifouling. If alternate energy systems on the OCS require fouling protection, the use of available low-risk alternatives should be promoted. See Attachment 2 for more detailed comments and information regarding antifouling and contaminant issues.

See hard copy for Attachment 2: Antifouling and Contaminant Details for the Minerals Management Service’s OCS PEIS

Response: The comment suggests the removal of the antifouling agent tributyltin (TBT) from Table 4.2.6-1 as a hazardous material likely to be used at alternative energy project

sites on the OCS. The comment recommends reconsideration of including copper-based antifouling paints and coatings as well as the need for antifouling.

After reviewing supplemental information supplied by the USFWS regarding the toxicity and regulatory status of TBT, and the need for antifouling for most structures and nonmoving devices, the MMS has removed the reference to TBT in the table and in the text. This removal reflects the current understanding that moored structures may not need the level of antifouling protection that vessels need (to reduce drag as they move through the water) and that less-toxic materials, such as copper-based paints, may provide sufficient protection for OCS energy technologies.

B.2.16.7 Electromagnetic Fields

Comment: 80052-010

Comment: 9. Clarify data and mitigation measures provided on Electromagnetic Fields (EMFs), and wave height analysis.

MMS's draft PEIS indicates that impacts from Electromagnetic Fields (EMFs) are largely unknown, but claims that enough individuals would successfully pass over cables to prevent population-level effects (see Section 5.3.11.4, page 5-192). In another section, MMS indicates the possible effect of EMFs on marine life from other studies, but does not specify the results of those studies (see Section 4.2.7.3 and 4.4.7). Ecology suggests providing data and citations that verify and clarify these statements.

The draft PEIS also indicates burying cables as an appropriate mitigation measure to shield marine life from EMF (see Section 5.3.11.6, page 5-194). Ecology suggests adding information on any other appropriate shielding mitigation methods that might exist.

Response: While it is true that population-level effects of electromagnetic fields (EMFs) would likely be avoided as long as enough individuals pass over cables, thereby reducing the potential for habitat fragmentation and effects due to genetic segregation, there is currently not enough information on which to base a conclusion. Consequently, the sentences referring to this have been deleted from Sections 5.2.11.4, 5.3.11.4, and 5.4.11.4.

As suggested by the commentor, other potential mitigation measures in regard to EMF effects have been considered. At this programmatic stage of development, no additional mitigation measures have been added to Section 5.3.11.6. However, when individual projects are considered in the future, additional site-specific and design-specific mitigation measures may be taken as appropriate.

The references provided in Section 4.2.7.3 appear to be appropriate for the information provided.

B.2.16.8 Marine Mammals**Comment: OCS56-002**

Comment: I wondered a little bit about maintenance and operations impacts on some of the technologies, because I felt like they were glossed over a little bit, especially the underwater turbines. You mentioned that marine life could get caught up in the turbines. How big marine life are we talking about? Are there ways to exclude marine life from the turbines?

How much maintenance is going to be involved from damage of contact with marine life? And how would that impose another environmental impact -- the maintenance of the turbines themselves?

Response: Chapter 5 discusses possible impacts to a variety of biota from turbines, ranging from marine mammals (such as dolphins, seals, and whales) to sea turtles to diving marine birds. Chapter 5 identifies a number of mitigation measures that could be used to minimize or prevent biota from entering the turbines. Specific details about the designs of underwater turbines are not available at this time because this is still a nascent industry. Before full-scale projects are placed in the ocean, testing for engineering design will need to be conducted in the field. During this field testing, monitoring for potential impacts to fish and other marine species will be conducted concurrently. As part of the engineering design, methods to minimize impacts by marine organisms will need to be incorporated.

Comment: OCS68-004

Comment: Potential impacts on marine life during the construction, operation and decommissioning of ocean energy facilities will also need to be minimized. Noise impacts on marine mammals, for instance, have been the subject of public and scientific concern in Hawaii. The proposed mitigation of noise impacts by deterring fish and marine mammals from the work site does not seem practical, and the methods outlined on page 5-29 (and elsewhere in the document) seem in themselves to have potential to injure or distress animals.

Response: The mitigation measure was offered as a potential option that will not necessarily be adopted. Other methods for mitigating noise will be addressed during regional- or site-specific NEPA analyses and applied as appropriate.

Comment: OCS80-007

Comment: All regional discussions of marine mammals inappropriately abbreviate and “lump” discussion of the status and distribution of non-ESA listed marine mammals species. For example, the Gulf of Mexico has a single short paragraph on non-endangered species with the meaningless assertion that “dolphins are the most abundant cetaceans in the northern Gulf of Mexico; abundance estimates range from about 12,000 spinner

dolphins to more than 91,000 spotted dolphins.” This tells nothing of the sub-species/stock differentiations or predictably patchy distribution that can inform risk that may be more likely in certain areas.

The discussion of non-listed species not mention the precarious status of a number of them. For example, in the Gulf of Mexico, there are numerous small stocks of bottlenose dolphins that are resident in the bays, sounds and estuaries of the northern Gulf of Mexico (Waring et al. 2006). They are not managed as a single species and EA/EIS evaluations for other projects (e.g. localized military exercises) consider impacts to local stocks. Individual stocks found in the bays and coastal areas are often less than 100 animals in size, not the thousands implied in the excerpt above. Localized impacts could adversely impact the future of these stocks which do not interbreed nor share a range with other con-specifics. There should be greater discussion of individual species and management stocks of animals.

Response: Your comments are noted. The text and tables have been revised to indicate that the information provided represents very broad population estimates and that information on the distribution and abundance of individual stocks is more relevant for a site-specific evaluation. This programmatic EIS is taking a first look at the potential environmental impacts from these new technologies in the marine environment. This initial look is in support of the establishment of a nationwide program. More detailed, site-specific NEPA analyses would occur for site-specific energy development projects. It is at that stage that the MMS will be able to provide the amount of detail sufficient to adequately address the issue(s) noted in the comment above.

Comment: OCS80-008

Comment: In addition, as we note below, the Tables in all regions contain gross inaccuracies that need to be corrected to provide a more reasonable understanding of risk to animals. For example some species are stated to be uncommon when they are not (e.g. humpback and right whales in east coast) or distributed only in deep water, when they are often seen in shallow, sandy coastal waters (e.g., right whales on the east coast). Since Chapter 5 appropriately stresses the need for greater caution in areas of higher abundance, it is imperative that the summaries in Chapter 4 be accurate.

1. Atlantic Region (4.2)

The discussion of acoustic concerns in the Atlantic (4.2.5.7) should be expanded to include the contribution of U.S. Navy SONAR activities and other exercise conducted by the Defense Department.

The mention of migrations on page 50 (4.2.8.1) is inaccurate and overly simplistic. For example, northerly migrations for critically endangered right whales have been documented between February and May, not confined to March and April as the text would imply. The last part of the final sentence in 4.2.8.2 should be eliminated for clarity.

Table 4.2.8.1 should be amended. It has gross inaccuracies. Fin whales are the only mysticete listed as “common” in the North Atlantic region. This is inaccurate. Right whales are not “uncommon” in all three regions of the Atlantic. While the population abundance is low (thus making sightings infrequent), they are commonly found all along the eastern seaboard in multiple seasons. They are common, for example, in Massachusetts from January through April and again just offshore and in the Jeffrey’s Ledge area in the fall; they are in their only known breeding grounds in the South Atlantic region from November through April. They are migratory in the mid-Atlantic and they are one of the species most frequently entangled in commercial fishing gear and involved in vessel collisions. Humpback whales too are said to be uncommon in the South Atlantic, mid-Atlantic and North Atlantic. However, they are the species most frequently sighted from commercial whale watching boats in both the mid-Atlantic and the North Atlantic regions and should be considered “common.” Fin whales are said to be uncommon in the mid-Atlantic, but they too are commonly spotted from whale watch boats in the mid-Atlantic. Minke whales are said to be uncommon in the North Atlantic, but are, in fact a frequently sighted animal from Massachusetts northward and are among the species most frequently entangled in commercial fishing gear. They should be listed as “common.” Further, we could not readily find a definition of “coastal” waters, but the typical habitat of virtually all mysticetes includes a near shore (coastal) distribution, as all are seen in shallower state waters, not simply at the edges of deeper water features (e.g., George’s Bank). The Table accompanying this section does not show coastal waters as their habitat. Humpback, minke and right whales are frequently sighted in and around Cape Cod Bay and Massachusetts Bay as well as just offshore from Virginia Beach. Right whales can readily be seen and photographed from condominium balconies in Florida. (Kraus 2006) These would not seem to be “shelf” or “slope/deep” waters which the table indicates are only the “typical” habitats. This table requires substantial correction.

With regard to odontocetes, harbor porpoise are said to be “occasional” in the mid Atlantic but, in fact, are seasonally resident as far south as North Carolina where there is an historically high winter bycatch of harbor porpoise in commercial gillnet fisheries. They should be listed as “common” in that area. White-sided dolphins are stated to be typically found in “slope/deep” habitat but are commonly seen from whale watch boats close to shore in Cape Cod Bay, Massachusetts Bay and Long Island Sound. So too are pilot whales, which are commonly stranded throughout New England, particularly Cape Cod. Common dolphins are also seen aboard whale watching vessels and should be listed as occurring in coastal habitats. These and other errors should be corrected.

Hooded seals, like other phocids in the list, are commonly found near shore. The frequent and increasing sightings of ice seals such as harp seals in New England would seem to warrant a higher occurrence rating, perhaps “uncommon” (as per hooded seals) rather than extralimital. Corrections should be made to this section of the table.

The discussion of humpback whales on page 54 states that they are observed migrating north offshore of the Atlantic states during “mid-to-late spring and mid-to-late fall.” In fact, as is documented in Waring et al2006 (the primary citation used in this document for

marine mammal information), juvenile humpback whales are commonly seen in the mid-Atlantic all winter. This should be corrected.

Response: The tables and discussions of marine mammals that are presented in Chapter 4 provide general summaries of occurrence and abundance and should not be viewed as detailed descriptors of specific locations. Such a level of detail is outside the scope of this programmatic EIS. The general abundance categories presented in the tables are based on recent minimum population estimates presented by the NMFS. While some of the species may be seen with some regularity in some locations, a number of these species are listed as threatened or endangered under the ESA because of their very low numbers. For example, the North Atlantic right whale is the most endangered species of whale in the world and is considered the most rare whale species along the Atlantic Coast. Prior to authorization and development of an energy project, the MMS will require the collection of site-specific baseline data on use of the proposed project area by biota, and these data will be used to identify mitigation measures to address potential impacts.

Sonar, including military, sonar is identified in Section 4.2.5.3 as a major contributor to ambient ocean noise. It is easily understood that military sonar activities would be taking place in all regions of the OCS. Since no additional information regarding military sonar activities is available for the Atlantic OCS, there is no purpose in again mentioning military sonar in discussions of anthropogenic sounds in the Atlantic OCS in Section 4.2.5.7.

The discussion of right whales does not identify nor imply specific months during which migration occurs, but rather states only that the right whale winters off of the southeastern United States and summers in New England waters northward.

It is unclear what part of the last sentence in Section 4.2.8.2 is unclear and should be deleted.

Comment: OCS80-009

Comment: 2. Gulf of Mexico (4.3) - As stated above, the discussion of the acoustic environment would be remiss without acknowledging the fact that ambient noise levels are increasing. Further, there is virtually no discussion of the contribution of US. Naval Activities including live ammunition and bombing activities that occur in the Gulf. There is also little mention of noise from scientific research involving SONAR, seismic activity and other intense noise sources.

While we agree that sightings of right whales in the Gulf of Mexico are rare, the text states that "confirmed records" in the Gulf consist of a single stranding in Texas in 1972. This is not correct. There is published literature substantiating sightings in the 1960's. In addition, sightings of females with calves are periodically reported in the Gulf, often with multiple sightings of the pair over a period of several months. For example, a female and her calf were seen in the Gulf of Mexico for several months in 2004 (RWN2004) and another mother calf pair were seen in Corpus Christi Bay Texas in January 2006 and

again on the west coast of Florida in March of that year, the calf evidencing recent cuts from a vessel propeller (NEAQ 2006). The text should be updated.

The text on page 145 relating to small cetaceans should be expanded to discuss the fact that there is more than one stock of bottlenose dolphins in the Gulf of Mexico. These stocks include Northern Gulf of Mexico continental shelf stock, the Northern Gulf of Mexico coastal stock, the Northern Gulf of Mexico oceanic stock and numerous Gulf of Mexico Bays, Sounds and Estuarine stocks. (Waring, et al 2006) There is considerable genetic differentiation and little overlap in range of these stocks. Some in the Bays, Sounds and Estuaries are very small stocks and have experienced recent die-offs (unusual mortality events) that may be imperiling their populations. Localized impacts from projects sited close to shore could have a devastating effect on already stressed populations. This information on the status of various bottlenose dolphin stocks in the Gulf of Mexico should be noted in the DEIS to avoid a misunderstanding of stock status and distribution.

We expected to see greater discussion of sharks in the Gulf of Mexico under section 4.3.11. A number of sharks have lost up to 90% of their populations in the past few decades and some are listed by the National Marine Fisheries Service as “prohibited species” or are on the “species of concern” list as a result of precarious population status. This should be part of the discussion in the DEIS.

Response: Section 4.2.5.3 discusses ambient ocean noise sources and trends over time. The discussion acknowledges that ambient ocean noise levels are increasing and that anthropogenic sources, especially commercial shipping, are major contributors to the observed increases. Both military and commercial uses of sonar are also identified as contributors of a unique, broadband high-frequency sound signal to ambient ocean noise. Seismic surveys are also mentioned, although technological advances have resulted in currently used sound sources being substantially reduced in intensity from the air guns previously used in most typical seismic surveys.

The information presented in Section 4.3.8 is based on NOAA NMFS’s *U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments 2006*, published in 2007. While there may be published literature of substantial sightings of right whales in the GOM in the 1960s, the programmatic EIS correctly states their current status in the Gulf, which includes infrequent sightings. The intent of this section is not to document all recent sightings, but to present the reader with an overview of the current distribution and status of marine mammals in the GOM. More detailed analyses, with more detailed presentation of marine mammal distribution and abundance, would be conducted at the project level. While the MMS acknowledges the presence and importance of individual stocks of many of the marine mammal species, in the absence of specific project siting and design specifications, analysis of potential impacts to individual stocks is not possible at the programmatic level of this EIS. Chapter 5 acknowledges the potential for energy projects in OCS waters to affect marine mammals; detailed analyses are not possible in the absence of project-specific siting and design details.

Comment: OCS80-010**Comment:** Pacific Region (4.4)

We reiterate our comments above that military contributions to noise should be mentioned in 4.4.5 under discussion of the acoustic environment (e.g., Naval ordnance exercises as well as the Defense Department's use of SONAR, currently the subject of litigation by the California Coastal Commission).

With regard to Table 4.4.8.1, we disagree with the characterization of the occurrence of various species. Although gray whales are not distributed year-round off the west coast, they are common in certain seasons. Their listing as uncommon would lead potential developers to mistake risk to them. Similarly, as the text acknowledges, blue whales are increasingly common in northern California for much of the year. They would seem to warrant a category in the summary Table that is higher than "occasional." We would argue that North Pacific right whales should be listed as "uncommon," off the coast of California, as sightings are rare. The text lists them as "extralimital" in the southern California OCS though the table does not reflect this. The Table should be corrected to accurately reflect occurrence and habitat use.

We also disagree that sea otters are "uncommon" in northern California, where their highly visible presence helps drive a huge tourism industry.

There is no mention in the text of the proposed listing of southern resident killer whales under the ESA. While their status is pending, it would be remiss of the MMS to fail to identify their more fragile status. Further, we would disagree that killer whales are uncommon in Washington state. They are the focus of a lucrative whale watching industry, where this author has seen them on numerous occasions.

Response: Section 4.2.5.3 provides a discussion of ambient ocean noise, including anthropogenic contributions. Sonar, and particularly military sonar, is discussed as contributing unique sound signals to the ambient ocean noise profile. The MMS believes that it is understood that military activities occur in all OCS areas. Consequently, there is no need to again mention the existence of military sonar signals in the Pacific OCS. The MMS is not aware of military ordnance exercises extant in the Pacific OCS.

While the gray whale may occur in relatively high numbers along the coast during migration, such occurrences are transitory and relatively short-lived because most of the North Pacific stock of this species summers in Arctic waters and winters off of Baja Mexico. Thus, the general status qualifier of "uncommon" for the Pacific Coast is appropriate. Prior to project authorization and development, baseline data on the use of the proposed project location by marine mammals, birds, and sea turtles would be obtained, and information from these baseline data would be used to design and implement projects to minimize or mitigate potential impacts. The collection and analyses of baseline data, together with the identification of specific mitigation measures, would be conducted as part of the project- and site-specific NEPA analyses.

While the sea otter may be locally abundant at some locations throughout its range, it is considered uncommon throughout its range (this is one reason for its listing under the ESA).

While the killer whale may often be observed locally, the very low minimum population estimates for both the Northern Pacific Southern Resident stock (estimated in 2005 at 84 individuals) and the Northern Pacific Offshore stock (estimated in 2005 at 361 individuals) support the general classification of “uncommon” that is used in this programmatic EIS. The MMS recognizes the fragile status of not only the Northern Pacific Southern stock but also of other marine, coastal, and terrestrial plants and animals that are currently under consideration for listing under the ESA. Potential impacts to these and other candidate species would be evaluated during project- and site-specific NEPA analyses as projects are proposed for authorization.

Comment: OCS80-011

Comment: Chapter 5. Potential Impacts of Alternative Energy Development on the OCS and Analysis of Potential Mitigation Measures

The discussion of risk to marine mammals and birds outlines impacts in only the most disappointingly general terms. It does not provide specific information on noise levels which are well studied. It provides no information on the radius of the zones of impact to various species from exposure to noise (e.g., ranges at which they may be alerted versus becoming injured). It provides almost no research that is currently available from other regions of the world that could inform understanding of the risk of displacing animals from their habitats (e.g., findings of studies in Norway about differential effects of noise on pinniped versus harbor porpoise) nor does it use data available from other areas that discuss mortality risk to birds. For example, it would be helpful to provide at least a range of collision impacts found for birds at other coastal wind plants. These could include studies at coastal wind plants such as that in the Wadden Sea, cited by Cape Wind in their DEIS, that found 0.04-0.14 birds killed per turbine per day or studies cited by Everaert (2004) of facilities in Belgium that found a mortality rate of between zero and 125 birds per turbine per year, with mean numbers for three different facilities ranging from 18 to 35 birds per turbine per year in 2002. Fatalities in the Everaert study included species found in the coastal U.S. including herring gulls, lesser black-backed gulls, black headed gulls, mallards, coots, wood pigeons, peregrine falcons, kestrels and several species of terns. Providing a range of possible mortality rates would seem important to understanding likely or potential impacts when considering siting.

There may be less information on impacts from various forms of hydrokinetic energy, which are newer technologies, but a more thorough discussion of possible risk, including a modeling of risk would be useful to provide an understanding of risk.

The DEIS could have provided specific information on sound field levels or on known rates of sediment flow that cause harmful impacts to benthic dwellers or any number of other risk factors for wildlife and their habitat. But it did not. It could have, and should

have, provided information that would be germane to any project; whereby developers would need only to provide narrower site-specific information for a particular project. Instead, the DEIS is so general that developers will have to do no less work to inform the risk to wildlife than they would have had to do without the benefit of this DEIS, otherwise they will face project delays or land litigation.

Response: Thank you for the additional information. This programmatic EIS is taking a first look at the potential impacts from these new technologies in the marine environment. It is being used for planning purposes in the development of a nationwide program and is not intended to provide detailed analyses for specific technologies or locations. Regional and site-specific NEPA documents that incorporate more detailed information will be prepared.

Comment: OCS80-013

Comment: 5.2.5.6 Discusses mitigation of acoustic impacts. It states that one method is “detering fish and mammals by proven means (e.g., horn blasts, charges, strobes, electric seines)”. We submit that these methods are not appropriate for use with marine mammals, as explosive charges and electric seines would likely harm animals. Deterrence for marine mammals is largely acoustic in nature (e.g., loud acoustic harassment devices) which are themselves potentially harmful. The potentially harmful techniques should be omitted. Another mitigation measure listed in the text is “avoiding migration periods.” We agree, but for some areas (e.g., New England) marine mammals are seasonally resident from early spring through late fall, leaving only the weather-challenged winter season when densities are reduced. There are additional measures for mitigation that are available but were not listed in the DEIS. These include aerial, vessel-based and acoustic monitoring of the area for marine mammal presence with construction noise halted if animals enter a zone of impact. Bubble curtains have also been employed during the construction of bridges as a means of reducing the transmission of sound beyond a limited area. These and other methods should be listed in the DEIS. We find the discussion of mitigation of noise from construction (arguably the most disruptive source of noise) to be entirely lacking.

Response: Your concern about this mitigation is noted. The programmatic EIS is taking a look at a broad range of possible mitigation measures that may or may not be incorporated for specific projects. In some cases, the most appropriate mitigation measure will depend on the type of technology, the location, and the species that may interact with the technology. Therefore, some mitigation measures must be developed for site-specific activities and in coordination with the appropriate Federal and State resource agencies.

Comment: OCS80-014

Comment: 5.2.8 Marine Mammals. The introduction to this section, appropriately states that not all marine mammals are distributed in all areas or seasons. It states that some may “uncommon” or “very limited” in their distributions. We agree, but this underscores the need for a more robust description of the affected species and their occurrence in

Chapter 4. As we have noted, many are described in the tables in that section as “uncommon” when they are not. Further, the summary Table which checks off areas of “typical habitat” for many species would seem to indicate that conflicts in coastal waters are precluded by a paucity of marine mammals in coastal areas when, in fact, they are present in the near shore/coastal environment where construction is most likely’. For example, consideration is being given to developing a site just outside of right whale critical habitat in Georgia, but the chart in Chapter 4 indicates that right whales are not commonly found in the coastal area of the Southeast and thus one would be left to assume they would not likely be exposed to risk from vessel collisions or noise during construction. This would be a gross misunderstanding of the vulnerability to the risk of this critically endangered species. Similarly Chapter 4 states that harbor porpoise, which European studies have shown are almost entirely displaced from wind plant construction sites, are “occasional” in the mid-Atlantic; but they are in fact common during many months of the year as far south as North Carolina. Thus the impacts to them seem inappropriately trivialized. Chapter 4 clearly needs to be expanded and made more accurate for the discussion in this section to provide meaningful information to potential developers and project reviewers; otherwise the information in Chapter 5 is not provided proper context.

We do not agree that “pinnipeds are considered less likely to be harmed by underwater noise than are cetaceans.” (page 38). Work by Ron Schusterman and his colleague at the University of California has shown temporary and/or permanent threshold hearing shifts in pinnipeds from noise of intensity similar to that used in seismic surveys. This sentence should be changed or additional citation provided to substantiate it.

The NMFS has concluded that 180 dB is the maximum threshold for marine mammals for non-injurious noise (see: 70 FR 8768 for example), but the noise generated by pile driving foundations is considerably higher than the “up to 180 dB” that is stated on page 39. For example, the Environmental Assessment for the Burbo Offshore Wind Farm in the United Kingdom states “[p]ile driving may generate noise levels in the range of <150 dB to approximately 236 dB at source (i.e., in the location of the piling)” (Seascope 2002). An additional analysis in San Francisco indicated that the sound level from pile driving was approximately 200 dB at 100 meters (Anon. 2001). With sounds at that level, the 180 dB level at which injury would occur could extend for up to 2 kilometers from the pile driving. The environmental analysis done for the Burbo Wind Project also states that the “zone of responsiveness” in which small cetaceans are likely to show startle or alarm response extends from 500 meters to more than 20 kilometers (Seascope 2002). This means that the sound will be aversive to any small cetacean within approximately 12.5 miles. The DEIS for the Cape Wind project (USACE # NAE-2004338-1) also cited work at Utgrunden that documented noise levels over 180 dB at 500 meters (approximately one quarter of a mile) from the pile driving. Thus, conservatively, any marine mammal within one quarter of a mile risks hearing damage and any marine mammals within 12 miles or more of the area may choose to avoid it for the duration of construction because of the level of noise. In this section on impacts from construction noise, the DEIS inappropriately provides no information about likely noise levels at source. This type of information is key to understanding the size of the zone in which

injury to marine mammals is likely from noise in excess of the NMFS threshold noise criteria. This sort of discussion is a critical component of the DEIS and should be included in future drafts. Since there are estimates of sound generation in the literature that are significantly higher than those provided in the DEIS, it must be revised to include discussion of these estimates and the concomitant risk. These comments are also relevant to section 5.2.8.3.2. (Construction), and that section should also be revised.

We would have liked a more thorough discussion of impacts to animals shown in extant projects. Monitoring at Nysted and Horns Rev has documented displacement from habitat for long periods during construction but has also documented return to normal use patterns in the area following construction. There should be greater acknowledgment that impacts of construction on pinnipeds and harbor porpoise are fairly well studied in Europe but impacts on mysticetes is entirely unknown, though it is not without analogy (e.g., Nowacek et al 2004)

Section 5.2.8.3.3 discusses impacts from vessels. While we agree that for most species this impact is limited, it is misleading to state that collisions would “not result in population level effects.” This is not true for critically endangered right whales for which the NMFS has found that the death of even one female could result in a high risk of extinction of the species. (69 Fed. Reg. 30,857, 30,858) This caveat should be provided Section 5.2.8.6 provides mitigation measures, including the recommendation that projects avoid “known cetacean congregation, mating, or feeding areas, such as the six major sites of the endangered northern right whale along the Atlantic coast.” (page 47). We agree but the six areas listed as examples are only the right whale critical habitats. There are other areas for this species that are high use areas not contained in critical habitat (e.g., just to the north of critical habitat off Georgia and South Carolina as well as Jeffrey’s Ledge off New Hampshire, etc) and most species have no critical habitat designated. The MMS should have developed mapping of areas of greatest concern for sensitive species (e.g., timing of harbor porpoise migratory routes along the east coast; gray whale migration and routes; and key feeding areas important to mysticetes off California or New England, etc.) that could be considered by developers in a manner that the charts in Chapter 4 do not allow. It would seem to be contrary to the intent of the DEIS to provide so little information about distribution of sensitive habitats and wildlife species that developers will still naively propose projects for risk prone areas that will then be attacked by scientists and/or conservation groups because of the risk they are likely to pose. The DEIS should identify and specify the areas where risk is greatest to prevent just such a situation.

We also agree that timing of construction (the fourth major “bullet”) is important, but we suggest a more appropriate example than fin whales calving in the mid-Atlantic. The Stock Assessment report cited states simply that neonate stranding data from the early 1990’s suggested that calving takes place during that time period in the mid-Atlantic, but it goes on to say that” it is unknown where calving, mating and wintering for most of the population occurs.” Indeed no neonate strandings have been reported since the Hain paper of 1992. We would suggest another example such as avoiding the area of the Rhode Island and Massachusetts coastline when harbor porpoise migrate through the area

in larger numbers in March and April; or the coast of South Carolina, Georgia and Florida from November-April when highly endangered right whales calve in those waters, their only known calving ground.

As discussed above, additional mitigation measures should be identified including acoustic and visual monitoring, cessation of activities when marine mammals are detected in impact zones, use of bubble curtains, reduced vessel speeds to 10 knots or less transiting through seasonal high use areas, and so forth. The mitigation section requires substantial expansion.

Response: Development of energy projects in MMS OCS waters would largely occur at least 3 mi (5 km) from shore, with only the placement of transmission cables (connecting offshore energy facilities with onshore infrastructure) occurring in nearshore or coastal environments. Detailed baseline information regarding the occurrence and use of marine mammals and other biota would be required for all proposed project areas, and this information would be used to design projects and develop mitigation measures to minimize or eliminate potential impacts to marine mammals.

Furthermore, project development would be conducted in full compliance with the requirements of the ESA and MMPA and in consultation with the NMFS, as appropriate, addressing not only listed species but also designated critical habitat.

The information presented in Chapter 4 is intended to provide an overview of the marine mammal species that occur in MMS OCS waters and that thus could be affected by the development of energy projects in those waters. Detailed descriptions of individual locations and biological resources are beyond the scope of this programmatic EIS, but would be provided as part of any future project-specific NEPA evaluations. Baseline information on the use of proposed project sites by marine mammals and other biota would be required for all proposed projects, and it is at this time that detailed information would be obtained regarding which species of marine mammals use the project area, as well as how and when these are used by these organisms.

The cited text states that “pinnipeds are considered to be less likely to be harmed by underwater noise than are cetaceans.” This does not state they would not be affected, only that they may be less likely to be affected than cetaceans. To avoid further confusion, this statement has been deleted. The programmatic EIS acknowledges potential impacts from noise to all marine mammals, including pinnipeds, ranging from behavioral changes to temporary hearing loss to auditory masking to physical injury.

The NMFS upper threshold for noninjurious noise is approximately 180 dB. The programmatic EIS identifies noise from pile driving as likely to be as high, but not to exceed this maximum noninjurious noise level. Assuming that many marine mammals would leave the immediate project area upon arrival of construction vessels and initiation of construction activities, it is likely that marine mammals would experience noise levels below the noninjurious noise level, and that exposure noise levels would decrease with distance from the construction site. In addition, the MMS is proposing the following best

management practice: “Lessees shall avoid and minimize impacts to marine species and habitat in the project area by posting a qualified observer approved by the MMS and NMFS on-site during construction activities.” This practice, if employed, should help reduce the likelihood of marine mammals being exposed to potentially injurious noise levels by ensuring that noise-generating activities cease if marine mammals are observed. More detailed estimates of construction-related noise levels would be developed when specific project construction and design features are available.

The text regarding vessel collisions has been revised to indicate the potential for moderate to major impacts to listed species of marine mammals.

The MMS recognizes that there are likely other areas in OCS waters that are important to other species of marine mammals. The six areas important for the northern right whale are presented in the mitigation measure as an example, and not as the only areas to be avoided. Baseline data would be required for all proposed project areas to identify and evaluate use by marine mammals, sea turtles, and other biota. This information would play a critical role in siting and designing energy projects and developing appropriate mitigation measures to be protective of marine biota.

The example presented in the fourth mitigation measure is appropriate and is presented only as an example. Specific timing restrictions would be developed on a site-specific basis based on baseline use data of the proposed project site as well as input from and consultation with appropriate resource management agencies.

Additional mitigation measures would be developed during site-specific NEPA evaluations, when more detailed information would be available on the marine mammals that use the project area, the timing and nature of their occurrence in the area, and specific project design parameters such as construction needs.

Comment: OCS80-016

Comment: 5.3 Wave Energy: We reiterate our comments above under Wind Energy regarding cursory nature of the introductory remarks on the impacts on marine mammals; without better characterization of habitat use in Chapter 4, discussion of risk and mitigation in this chapter are without proper context.

There is a discussion of risk of entanglement due to large numbers of mooring lines. There is no discussion of the energetic costs to animals from habitat displacement caused by animals choosing to avoid areas where their ability to forage and/or swim freely is restricted. This discussion should be included.

For section 5.3.8.3, we reiterate our relevant comments under 5.2.8.2 regarding the discussion of noise impacts from installation of platforms. Our previous comments on impacts from vessel collisions with large endangered cetaceans are also relevant.

Similarly 5.3.8.6 discusses mitigation. The use of acoustic “pingers” as a mitigation measure is only of limited utility. They have been shown effective with harbor porpoise and a very few dolphin species, but are not effective with bottlenose dolphins or with large mysticetes (who do not use bio-sonar as indicated in the bulleted item). Further, they have been shown to attract seals to gillnets where pingers are used (Gordon Waring, NMFS personal communication). Endangered mysticetes are at gravest risk of population level effects from the entanglement of individuals yet this mitigation measure is inappropriate for them. The best mitigation is to use lines or cables that are stiff and cannot wrap readily around the body of cetaceans. This measure was not suggested though it should be.

Response: At the broad level of analysis provided in this programmatic EIS, the literature cited provides the information needed for this level of analysis. As the MMS develops more detailed, location-specific NEPA documents under its tiered approach, there will be a more comprehensive review and inclusion of scientific and other literature relevant to the analysis.

The mitigation measures included in this programmatic EIS are broad in scope. More specific, detailed mitigation will be identified and analyzed in subsequent NEPA analyses at the project-specific level. Many of these mitigation measures will be identified as a result of coordination with Federal and State natural resource agencies.

Comment: OCS80-019

Comment: Small cetaceans, such as harbor porpoise or pinnipeds could be killed by the turning blades and larger cetaceans injured by cuts to their body as they swim around or over the turning blades.

Section 5.4.8.1.2 discusses the risk of marine mammals being struck by blades on turbines. This is not an inconsiderable risk. The DEIS implies that their ability to detect structures will lead them to avoid the structure. That a device is detectable does not mean it will be avoided. The large number of whales and manatees killed or injured in collisions with vessels is testament to this fact. Further, though dolphins can readily detect gillnets with their echolocation, they often become entangled as they are pursuing prey. This is also likely to be the case with rotating turbines in areas where animals are foraging. The natural curiosity of pinnipeds may also lure them to investigate novel structures in their environment, leading to injury or death. The DEIS also does not discuss to what extent the turning of the blades may alter current flow in a manner that might draw animals in (as is the case with some propellers). We must point out that the death of a single female right whale, cut as she swims near a turbine blade that the DEIS estimates will be turning at up to 30 mph (page 287), is a risk that may affect the species at the population level.

The DEIS provides no basis for its conclusion in 5.4.8.4.1 that “it is assumed that these species would largely avoid operating turbine facilities.” The DEIS must provide a basis for its conclusions about relative risk. Nor does it discuss the energy expenditure or

reduced foraging efficiency that would result from animals being displaced from habitat or migratory routes if they do avoid a large facility. It should fully discuss the adverse consequences of this type of habitat exclusion.

Section 5.4.8.6 on mitigation should mention among hazards, the risk of being struck by the blades of these devices. We reiterate our comments under wind that Chapter 4 requires considerable augmentation to adequately portray the distribution and thus the relative risk to species. Without a thorough and accurate depiction, recommendations such as avoiding areas of high use and concentration are meaningless. Further, as mentioned above in our comments on ocean wave energy, acoustic pingers have not been shown to be effective deterrents for most species, and have only been consistently effective with harbor porpoise. Further, they apparently act as an attractant to seals.

Response: Specific details about the designs of underwater turbines are not available at this time because this is still a nascent industry. Before full-scale projects are placed out in the ocean, testing for engineering design will need to be conducted in the field. During this field testing, monitoring for potential impacts to fish and other marine species will be conducted concurrently. As part of the engineering design, methods to minimize impacts to marine organisms will need to be incorporated.

Comment: OCS80-023

Comment: Section 7.6.1 discusses unavoidable impacts. It states that impacts were reviewed under Chapter 5 but, as we have commented, the impact review was so general for wildlife as to be of little help in understanding what is avoidable. Yes, it is true (as stated in this section) that some bird strikes with WTGs would inevitably occur, but the magnitude of impact is mitigable by siting them in more risk averse areas which the DEIS has failed to help identify.

Section 7.6.4 states that mitigation measures were also discussed in Chapter 5, but our comments above have indicated that a number of strategies were not discussed and those that were provided were so broad as to provide little guidance (e.g, how to determine more desirable “low use” areas).

Response: The MMS has an active environmental studies program that is used to collect baseline information. For this new program, usage of potential development areas by birds is a high priority for study. Some of this information exists but has not been synthesized. The MMS will work toward identifying clear, high-usage areas and developing site- and project-specific mitigation measures to ensure that species using these areas are protected as appropriate.

Comment: OCS80-024

Comment: Table 7.1.1-1 is a helpful summary but some of the information is in error. For example, for impacts from current-generated energy on marine mammals it states that pinnipeds could use the structures for “prey haulouts.” This is not a real term. Haulouts

are where they lie to warm themselves and rest; they have nothing to do with prey or foraging. Further, as we have noted, acoustic pingers have not been shown to work for most marine mammals and actually attract seals to fishing gear that is equipped with these devices.

Response: The word “prey” has been deleted. Also, the “use of sonic pingers” as a mitigation measure has been replaced with “the use of management measures (e.g., repelling devices).” Specific types of management measures such as sonic pingers, bubble curtains, or other means to minimize the use of ocean current devices as pinniped haulouts would be determined at the project-specific stage through coordination with Federal and State agencies.

Comment: OCS83-009

Comment: (iii) Marine Mammals and Sea Turtles.

Little or no information exists on potential impacts that offshore wind projects may have on marine mammals and sea turtles. The Department of Game and Inland Fisheries recommends that the applicant examine the effects of construction activities, lighting, and turbine operations on sea turtles and marine mammals, their habitats, and the natural movements of their prey. This effort should address potential ecological impacts associated with this project and offer sound alternatives to avoid, minimize, and mitigate these impacts.

Response: The MMS agrees with the commentor that there is limited information about the interactions between offshore wind projects and marine mammals and sea turtles. However, the MMS has extensive experience with the placement of structures in the marine environment for oil and gas activities. Some similar interactions are expected. On the basis of this experience, mitigations are proposed in Chapter 5 to minimize impacts, along with proposed BMPs, including the use of a trained observer during construction activities.

Comment: 80047-004

Comment: 5. We recently learned that buoys deployed to recover wave energy may have serious adverse impacts on whales, because each buoy is anchored by three horizontal cables that can entangle whales.

Response: Comment noted. Section 5.4.8.4.3 of this programmatic EIS addresses the potential impacts of entanglement with mooring lines on marine mammals.

Comment: 80052-014

Comment: Section 4 4.8.1 3 Fissipeds. Please note that Washington State lists sea otters as endangered.

Response: Comment noted. Section 4.4.8.1 of this programmatic EIS addresses only federally listed species. NEPA analyses for site-specific projects would address State-listed species, and the MMS would consult with wildlife agencies of any affected States.

Comment: 80052-015

Comment: Section 4.4 8.2.1 Cetaceans. Both state and federal agencies list the southern resident stock of killer whales as endangered. Adjust this information in table 4.4.8-1 as well (Source: Northwest Regional Office of NOAA's National Marine Fisheries Service)

Response: Sections 4.4.8.1.1 and 4.4.8.2.1 and Table 4.4.8-1 have been modified to acknowledge that the Southern Resident Distinct Population Segment of the killer whale is federally endangered.

Comment: 80068-024

Comment: Sec. 4.2.5.4. This section should describe and cite recent studies of the effects of midrange sonar tests conducted by the Navy on Cuvier's beaked whales which showed mortality, with clear signs of damage from pressure waves.

Response: Noise impacts to marine mammals are discussed in Sections 5.2.8, 5.3.8, and 5.4.8. The MMS believes that the assessment of noise impacts to marine mammals provided in the programmatic EIS is appropriate as written. More thorough analyses of noise impacts (including cumulative impacts) and specific acoustic criteria (including any future ones) would be provided at the project-specific scale.

Comment: 80068-027

Comment: Chapter 5. Potential Impacts of Alternative Energy Development

Based on a rapid review, the PEIS description of potential impacts seems quite comprehensive. There are likely to be some conflicting opinions about the impacts of geophysical surveys on fish and marine mammals (i.e., the PEIS tends to characterize them as negligible or minor, but some mammalogists may characterize some survey techniques using powerful sonar, explosions, and/or other sources of sound as dangerous).

Response: The MMS believes that the description of potential impacts of geophysical surveys on fish and marine mammals is appropriate as written. The analyses in this programmatic EIS assume that the mitigation measures presented in the document, coupled with additional mitigation that may be developed for site-specific projects, justify the negligible to minor impact level conclusions.

Comment: 80070-008

Comment: Approximately 32 species of marine mammals (whales, dolphins, porpoises, and manatees) occur on the Georgia continental shelf. All are protected by the Marine Mammal Protection Act of 1972, and three are considered endangered species under the Endangered Species Act of 1973 as amended: the North Atlantic right whale, the humpback whale, and the West Indian manatee.

Considering the significance of the Georgia and North Florida OCS to the North Atlantic right whale (*Eubalaena glacialis*) as the only calving ground for the species, any energy development or exploration needs to carefully address the biology and habitat requirements of this species. The Northern right whale is the rarest of all large whale species with an estimated population size of 350-400 individuals, with approximately 80 reproductive females. The National Marine Fisheries Service has designated critical habitat for the Northern right whale to include “coastal waters between 31°15 min N and 30°15 min N from the coast out 15 nautical miles; and the coastal waters between 30°15 min N and 28° 00 min N from the coast out 5 nautical miles” (50CFR §226.203). This includes parts of the continental shelf from the Altamaha River to south of the Florida state line. The significance of coastal waters from Charleston South Carolina to the northern line of the critical habitat for right whales is under review by NOAA fisheries. Most right whale mortalities are due to collisions with ships and entanglement in fishing gear. Other major threats to this species include habitat degradation, noise, contaminants, climate and ecosystem change, and predators.

Response: The MMS is aware of the area designated as critical habitat for the right whale, and it is incorporated in the maps in Chapter 4, and the programmatic EIS specifies the six major North Atlantic right whale sites along the Atlantic Coast (which includes the Georgia location). The discussions concerning marine mammals incorporate the concern that certain species are endangered and that the loss of an individual would result in a major impact to that species. The MMS is proposing to require the use of qualified observers approved by the MMS and NMFS during construction activities to minimize the interactions between marine mammals and vessels. In addition, one proposed BMP requires that vessels move slowly and maintain a safe distance when marine mammals are observed. More detailed information about species and mitigations would be incorporated in regional- and site-specific documents when the information about actual activities is available. Consultations with the NMFS and USFWS would also be conducted to ensure that appropriate mitigations are incorporated.

Comment: 80087-018**Comment: II. Marine Mammals: General**

There is concern over the impacts of noise generation from OCS development on marine mammals and other marine fishery resources. NOAA recommends that MMS prioritize research efforts in order to collect information on the impacts of noise on marine mammals and other protected species prior to widespread OCS development. NOAA

recommends that MMS include in the environmental consequences and cumulative impacts analyses in the DPEIS a thorough analysis of how marine mammals react to sound, both in the short-term and cumulative sense. In addition, NOAA recommends that the analyses also include an understanding of protected species or fish seasonal habitat needs to accurately site offshore energy production facilities in areas that will avoid impacts. Since placement of facilities outside of areas of concern is one of the key mitigation tools, adequate information needs to be provided in order to make these site placement decisions.

Response: The MMS recently convened a workshop that brought together representatives of various agencies as well as experts in various scientific subjects in order to begin identifying and prioritizing research needs related to potential impacts of OCS alternative energy development. The MMS also participated in preparing the Advisory Committee on Acoustic Impacts to Marine Mammals 2006 report to the Marine Mammal Commission.

The programmatic EIS identifies and discusses the potential for energy-project-related noise to affect marine mammals. The potential for noise generated during site characterization, project construction and operation, and decommissioning to affect marine mammals is discussed in Sections 5.2.8 (wind energy), 5.3.8 (wave energy), and 5.4.8 (current energy). These sections identify the noise-generating activities that could affect marine mammals, the types of effects (e.g., behavioral changes and hearing loss) that might be incurred by affected animals, and the duration of the potential effects (short-term or long-term). It is not possible to provide a thorough analysis of effects to marine mammals without more detailed information regarding project location and design and the marine mammals stocks that would encounter a proposed project. This type of analysis would be conducted as part of project-specific NEPA analyses.

The programmatic EIS identifies mitigation measures (Sections 5.2.8.6, 5.3.8.6, and 5.4.8.6) that call for the evaluation of marine mammal use and occurrence in proposed project areas.

The MMS has developed BMPs that include surveys of proposed project sites for biotic use prior to project authorization. Proposed project sites would be surveyed for use by marine mammals, birds, and fish, and the results of these surveys could affect approval of the proposed project location.

Comment: 80087-021

Comment: Potential Impacts and Mitigation Measures of Helicopter Over-flights

The MMS DPEIS states that helicopters may be used to ferry workers or materials to offshore work sites, and that noise from helicopters could penetrate below the water surface, though mainly below the craft (5-24 of the DPEIS). NOAA agrees with MMS' assessment on helicopter noise. However, the mere presence of helicopters over a pinniped rookery or haul-out could disturb animals that are hauled-out, and could even

cause stampedes. Mortalities and injuries could occur during a stampede, especially if pups are present. Mortalities due to pup abandonment could also occur if mothers are driven into the water by helicopter over-flights during nursing season.

The DPEIS did not analyze these adverse impacts to pinnipeds that could occur due to over-flight of helicopters for the proposed projects, which is of greatest concern along the Pacific Coast. NOAA recommends that MMS conduct an analysis of the potential impacts to pinnipeds that could result from helicopter over-flights, and develop appropriate mitigation measures, such as avoidance of over-flights above known pinniped rookeries and haul-outs.

Response: The MMS agrees with the concern about pinnipeds along the Pacific Coast. This programmatic EIS is necessarily broad and general and includes potential options that may or may not be used, including helicopter transport of workers. Text has been revised to acknowledge this concern and to add a proposed mitigation that helicopters maintain a distance from pinniped haulouts that minimizes disturbance. Specific details of this type of mitigation will need to be addressed in detail during consultations for site-specific projects.

Comment: 80087-022

Comment: Vessel Strike - The MMS DPEIS identifies that vessel strikes have been recorded in U.S. waters in almost every coastal state, and that collision between whales and vessels have been most commonly reported along the Atlantic Coast, followed by the Pacific Coast (including Alaska and Hawaii) (page 5-40 of the DPEIS). However, the DPEIS does not provide any effective mitigation measures that would prevent or reduce the potential of marine mammal vessel strikes that could result from the proposed OCS project.

To avoid and prevent marine mammal injury and mortality by vessel strike, NOAA recommends that, while underway, all construction vessels remain 500 yd (457 m) away from the northern right whales, as required under NOAA's right whale vessel approach regulations (50 CFR 224.103). In addition, NOAA suggests that all construction vessels remain 100 yd (91 m) away from all other marine mammals to reduce potential impacts by traveling vessels.

Additional mitigation measures such as limiting vessel speeds within the national marine sanctuaries and within certain seasonal management areas should also be established, especially off the Atlantic Coast in the vicinity of the North Atlantic right whale critical habitat and the Stellwagen Bank National Marine Sanctuary.

Response: Several of the mitigation measures identified in the programmatic EIS address the concerns expressed in the comment. These include an evaluation of marine mammal use of the proposed project area and design of the project to minimize and mitigate the potential for mortality or disturbance, limitations on vessel speeds and distances when marine mammals are present, following NOAA Fisheries Regional Viewing Guidelines,

and avoiding the location of facilities near known coastal rookeries and haulouts. The mitigation measures included in the programmatic EIS are broad in scope. However, more specific, detailed mitigation measures would be identified and analyzed in subsequent NEPA analyses at the project-specific level. In part, these would be developed through coordination with Federal and State agencies.

Comment: 80087-023

Comment: Potential Impacts on Feeding Gray Whales

The MMS DPEIS states that there would be electrical cabling to interconnect wind turbines and other project facilities and high voltage (115 kV or greater) cables that deliver the electricity to the existing transmission system on land in the proposed OCS project area (5-78 of the DPEIS). These cables are likely to be trenched into the seabed and would generally be buried 1 to 3 m (3 to 10 ft) into the seafloor. However, it is not known whether these cables would adversely affect gray whale's bottom-feeding behavior. Although the MMS' proposed Pacific Coast OCS project area is outside the normal gray whale's summer and fall feeding grounds in the Arctic, some whales spend the summer feeding along the coast in other parts of their range (Jones and Swartz, 2002). Also, whales destined for the summer grounds sometimes stop to feed periodically on the way if the opportunity arises.

It is well documented that gray whale's bottom-feeding leaves mouth-sized depressions or "feeding pits" in the sea floor that indicate whale jaws are penetrating 10-40 cm deep into surface sediment (Nerini and Oliver 1983). Industry standard for target cable burial depth on nearshore areas of the continental shelf where gray whales feed is normally 1 m (3.3 feet), but achieved burial commonly is between 0 and 0.3 meters (<1 foot). NOAA believes there is a reasonable concern that feeding gray whales could interact with and entangle on shallowly buried transmission cables.

Response: The appropriate sections of the programmatic EIS have been modified to note that gray whale feeding on the ocean bottom during migration could be affected by buried transmission cables connecting offshore and onshore project facilities. More detailed, project-specific NEPA analyses would occur for site-specific energy development projects and include surveys of use of the proposed project area by biota such as migrating gray whales. The results of these surveys and analyses would be used to design the project so as to minimize or mitigate potential impacts such as those that could be incurred by feeding gray whales interacting or entangled with buried transmission cables as noted in the comment.

Comment: 80087-033

Comment: MMS should discuss listed critical habitat for Steller sea lions in Oregon as a site of importance in the DPEIS (58 FR 45269). Haulout sites of importance for Steller sea lions are not sufficiently reported. Please refer to Jeffries et al. 2000 to determine

haulouts in Washington and to Scordino 2006, or contact Oregon Department of Fish and Wildlife (ODFW), Marine Region, to determine haulouts in Oregon.

MMS should discuss Southern Resident killer whales in the list of evaluated listed species.

There are additional breeding sites for northern Elephant seal in Oregon and Washington waters. Contact OR Department of Fish and Wildlife, Marine Regions (Robin Brown), Oregon Institute of Marine Biology (Jan Hodder) and Washington Department of Fish and Wildlife (WDFW) Marine Mammal Investigations (Steve Jeffries) for additional information.

Impacts of sound on migration appear to be only considered for construction activity. An analysis should be presented on whether or not operating facilities will affect passage of migrating whales.

Response: The programmatic EIS does not specifically address species distributions, occurrences, or life histories on a state-by-state basis. The MMS intends to prepare more detailed regional, activity-specific, and site-specific NEPA analyses that would provide a greater discussion of known information on the Southern Resident killer whales.

The MMS uses a tiered process under NEPA that takes large, complex, long-term projects and analyzes them in a series of incremental steps to address broad issues first and then considers more detailed, location-specific issues in subsequent stages. Therefore, the intent of this programmatic EIS is to provide broad information and analyses that would serve as the starting point for more detailed environmental reviews at the regional-, site-, project-, or activity-specific stages. The MMS believes that the level of information provided in this document is appropriate for this programmatic, broad-level analysis. More detailed, site-specific NEPA analyses would occur for site-specific energy development projects. It is at that stage that the MMS would be able to provide the amount of detail sufficient to adequately address the impacts of sound on marine mammal migration as noted in the comment above.

Comment: 80087-067

Comment: 4.2.2.1.1 – The sentence “While the location of a large percentage of the right whale population...” needs revision. The phrase “a small group of pregnant females overwinter in waters offshore Florida and Georgia, an area considered to be a calving ground...” implies that pregnant females are aggregated on the calving grounds off the coasts of Florida and Georgia. This is incorrect and “offshore” can be interpreted as beyond coastal waters, where most mother/calf pairs are found. MMS should better describe and characterize seasonal and spatial habitat use patterns by north Atlantic right whale mother/calf pairs off the Southeast U.S. coast.

Response: Reference to the waters offshore of Florida and Georgia as a calving ground has been deleted. At the broad level of analysis provided in this programmatic EIS, the

information provided is sufficient for analysis over a large geographical area. The MMS intends to prepare more detailed regional, activity-specific, and site-specific NEPA analyses that would provide greater discussion of known information about specific species.

Comment: 80087-068

Comment: Fin whale: The Blaylock (1985) reference is outdated and should be replaced with current references. NOAA is in the process of revising the fin whale recovery plan. A revised draft recovery plan is available on the NOAA website at http://www.nmfs.noaa.gov/pr/pdfs/recovery/draft_finwhale.pdf. The draft recovery plan includes a list of current fin whale literature that MMS should consult.

Response: At the broad level of analysis provided in this programmatic EIS, the literature cited provides the information needed. Most of the descriptions also include information from the most recent stock assessment reports published by the NMFS. As the MMS develops more detailed regional, activity-specific, and site-specific NEPA analyses and documents, there will be a more comprehensive review and inclusion of scientific and other literature relevant to the analysis.

Comment: 80087-069

Comment: Humpback whale: MMS should provide a reference source for the sentence “Humpback whales may be observed migrating north offshore of the Atlantic States during mid-to late spring and mid-to- late fall.” It does not seem logical that this species exhibits two northern migration patterns. The sentence “Humpbacks are rarely observed inshore north of North Carolina, but from Cape Hatteras south to Florida, inshore sighting occur more frequently” is unclear, and not completely accurate. During winter, humpbacks are sighted in coastal waters south and north (i.e., vicinity of Chesapeake and Delaware Bays) of Cape Hatteras.

Response: The sentence has been revised to correctly state that the humpback whale migrates north in the spring and south in the fall.

Comment: 80087-070

Comment: Regarding Sperm whales, an example of Web-based information that is not pertinent to the Atlantic coast is the text, “Sperm whales generally inhabit..., but do come close to shore where submarine canyons or other geophysical features bring deep water near the coast.” This is true in the Pacific (i.e., Monterey Canyon) or in the Mediterranean, but not along the U.S. Atlantic coast.

Response: The text in Section 4.2.8.1.2 has been modified to reflect the information provided in the comment.

Comment: 80087-071

Comment: The seasonal distribution information contained in Waring et al. (2006) only pertains to survey sightings data, and does not represent the distribution of the “North Atlantic Stock.”

Response: The intent of this programmatic EIS is to provide broad information and analyses that would serve as a starting point for more detailed environmental reviews at the regional-, site-, project-, or activity-specific stages. Thus, the seasonal distribution information provided by Waring et al. (2007) meets this intent. As applicable, project-specific NEPA analyses would provide a greater discussion of sperm whale presence and life history traits in the affected area. Also, project developers would be required to evaluate marine mammal use of the proposed project area.

Comment: 80087-076

Comment: 4.2.8 – The sentence “Occurrence of cetacean species...” is somewhat misleading. A suggested rephrasing is: Occurrence of cetacean species is generally widespread in Northwest Atlantic waters; many of the large whales and populations of smaller toothed whales undergo seasonal migrations along the U.S. Atlantic coast.

The last sentence in the paragraph should be rephrased to: “The order Pinnipedia includes four species of seals, which are mainly found in the North Atlantic.”

Response: The text has been revised as suggested.

Comment: 80087-077

Comment: 4.2.8.1 – The sentence “All of the endangered cetaceans...” is misleading. The time period (i.e., March through April) provided for the northern migration of large whales is too precise for the state of existing knowledge. For example, blue whales are rarely sighted off the U.S. Atlantic coast, and migration may vary by size/sex/age classes (i.e., as in sperm whales).

Response: The sentence has been modified to simply state that the endangered cetaceans are migratory.

Comment: 80087-078

Comment: Table 4.2.8-1, Pg 4-51 – The criteria for classifying occurrence as “common, occasional, uncommon...” and typical habitat as “coastal, shelf, slope/deep” are not described, although Waring et al. 2006 is cited. NOAA suggested revisions are contained in an abbreviated version of the table provided at the end of this document as an attachment.

Response: To clarify the classification categories, definitions of each category have been added to Tables 4.2.8-1, 4.3.8-1, and 4.4.8-1. Table 4.2.8-1 has been revised to incorporate some of the revisions suggested by NOAA.

Comment: 80087-079

Comment: Table 4.2.8-1 – The occurrence of north Atlantic right whales is “uncommon” throughout the area simply because they are extremely rare. Animals are “commonly” seen in areas designated as critical habitat under the ESA; since these areas do overlap significantly with areas under consideration for AE development, they should be specifically shown. Further, the text indicates that right whales occur near the coast, but there is no “X” in the “Coastal” column in the table. This should be added.

Response: An “X” has been added under the “Coastal” column of Table 4.2.8-1 for the north Atlantic right whale.

The intent of this programmatic EIS is to provide broad information and analyses that would serve as the starting point for more detailed environmental reviews at the regional-, site-, projects, or activity-specific stages. Therefore, the MMS believes that the level of information provided in this document is appropriate for this programmatic, broad-level analysis. More detailed, site-specific NEPA analyses would occur for site-specific energy development projects. It is at that stage that the MMS would be able to provide the amount of detail sufficient to adequately address the issue of potential project overlap with areas designated as critical habitat for marine species.

Comment: 80087-080

Comment: Throughout the DPEIS MMS is describing species of marine mammals, but NOAA manages based on marine mammal stocks. Impacts of offshore development may impact some stocks within a species, but not others. NOAA suggests revising the text to reflect current marine mammal management practices.

Response: The text has been revised to acknowledge and incorporate discussions of marine mammal stocks.

Comment: 80087-081

Comment: Table 4.2.8-1 includes similar information as table 4.3.8-1, but has a different format. MMS should consider clarifying the information in these tables.

Response: Table 4.3.8-1 has been revised to be consistent in format with Tables 4.2.8-1 and 4.4.8-1.

Comment: 80087-082

Comment: 4.2.8.2, Nonendangered species, Paragraph 1 – The scientific name for harbor porpoise is misspelled, the correct spelling is *Phocoena phocoena*.

Response: The spelling of the scientific name for the harbor porpoise has been corrected. Table 4.3.8-1 has been revised to be consistent in format with Tables 4.2.8-1 and 4.4.8-1.

Comment: 80087-083

Comment: 4.2.8.2, Paragraph 2 – The sentence “A limited migration or season distribution ...and returning south in the fall and winter” is not completely accurate. The distribution of marine mammals off the U.S. Atlantic coast is based on seasonal surveys, conducted principally during the summer. The winter distribution and migration for most small odontocetes is not well known; hence, it is not correct to state that “Most species are present in the mid-Atlantic area throughout the year.” Some species that occupy mid-Atlantic waters in late autumn to early spring move into North Atlantic waters in summer.

Response: The text of paragraph 2 in Section 4.2.8.2 has been modified to reflect the uncertainties and information presented in the comment.

Comment: 80087-084

Comment: 4.2.8.2, Paragraph 3 – The scientific name for pilot whales (*Globicephala melaena*) is outdated. Further, two species of pilot whales utilize shelf edge habitats: long-finned pilot whales (*Globicephala melas*) and short-finned pilot whales (*G. macrorhynchus*).

Response: The scientific name for the pilot whale has been updated and, as applicable, information on the two species of pilot whales has been provided in Sections 4.2.8.2, 4.3.8.2, and 4.4.8.2.

Comment: 80087-085

Comment: 4.2.8.2, Paragraph 4 – The reference to “harbor seal” in the second sentence should be changed to harp seal. The occurrence of both harp and hooded seals in U.S. Atlantic waters are considered to be outside the normal ranges for these species.

Response: The reference to “harbor seal” has been deleted rather than changed to “harp seal.” The occurrence of harp seals in the U.S. Atlantic waters is addressed later in the paragraph.

Comment: 80087-105

Comment: 5.2.5 (and other sections that address the acoustic impacts of ocean industrial development on marine mammals, such as 5.2.8.2.1) – NOAA agrees that the acoustic impacts of technology testing on marine mammals would be minor to moderate. Under certain situations, marine mammals have been known to divert away from an area to avoid certain localized anthropogenic sound sources. To date, no long-term negative impacts have been found (although few, if any, studies have been directed at addressing this issue). However, once the collection of wind or wave energy is proposed on a commercial level and at a very broad scale, there is not sufficient information to assess whether the impacts will be moderate, and it is very possible that the impacts of commercial scale development will have “major” impacts on some marine mammal populations. It is possible, for instance, that coastal migrations of some marine mammals (e.g., gray whales, harbor porpoise) could be sufficiently disrupted that their migration stops, or that the migration changes in a manner that puts the population at risk. It is clear in the literature on terrestrial mammals that anthropogenic changes to a landscape sometimes prove to be insurmountable barriers to migratory behavior. A recent paper (Berger et al 2006) describes historical migratory routes of pronghorn antelope that have been abandoned. There seems to be an assumption that marine mammals will simply migrate around anthropogenic activities and use a different path to get to their destination. However, there is not a complete understanding of what constitutes a “barrier” – either natural or anthropogenic – to a marine mammal, so assumptions about avoidance of widespread activity in migratory paths should not be made. Widespread installation of alternative energy technology in the paths of marine mammal migrations may well have unintended, unexpected outcomes that go well beyond the “minor” or “moderate” impacts discussed in this document.

Response: The intent of this programmatic EIS is to provide broad information and analyses that would serve as the starting point for more detailed environmental reviews at the regional-, site-, project-, or activity-specific stages. The MMS believes that the level of information provided in this document is appropriate for this programmatic, broad-level analysis. More detailed, site-specific NEPA analyses would occur for site-specific energy development projects. It is at that stage that the MMS would be able to provide the amount of detail sufficient to adequately address the significance of project construction and operation on marine mammal migration.

Additionally, broad mitigation measures are identified in this programmatic EIS that would protect marine mammals. Additional specific, detailed mitigation would be identified and analyzed in subsequent NEPA analyses at the project-specific level.

Comment: 80087-113

Comment: 5.2.8 Marine Mammals – This section pertains to impacts to marine mammals due to site characterization, seismic surveys, construction, vessel traffic, discharge of waste, operation and decommission of meteorological, wind towers, etc. Similar information pertaining to marine mammals is contained in the various

sections/subsections; therefore, the following comments pertain to all sections (i.e., 5.3.8, 5.4.8, 7.5.2.8)

Overall, the information pertaining to potential impacts of various activities on marine mammals is overly general, with the possible exception of literature pertaining to noise impacts on marine mammals. Furthermore, without site-specific studies, phrases such as “impacts from vessel noise or construction, etc, are expected to be negligible for most species, and minor for species that are threatened or endangered” cannot be evaluated.

Text contained in this section implies that alternative energy projects will not occur within coastal waters, (i.e., OCS pertains to 3 to 200 nm); however, the wind farm proposed for Horseshoe Shoals (in Federal waters) in Nantucket Sound is certainly within a coastal habitat. Construction and vessels activity in this region can be expected to disturb gray seals (contrary to 5.2.8.2.1- 4th para.), particularly during the pupping period. The largest gray seal pupping colony in U.S. Atlantic waters is on Muskeget Island, which is located a few miles south of Horseshoe Shoals.

Response: The intent of this programmatic EIS is to provide broad information and analyses that would serve as the starting point for more detailed environmental reviews at the regional-, site-, project-, or activity-specific stages. The MMS believes that the level of information provided and impact level evaluations in this document are appropriate for this programmatic, broad-level analysis. More detailed, site-specific NEPA analyses would occur for site-specific energy development projects. It is at that stage that the MMS would be able to provide the amount of detail sufficient to adequately assess the degree of impact from the construction and operation from a specific project.

Potential impacts from the proposed wind facility at Horseshoe Shoals is subject to its own NEPA analysis. More information about that project and its NEPA process can be found at <http://www.mms.gov/offshore/RenewableEnergy/CapeWind.htm>.

Comment: 80087-114

Comment: 5.2.8.2.1, Paragraph 2 – The statement that side-scan sonar does not impact marine mammals should have references added or be deleted.

Response: The cited text refers only to physical injuries. Subsequent paragraphs acknowledge (with references) the potential for marine mammals to be impacted by the geological and geophysical surveys. Additional text (with citation) has been added identifying only temporary behavioral effects from seismic surveys using side-scan sonar.

Comment: 80087-115

Comment: 5.2.8.2.1, Paragraph 3 – Text states that there is currently no evidence that significant adverse impacts to cetaceans can be attributed to geological and geophysical surveys (USDOI/MMS 2004a). However, what is not stated is that these impacts would

most likely be sub-lethal and very difficult to assess. The absence of evidence should not be interpreted as evidence that significant impacts do not occur

Response: The sentence referred to in the comment has been revised to focus specifically on direct effects (death and physical injury). Additional revisions have been made to Section 5.2.8.2.1 so that this section now more clearly reflects the concerns expressed in the comment that noise impacts from geological and geophysical surveys to cetaceans is uncertain.

Comment: 80087-116

Comment: 5.2.8.2.2 – This section states that population effects to marine mammals are not expected, but that individuals will be affected. This would constitute harassment under the Marine Mammal Protection Act and an Incidental Harassment Authorization would have to be issued for each project.

Response: Section 5.2.8.2.2 indicates that construction noise *may* impact marine mammals. The MMS will review each project and ensure that applicants are informed of the need to acquire an incidental take or incidental harassment permit, should one be necessary, prior to commencing activities.

Comment: 80087-117

Comment: 5.2.8.2.2, Pg 5-39, last sentence – Displacement of marine mammals is an impact itself and could lead to “moderate” impacts if the displacement prevents animals from biologically important activities.

Response: The MMS agrees that displacement of marine mammals could lead to a “moderate” impact if the displacement prevents animals from biologically important activities. Where appropriate in the programmatic EIS, the MMS has drawn conclusions based on available information and generally accepted biological principles regarding the potential for effects to resource areas. The MMS has characterized the information base throughout the document so as to reflect where more information is available and where information is lacking. Also, at the project-specific stage, marine mammal use of the project area would be evaluated, and the project would be designed to minimize and mitigate the potential for mortality or disturbance of marine mammals. A number of other more specific, detailed mitigations would be identified and analyzed in subsequent NEPA analyses at the project-specific level to ensure that impacts to marine mammals are minimized.

Comment: 80087-118

Comment: 5.2.8.2.3 Vessel Traffic, Paragraph 3, Pg 5-40 – This paragraph briefly mentions large whale vessel strikes in Atlantic, Gulf of Mexico, and Pacific OCS regions. Large whales that are not explicitly mentioned (e.g., blue, sei) are considered to be rare or extralimital. However, there is no mention of the difficulty of detecting vessel collisions

with some deepwater species. Further, text in this paragraph implies that a correlation exists between species abundance and vessel strikes. Therefore, northern right whales are not listed as “species considered most likely to encounter vessels,” although vessel strikes are one of the leading causes of northern right whale serious injury and mortality.

Response: The referenced section identifies the northern right whale as one of the large whale species most frequently incurring vessel strikes. The cited text (“likely to encounter vessels”) refers specifically to “...vessels supporting the construction of meteorological towers in OCS Waters.” The programmatic EIS is evaluating potential projects that are, for the most part, in relatively shallow water (<100 m [328 ft]) and would involve very limited vessel traffic from shore to these localities. The chances of encountering a deepwater species of marine mammal is very small. The MMS agrees that the greatest concern is for the North Atlantic right whale, which may come closer to shore. At the broad level of analysis provided in this EIS, the discussion of potential impacts provides the information needed. As the MMS develops more detailed, location-specific NEPA documents, there would be a more comprehensive review and inclusion of scientific and other literature relevant to the analysis of potential vessel encounters with marine mammals. The analysis would focus upon resident and migratory species known to occur within the project area.

Comment: 80087-119

Comment: 5.2.8.3.1 Geological and Geophysical Surveys, Pg 5-42 – Marine mammals exposed to seismic surveys and exhibiting behavioral changes may be harassed. An MMPA incidental take or incidental harassment authorization will be necessary.

Response: The MMS will review each project and ensure that applicants are informed of the need to acquire an incidental take or incidental harassment permit, should one be necessary, prior to commencing activities.

Comment: 80087-120

Comment: 5.2.8.3.3, Paragraph 3 – This paragraph appears inconsistent with the fifth paragraph in the prior section on vessel traffic. Section 5.2.8.2.3 states that “it is unlikely that there would be encounters between manatees and meteorological tower construction vessels,” whereas Section 5.2.8.3.3 states that “the endangered West Indian manatee...could be injured or killed by collisions with construction support vessels.” There is there a difference between the two sections that should be clarified.

Response: The text has been revised to make these sections more consistent, specifically indicating that the construction of a meteorological tower would involve a very small number of vessel trips and would occur over a very short time period and that, therefore, the likelihood of marine mammals encountering meteorological tower construction vessels is considered to be very low. In contrast, there would be greater vessel traffic associated with actual project construction, including greater vessel traffic in coastal areas during cable placement. As a result, there would be greater potential for the

manatee to encounter and be adversely affected by project construction vessel traffic than by meteorological tower construction vessels.

Comment: 80087-121

Comment: 5.2.8.3.3, Paragraph 4 – The sentence “many of these species, such as dolphins and seals, are commonly attracted to moving vessels and spend periods of time following moving vessels or swimming with the bow waves of ships...” is an overgeneralization of the behavioral response of these animals to vessels. Further, a primary literature citation is required for the sentence “Because these species are agile, powerful swimmers, they are also capable of avoiding collisions with oncoming vessels, although some may be injured by contacting propellers while following ships.” It seems very unlikely that animals will approach moving vessels from astern and make contact with the propellers.

Response: It is commonly reported that dolphin and seal injuries occur from contact with propellers. Nevertheless, the text in the paragraph of Section 5.2.8.2.3 (listed as Section 5.2.8.3.3 in the comment) has been modified to delete the implication that this occurs as they follow ships from astern and to deemphasize the assumption that they are commonly attracted to moving vessels.

Comment: 80087-122

Comment: 5.2.8.6 Mitigation Measures – The scope of the additional general mitigation measures implies that measures will be implemented to minimize impacts on (a) marine mammals during critical life history phases, or (b) important habitats. If implemented, these should reduce the likelihood of impact on marine mammals. A mitigation measure that has not been mentioned is the need for protected species monitoring studies during all phases of potential projects. Without independent studies, it will be difficult to evaluate statements like (5.4.8.2.1, Paragraph 2), “Because most of the potentially affected marine mammals are highly mobile species, they may be expected to quickly leave an area when a survey is initiated, thereby greatly reducing their exposure to minimal sound levels and, to a lesser extent, masking frequencies.”

Response: Among the mitigation measures listed in the programmatic EIS is that marine mammal use of a proposed project area would need to be evaluated and that the project would be designed to minimize and mitigate the potential for mortality or disturbance of marine mammals. The mitigation measures included in this programmatic EIS are broad in scope. More specific, detailed mitigation would be identified and analyzed in subsequent NEPA analyses at the project-specific level.

Comment: 80087-123

Comment: 5.2.8.6 – Gray whales are not endangered; however, the proposed mitigation measure is appropriate. For many species of marine mammals, there is not sufficient information available about seasonal distribution and habitat use to reliably avoid

placement of facilities in sensitive cetacean congregation, mating, or feeding areas. This information should be collected prior to permit authorization.

Response: The word “endangered” has been deleted from all sections that discuss the gray whale, including Section 5.2.8.6. An additional mitigation measure requires that marine mammal use of a proposed project area be evaluated and that the project be designed to minimize and mitigate the potential for mortality or disturbance to marine mammals. The amount and extent of ecological baseline data to be collected would be determined at the project level.

Comment: 80087-124

Comment: 5.2.8.6 Mitigation Measures, Pg 5-47 – Measures to minimize the risk of vessels strikes should be included in this section. Also, measures to raise awareness and prevent accidental marine debris should be included. The mitigations for platform removal by explosive-severance in the Gulf of Mexico are updated to reflect the 2006 biological opinion and 2007 incidental take authorization. Some of these measures may be applicable to the alternative energy projects.

Response: The mitigation measures included in this programmatic EIS are broad in scope. More specific, detailed mitigation would be identified and analyzed in subsequent NEPA analyses at the project-specific level. As appropriate, the mitigation measures would be identified through coordination with Federal and State natural resource agencies.

Comment: 80087-151

Comment: 5.3.8.1 – MMS needs to provide an analysis in the PEIS about the potential collisions of whales with wave energy devices or with the vessels that are servicing those facilities. This could involve examining existing wave energy facilities and extrapolating impacts over a number of years and a projects number of completed facilities.

Response: Section 5.3.8.4 addresses the potential for marine mammal collisions with vessels and wave energy devices (e.g., entanglement with mooring lines). Presently, wave energy facilities are in the testing or demonstration phase with only a few devices deployed. The MMS will continue to monitor these world-wide activities as larger facilities are installed. More detailed NEPA analyses would occur at the project-specific level. Any monitoring measures required to examine impacts of a wave energy facility on marine mammals would be established at the project-specific level based on coordination with Federal and State agencies.

Comment: 80087-152

Comment: 5.3.8.4.1 – MMS states that a wave energy facility may have up to 2,500 mooring lines. As the section notes, this will pose a substantial entanglement hazard to some species of marine mammals, as well as sea turtles and other large marine species. It

will be difficult to completely avoid placing structures in areas that do not overlap with entanglement prone species. Reliable mitigation methods must be used to prevent entanglements; NOAA believes that the effectiveness of “pingers” is not sufficiently proven to achieve the mitigation that would be needed with this number of vertical lines.

There should be some analysis of risk potential associated with these components of a facility.

Based on mitigation section 5.3.8.4.6, it is unclear if pingers will be required for mooring lines or if it is a measure that may be adopted. Furthermore, if pingers are used, MMS should state how often applicant will have to test their effectiveness and reliability.

- MMS should identify which types of pingers it proposes to use.
- MMS should discuss the effects of pingers on the acoustic environment and the potential for impacting the passage of whales.

Gray whales, humpback whales, and killer whales are known to migrate and feed within the project boundaries outlined in the DPEIS. MMS should provide specific analysis on the effects of projects on known migration routes and feeding areas.

Response: The reference to 2,500 mooring lines was an error in the text, and the estimation has been revised to 2–3 moorings per device; thus, a 100-device facility would have 200–300 lines. The mitigations included in the section, including the use of pingers, are presented as possible options that may or may not be adopted. The MMS will be preparing more detailed regional, activity-specific, and site-specific analyses to develop more appropriate mitigations. In addition, as the technology evolves, the MMS will support studies of the interactions of these technologies with the marine environment and work on developing appropriate mitigation measures.

Comment: 80087-153

Comment: 5.3.8.6, Pg 5-178, Mitigation Measures – The first set of measures regarding siting of facilities is critical. NOAA fully supports these measures for all types of alternative energy projects.

Response: The MMS intends to work closely through the consultation process with the resource agencies (NMFS and USFWS) to develop appropriate mitigation measures. Although complete avoidance may not be possible, careful siting to minimize the impacts will be a part of the process.

Comment: 80087-159

Comment: 5.4.8 – This section states in a few places that marine mammals would avoid operating turbine facilities, so implies that the risk of injury or death as a result of striking

the rotors would be low. There is no evidence provided to support the assertion that the rotors would be avoided by marine mammals. The concerns raised about turbine noise possibly causing abandonment of feeding or mating grounds are valid and serious. Sufficient information about seasonal habitat use of marine mammals must be obtained to make informed decisions about where these facilities can be located in order to avoid impacts on marine mammals.

Response: As part of required mitigation, marine mammal use of the proposed project area would be evaluated, and the project would be designed to minimize and mitigate the potential for mortality or disturbance of marine mammals. The MMS will be preparing more detailed, activity-specific and site-specific analyses to develop more appropriate mitigations. As marine current technology evolves, the MMS will support studies of the interactions of these technologies with marine environment and work on developing appropriate mitigation measures.

Comment: 80087-169

Comment: 7 – This section indicates that the impacts to marine mammals could range from minor to major; NOAA concurs with this range of expected impacts. The section also states that impacts to fisheries should be negligible to minor. There is not sufficient evidence provided in the DPEIS to either support or refute that the development of large areas within the OCS for alternative energy use would cause negligible to minor impacts to fisheries. MMS should provide additional information to support this conclusion.

Response: Comment noted regarding marine mammals. The text in Table 7.1.1-1, summarizing potential impacts to fish resources and Essential Fish Habitat (EFH) has been modified.

Comment: 80087-170

Comment: Table 7.1.1-1 – For the marine mammal summary, Guadalupe fur seals do not occur in the areas being considered for testing or development of ocean current generators. The table should reflect potential impacts on the endangered North Atlantic right whale, which does occur in this area. There is insufficient information to support or refute that wind or wave facilities would not incur population level impacts.

Response: The table has been revised as suggested to include the North Atlantic right whale and to delete the Guadalupe fur seal. The last sentence that discusses potential population-level impacts from wind energy has been deleted, but other impact-level discussions for all three energy types are retained. Especially for endangered species, the loss of one or two individuals must be considered as very important and having the potential to result in population level effects.

Comment: 80090-002

Comment: Throughout the EIS the impacts of vessel strikes on marine mammals are considered to be “minor” or “moderate” (if a threatened or endangered species is involved) or generally disregarded as is the case on page ES-6 where collisions are considered to be “minor” or “negligible” [Minimal maintenance vessel activity and underwater disturbance during operations is expected, resulting in negligible to minor impacts from vessel traffic (noise and collisions with marine mammals and sea turtles)]. We believe that this grossly underestimates the impact of vessel strikes to marine mammals, and in particular, the critically endangered North Atlantic right whale throughout its habitat range.

The North Atlantic right whale is one of the most critically endangered animals on the planet with fewer than 400 remaining. It is both a federally and, in some cases, a state protected species. The Potential Biological Removal rate for this species is zero meaning that the loss of one individual, annually, from this population due to human impacts may jeopardize the continued existence of this species. Therefore, any impacts to this species should be considered major.

We believe that the data presented are misinterpreted in the EIS. For example, Laist et. al (2001) does state that most ship strikes seem to occur over or near the continental shelf. However, they also indicate that “all types and sizes” of vessels can be involved in collisions with marine mammals. Therefore, smaller coastal vessels involved in energy projects should not be discounted as having impacts. Laist et al. (2001) also acknowledges their data are biased “towards vessel types whose passengers and crew are more likely to report such events”. This is also the case with Jensen and Silber (2004), also cited in the EIS.

While both of these studies are the most comprehensive to date, they must be viewed with the caveats presented in both and not used to minimize impacts to marine mammal species. The data presented section 5.2.8.2.3 (Vessel Strikes) technically cite Jensen and Silber (2004) correctly (indicating that, internationally, finbacks as the most commonly reported species struck) but significant caveats are not considered. For instance, the mere shape of a finback may result in the likelihood it will stay wrapped on the bow of a vessel and be detected as opposed to a right whale which, due to its bulky body, will not likely wrap on the bow. As such, a reporting bias is inherent. Simply using the data as frequency data does not demonstrate the impact or risk to the species involved. Given that, according to the IUCN Red List (2007) fin whale populations likely exceed 40,000 animals and their distribution is world wide, while North Atlantic right whales exist only on the eastern seaboard of North America with a population of less than 400, the risk should not be considered equitable. In fact, vessel strikes have resulted in the deaths of at least nine right whales in the past three years (see Table 1).

It is this type of data misinterpretation used in this section to imply that right whale strikes are not significant when the EIS states The other species are rare or extralimital. Thus, among these species, the sperm whale in Gulf of Mexico and Atlantic waters, the

humpback and fin whales in North Atlantic, and North Pacific gray whale along the Pacific Coast may be considered most likely to encounter vessels supporting the construction of meteorological towers on OCS waters.” Right whales are rare in that they are a critically endangered species but, as mentioned in the previous paragraph the rate of collision for this species is extremely high given their reduced population size and limited distribution as compared to other species. Considering impacts to humpbacks, finbacks and gray whales only is an egregious error and misinterpretation of data.

Furthermore, we do not believe that mitigation measures regarding vessel strike risk are adequately addressed and, should a strike occur to a North Atlantic right whale, the EIS does not suggest any type of permit revocation or review or any other appropriate enforcement. We would expect a risk mitigation escalator clause to be included in any scheme that may go ahead.

Response: The MMS agrees that an impact to an individual of a species that is endangered, such as the right whale, is a major impact. The programmatic EIS does not underestimate the impact of vessel strikes to marine mammals (e.g., see the discussion provided in Section 5.2.8.2.3). The impacts discussions in Chapter 5, however, focus on the potential impacts from OCS energy-project-related vessel traffic, not all vessel traffic in Atlantic, Pacific, and GOM OCS waters. In comparison to the current levels of vessel traffic from all activities (commercial shipping, recreation, and commercial fisheries), the development and operation of an OCS energy project would involve a very small number of vessel trips and thus marine mammals and sea turtles may be less likely to encounter project-related vessels and incur possible collision-related injuries. On this basis (low level of vessel traffic and low likelihood of encountering a vessel), minor to moderate population-level impacts to marine mammals and sea turtles were identified.

Comment: 80090-003

Comment: Impacts of Noise to Marine Mammals - Throughout the EIS are statements implying that noise is of minimal consequence - *The noise from these limited activities is anticipated to result in negligible to minor impacts for fish, sea turtles, and marine mammals; Behavior would likely return to normal following passage of the vessel or helicopter, and it is unlikely that such short-term effects would result in long-term population level impacts for most species of marine mammals. Thus, impacts from vessel noise would be short-term and negligible; by gradually increasing noise levels over a period of time to give sensitive species time to move out of the affected area; The noise from these studies could have minor to moderate impacts on fish, sea turtles, and marine mammals; Minimal maintenance vessel activity and underwater disturbance during operations is expected, resulting in negligible to minor impacts from vessel traffic (noise and collisions with marine mammals and sea turtles).*

First, it is important to recognize that any disturbances to marine mammals would require the applicant to obtain a permit authorizing harassment as required by the Marine Mammal Protection Act (MMPA). Secondly, seals and baleen whales have hearing and

vocalizations centered on lower frequencies, such as those created by activities like piledriving (Richardson, et al., 1995).

We do not believe that the “one size fits all” acoustic impacts are appropriate and MMS cannot produce a document indicating that acoustic impacts are equivalent regardless of the proposed site location nor the activity proposed. Transmission loss can greatly affect the distance a sound source may travel. In shallow water, sound may be channeled through reflections at the surface and the bottom and refracted in a stratified water column, potentially reducing transmission loss all the way down towards cylindrical spreading (which occurs in an acoustic free-field). However, transmission loss may be higher in shallow water due to refraction and scattering effects and acoustic interactions with the surface (wave agitation) and the type of bottom sediments (Madsen, et al, 2006). Because sound propagation is so closely linked to site characteristics, there may be large differences in transmission losses between seemingly similar shallow water habitats. According to Madsen, et al. (2006), “physical measurements as well as more detailed modeling are needed for each specific construction site to reliably evaluate the effects of wind turbines on marine mammals over changing seasons and wind conditions.”

To assume that short term acoustical impacts will not result in long term population impacts is inappropriate. A study by Koschinski, et al. (2003) proposes that low frequency mating calls made by male harbor seals may be masked during wind turbine construction that could negatively impact reproduction, and therefore, have a long-term impact on population levels. The operating wind turbines may also affect right whales in the area. Nowacek et al. (2004) documented strong avoidance responses of North Atlantic right whales to tonal signals at received levels ranging from 134 to 148 dB (RMS) re 1µPa. Therefore, North Atlantic right whales may respond to noise from operating turbines at ranges up to a few kilometers in a quiet habitat (Madsen, et al., 2006). If low frequency noise emitted during operation of the turbines is aversive to marine mammals in the area, they may choose to avoid passing within the range of this sound which could exclude them from areas that may be productive in food resources (Baumgartner and Mate, 2005). Any impacts to North Atlantic right whales should be considered to be major.

Response: The intent of this programmatic EIS is to provide broad information and analyses that would serve as the starting point for more detailed environmental reviews at the regional-, site-, project-, or activity-specific stages. The MMS believes that the level of information provided in this document is appropriate for this programmatic, broad-level analysis. More detailed, site-specific NEPA analyses would occur for site-specific energy development projects. It is at that stage that the MMS would be able to provide the amount of detail sufficient to adequately address acoustic impact concerns noted in the comment above.

Also, identification of location-specific statutes, regulations, stipulations, authorizations, and mitigation measures would be conducted at the project-specific level during project-specific NEPA evaluations. This would include the Incidental Harassment Authorization alluded to in the comment above.

The MMS has included a proposed program policy to address your concerns. The policy reads:

The MMS will require the lessee to contact the NMFS and/or USFWS, depending on the marine mammal species potentially affected, to determine if authorization under the MMPA is warranted. If the NMFS and/or USFWS determine such authorization is needed, the authorization will need to be issued prior to an activity occurring under MMS authority.

Comment: 80090-004

Comment: Marine Mammal Distribution Data are Incorrect

The distribution of some of the marine mammal species presented in TABLE 4.2.8-1 are incorrect and call into question the other marine mammal species presented in this table as well as non-marine mammal species considered in the EIS. Furthermore, the data presented in the table are sometimes contradicted in the text. For example, in the table, North Atlantic right whales are considered Uncommon in the South Atlantic, Mid-Atlantic and North Atlantic. Yet the text indicates they are found in *coastal Florida and Georgia, Great South Channel, Cape Cod and Massachusetts Bays, Georges Bank/Gulf of Maine, Bay of Fundy, and Scotian Shelf*. In fact, the east coast of North America is the only known habitat for the entire species and the species it is considered to be coastal (as such they were the “right” whale to hunt) yet habitat, according to the table is not considered coastal.

Similarly, in the table, fin whales are considered occasional in South Atlantic but Uncommon in Mid-Atlantic yet this contradicts the text which states *During the winter, they appear to move farther offshore and may be found from Cape Cod to Florida (Blaylock 1985). There is evidence that fin whales calve in the mid-Atlantic region*. It does not appear that stranding, nor sightings data were included in this assessment indicating the species is found in the mid-Atlantic (Wiley et al 1994, S. Barco, pers.Comm.)

These types of errors are also apparent for humpback, sei and minke whales. According to the table, Humpback whales are considered Uncommon throughout the east coast and are not considered to be a coastal species. Yet, the text correctly indicates that *During the summer, humpback whales congregate on feeding grounds located in the Gulf of Maine, the Great South Channel, Georges Bank, and Stellwagen Bank (NatureServe 2006; Waring et al. 2006). Humpback whales may be observed migrating north offshore of the Atlantic States during mid-to-late spring and mid-to late fall. Humpbacks are rarely observed inshore north of North Carolina, but from Cape Hatteras south to Florida, inshore sightings occur more frequently. Humpback whales feed on concentrations of krill and fish (Whale Center 2005; ACS 2004e)*. Minke and sei whales are also considered to be Uncommon in the North Atlantic, according to the reference Table. Yet, according to the Stock Assessment Reports, minke whales are “common” and “widespread” in New

England waters (SAR 2007) and sei whales are found in the “northern portions of the US EEZ” (SAR 2005).

It is unclear how the data were obtained and analyzed for the Table when the NMFS Stock Assessment Reports directly conflict the information presented (as does the EIS text in some places). Furthermore, neither stranding data nor data obtained via commercial whale watching, which occurs throughout the mid-Atlantic and Northeast US, was considered in the distributional analyses.

It is also unclear as to how the EIS points out in TABLE 4.2.15-1, the number of Marine Protected Areas in the Atlantic Region that are closed or have restrictions, in large part, because of the presence of marine mammals, while at the same time indicating the species are uncommon in these regions.

The inclusion of the population figures is also misleading. While the EIS text states that *The overall North Atlantic (humpback) population is estimated at 8,000 individuals (Whale Center 2005). Current data suggest that the North Atlantic Gulf of Maine humpback whale stock is increasing (Waring et al. 2006)*. This estimate is for the entire North Atlantic, not the discrete population managed by the National Marine Fisheries Service in US waters which is estimated to be 902 (SAR 2007b). This is true for other species as well. Sei whale populations are only considered for world wide distribution, not for the stock which would be impacted by proposed facilities and is managed by the National Marine Fisheries Service.

Again, these are but a few of the examples of incorrect data presented and is a call to question all of the distributional information provided in the EIS.

Response: The information presented in Chapter 4 is intended to provide an overview of the marine mammal species that occur in MMS OCS waters and thus could be affected by the development of energy projects in those waters. Detailed descriptions of individual locations and biological resources are beyond the scope of this programmatic EIS, but would be provided as part of any future project-specific NEPA evaluations. Baseline information on the use of proposed project sites by marine mammals and other biota would be required for all proposed projects. It is at this time that detailed information would be obtained regarding which species of marine mammals use the project area, as well as how and when these area are used by these organisms.

The omission of coastal habitat for the right whale has been corrected. However, the occurrence information is correct and does not conflict with the text. The text correctly indicates that species may be found in suitable habitats throughout the Atlantic Coast, but the fact that the current population estimate for this species is below a thousand animals for the entire North Atlantic argues in support of an “uncommon” categorization. One reason that this species has been reported from Florida to the Scotian Shelf is that this is a migratory species that winters off the southeastern U.S. coast and summers in waters off of New England and northward.

While the fin whale may move farther offshore in winter, it is still considered to be present in mid-Atlantic. The fin whale discussion is based on information found in the 2006 Marine Mammal Stock report, which incorporates stranding and ship strike information, line-transect survey data, and whaling records.

The occurrence categories presented in the tables represent broad generalizations for the entire region (mid-Atlantic, north-Atlantic). The MMS recognizes that local congregations of many of the species listed in these tables occur, and in some areas these congregations may be regular occurrences. However, when viewing the species (and individual stocks) as a whole, together with population estimates, the MMS believes that the occurrence categorizations presented in the tables are broadly accurate.

While the Stock Assessment Reports indicate that the minke whale is common in New England waters, the North-Atlantic region evaluated in this programmatic EIS extends as far south as Delaware, and minke whale abundance south of New England is uncommon to occasional. On this basis, an overall “uncommon” categorization was provided for the minke whale. The programmatic EIS does identify the sei whale as occurring in North-Atlantic waters, which corresponds to the “northern portions of the US EEZ.”

The tables and text do not conflict with the Stock Assessment Report, but do not break down Atlantic waters into the same groupings as the MMS Atlantic regions.

Many of the protected areas are closed or restricted because these areas are important to listed marine mammal species. While there may be many such areas, these do not directly relate to abundance of individual species but rather to the importance of these areas to species of concern.

Comment: 80090-005

Comment: Marine Mammal Entanglement Mitigation is Misguided

According to the EIS, *Impacts to threatened and endangered marine mammals would be minor to major if individuals were lost due to entanglement in moorings. Entanglement potential may be reduced through the use of sonic pingers.* While we do agree, particularly in the case of the North Atlantic right whale, that entanglement issues should be considered to be major, the assumption that “sonic pingers” are a mitigation measure to reduce entanglement risk across all species and fisheries is highly misleading. In fact, pingers are only used as a mitigation measure to reduce the risk of entanglement to harbor porpoises in gillnets. Large whale entanglements in fixed fishing gear and mooring lines are common and there is no evidence that large whales can hear, or would respond in a manner to avoid the hazard, to sonic pingers.

As a current member of the Atlantic Large Whale Take Reduction Team, I can unequivocally state that the issue with lines in the water column is not easily resolved and

there is currently no accepted proposed solution as to how to reduce entanglement risk from a buoy line, or any similar type of line that stretches throughout the water column.

Response: Your concern about this mitigation is noted. The programmatic EIS is taking a look at a broad range of possible mitigation measures that may or may not be incorporated for specific projects. In some cases, the most appropriate mitigation measure will depend on the type of technology, the location, and the species that may interact with the technology. Therefore, some mitigation measures must be developed for site-specific activities and in coordination with the appropriate Federal and State resource agencies.

Comment: 80096-017

Comment: Response 17 - Section 5.4.8.4.3 details the entanglement with mooring lines of marine life. These mooring lines are likely to be very taut and entanglement may not be an issue. However, collision with these lines may result in severe injury and large animals may become trapped against mooring lines by the forces of the current. As well, the vibration of the mooring lines needs to be considered in the EIS.

Response: The programmatic EIS has been revised to acknowledge that large marine mammals could collide and become entangled with mooring cables, and thus incur injury or death.

While mooring cables may be a source of vibration-induced noise that could be perceived by marine mammals, it is unknown if or to what extent marine mammals may respond or be affected.

Comment: 80106-002

Comment: Definitions of Impact Levels: Section 5.1 of the document identifies the criteria used to define impacts as “negligible,” “minor,” “moderate,” or “major.” However, for many issue areas evaluated in the document, the type and extent of impacts described do not match the assigned impact level. For example, many of the potential activities described in the document would result in the take of marine mammals, would cause substantial adverse effects on species listed as endangered or threatened, or would otherwise adversely affect fully protected species; yet, for the most part, the document describes these adverse effects only as ranging from “negligible” to “moderate.” Section 5.2.5, for instance, states that some activities could cause marine mammals to avoid large areas of habitat or could cause permanent hearing loss, yet these impacts are described only as “minor” to “moderate.” Since both these effects would be considered “take” (under the Marine Mammal Protection Act, or MMPA) and since hearing loss would likely lead to the death of the affected animals, these activities should instead be described as causing “major” impacts. It appears that the document describes only one impact to marine mammals as “major” — their potential entanglement in the many mooring lines that would be used to secure wave energy devices. However, as is evident from past reviews of proposed OCS activities, and as is evident from ongoing OCS

activities and studies, there is much more potential for major adverse impacts to marine mammals and to other ocean resources than are described in this PEIS.

We note, too, that the document barely addresses concerns related to cumulative impacts. These should be evaluated as part of nearly every issue area in the PEIS.

Response: The definitions presented in Section 5.1 have been revised to more clearly indicate that for biological resources the impact levels refer to population-level impacts rather than impacts to individuals, and are based on the application of appropriate mitigation measures. The impacts discussions do acknowledge that individual organisms may be injured or killed by some of the impacting factors (rotor strikes, collisions with construction vessels), but the overall impact levels are population-based. However, for listed species such as the North Atlantic right whale, the impact analyses acknowledge that even the loss of a single individual may result in a major population-level impact. Because many of the resources evaluated in this programmatic EIS do not fall under the MMPA, the term “take” is not used in the impacts discussions.

Cumulative impacts are addressed in Section 7.6 of the programmatic EIS.

Comment: 80106-007

Comment: Noise in the marine environment: The document inappropriately minimizes the effects of noise on marine mammals. Although Section 4.2.5 provides a good discussion about sound in the marine environment, subsequent sections of the document downplay the effects of project-related sounds on marine life. For example, and as noted above, Section 5.2.5 states that effects on marine mammals could range from avoidance of large areas to permanent hearing loss, yet these impacts are described only as “minor to moderate.” Marine mammals would likely die due to a loss of hearing caused by these activities, so activities causing this impact should clearly be considered “take” under the MMPA and therefore considered to cause a “major” impact. The document also describes some activities that are likely to cause marine mammals to avoid substantial areas of ocean, which should also be categorized as a “major” impact, particularly if their avoidance would affect migration, breeding, or other critical life stages.

Response: The MMS is aware that some activities may result in increased sound, particularly during construction, that could lead to major impacts depending on the type and status of the species. However, the activities that produce sound are all temporary, lasting days to months. As a policy, the MMS would require that a qualified observer approved by the MMS and NMFS be present during the sound-producing activities to minimize the impacts to marine mammals and sea turtles.

Comment: 80118-055

Comment: Pages 5-46, 5-178, & 5-292, Sections 5.2.8.6, 5.3.8.6, & 5.4.8.6 respectively, Marine Mammals Mitigation Measures: We recommend a mitigation measure be added to ensure ESA consultation will take place for the federally-endangered West Indian

manatee (*Trichechus manatus*). Vessel strikes in inland waterways are a major cause of death in the manatee population [United States Fish and Wildlife Service 2001]. As noted in section 5.2.8, manatees could encounter OCS-related vessels traveling between construction sites and inland harbors and marinas. We have enclosed our Standard Manatee Conditions and Procedures for Aquatic Construction [United States Army Corps of Engineers (Corps), Service, and Georgia Department of Natural Resources (GDNR) 2003], Standard Manatee Conditions for Blasting (Corps, Service, and GDNR 2003), and Manatee Standard Conditions for Marinas/Docks/Piers (Corps, Service, and GDNR 2005) used within Georgia for your review (see Attachment 4). However, the timing restrictions included in these conditions may need to be adjusted for areas outside the State of Georgia if they are used rangewide.

Response: Thank you for the information about the manatee. This programmatic EIS is a first look at the potential impacts from these new technologies and is being used by the MMS as a planning document and in support of the establishment of the new Alternative Energy and Alternate Use Program. Subsequent regional- and site-specific NEPA documents will be prepared. It is at that stage that the MMS will be able to provide the amount of detail sufficient to adequately address mitigation of impacts to the West Indian manatee, should the site-specific project occur within the range of that species. The MMS will consult with the USFWS and/or NMFS under Section 7(a)(2) of the ESA to ensure that activities do not jeopardize the continued existence of listed species or adversely modify their critical habitat (if designated). The MMS will review each project and ensure that applicants are informed of the need to acquire an incidental take or incidental harassment permit prior to commencing activities, should such permits be necessary.

B.2.16.9 Marine and Coastal Birds

Comment: OCS24-003

Comment: In Section 7.5.2.9 – you see I did read this. The PEIS states that 200,000 birds die each year in collisions with offshore oil and gas platforms and they have not provided mitigation as of yet. With wind turbines, mitigation exists for collisions at the launch or offshore wind farms over in Europe and have proved successful. This should be taken into consideration when the GEIS is modified and expanded.

Response: Section 5.2.9.6 identifies a number of mitigation measures that may reduce the likelihood of potential impacts to birds. In addition, the programmatic EIS identifies a number of BMPs that address potential impacts to birds. Among these BMPs is direction to design the project to minimize or mitigate the potential for bird strikes. It is expected that effective mitigation measures that have been implemented at European projects will be closely examined and incorporated as appropriate for future wind facilities on OCS waters.

Comment: OCS66-001

Comment: Many of these avian travelers move along the shoreline--my concern is the impact of collisions with turbines off shore with migrating inland birds as well as marine and coastal birds. I support alternative energy and see that it is long overdue, however, I also support our ecodiversity and did not want to threaten it any more than the overdevelopment impact we've suffered here.

Response: Comment noted. Additional text discussing potential impacts to migratory terrestrial birds from tower and rotor collisions has been added to Section 5.2.10.4. A mitigation measure to avoid siting facilities in areas of known high migratory bird use has been added to Section 5.2.10.6. In addition, the MMS has identified a BMP that includes the evaluation of avian use (which would include migratory use) of the project area and the design of projects to minimize or mitigate the potential for bird strikes.

Comment: OCS74-002

Comment: Also, you will get all of the environmentalists on your back because of the birds that fly into them and get killed, as they did in California. A few Eagles gone, not to mention all of other species, and all of your wind mills will sit just as they do in California, with less sightseers

Response: Thank you for your comment. The MMS is using this EIS as part of its alternative energy program to identify the adverse environmental impacts posed by alternative energy development on the OCS, along with effective mitigation measures. Identification of such impacts includes lessons learned from prior experience.

Comment: OCS77-001

Comment: I am Chairman of the Lower Laguna Madre Foundation. These are my comments relating to the possible location of wind turbines in the offshore waters of the Gulf of Mexico in and near South Texas.

The Lower Texas Coast is a primary migration route for numerous threatened, endangered as well as many other bird species important not just to South Texas but the entire Western Hemisphere. As such extraordinary care must be taken when choosing suitable locations for wind turbine and other such structures.

As Chairman of the LLMF I urge you to take the importance of this unique area into consideration when performing an EIS for this location.

For the record please note that the LLMF opposes the construction of any wind turbines in and near this very sensitive area.

Response: Thank you for your comment. Future projects proposed for this area would undergo project-specific NEPA environmental analyses, as well as consultation and

coordination with the USFWS and NMFS. The areas and concerns that you identify would be fully evaluated in the project-specific analyses.

Comment: OCS80-002

Comment: Further, we are very concerned that the species accounts for marine mammals and birds in Chapter 4 (The Affected Environment) are inappropriately sparse and contain inaccurate information. This, in turn, leads to an inadequate context into which risk is assessed in Chapter 5. The result of this is that, even though the most common mitigation measure suggested throughout the document is siting in risk averse locations, potential developers are given inadequate information to assist them in choosing sites or technology with the least risk. We are concerned that the analysis is so general that it leaves those considering development of the OCS with little more information than they had prior to the construction of this DEIS and forces developers to use the same ad hoc approach that has been necessary up to this point. This is very disappointing and likely to lead to a continuation of the contention and litigation that has marked attempts to develop most sites in the OCS.

Response: In the absence of specific energy projects at specific locations, it is not possible for the programmatic EIS to present species-specific analyses. To include in Chapter 4 a presentation of species-specific accounts for the hundreds of species that occur along the Atlantic, Pacific, and GOM coasts and adjacent OCS waters would far exceed the programmatic nature of the proposed action and the EIS. The programmatic EIS clearly acknowledges the great diversity of biota in these areas and identifies the types of impacts that might be incurred in all project phases. In the absence of project-specific siting and design details, individual species accounts would provide limited information for evaluating the proposed action. The MMS has identified a number of proposed BMPs that would strongly guide developers and regulators in the siting, design, approval, construction, operation, and decommissioning of future energy projects. Many of these BMPs specifically target the minimization or avoidance of impacts to biological resources, including marine mammals and birds. In addition, as energy technologies evolve, the MMS will support studies of the interactions of these technologies with the marine environment and work on developing appropriate mitigation measures.

Comment: OCS80-004

Comment: Chapter 4 The Affected Environment: This chapter is long, yet entirely inadequate in the information it provides regarding the abundance and distribution of wildlife. As we outline below, much of the information that is provided is either inadequate or inaccurate (e.g., information on the distribution and frequency of use of habitat types by birds and marine mammals). It provides little or no information on the flight characteristics of various classes of birds that make them vulnerable either to in-air collisions or in-water risk from bladed turbines. The use of coastal habitats by marine mammals on the east coast is largely dismissed, and key information on stock structure (and thus localized risk) is not included. Given the controversy that has dogged many individual OCS energy proposals, we are very disappointed at the superficial treatment of

marine wildlife. We were under the impression that this chapter would provide in-depth information that would prevent each developer from having to reinvent the proverbial wheel each time a project is proposed. It does not. The DEIS, in essence, leaves it up to each individual project proponent to determine for him or herself what constitutes an appropriate site and leaves it up to them to determine site-by-site what risk a particular technology poses by itself or in conjunction with other proposals. This is no improvement over the current situation and thus may perpetuate current controversies.

Response: In the absence of specific energy projects at specific locations, it is not possible for the programmatic EIS to present species-specific analyses. To include in Chapter 4 a presentation of species-specific accounts for the hundreds of species that occur along the Atlantic, Pacific, and GOM coasts and adjacent OCS waters would far exceed the programmatic nature of the proposed action and the EIS. The programmatic EIS clearly acknowledges the great diversity of biota in these areas and identifies the types of impacts that might be incurred in all project phases. In the absence of project-specific siting and design details, individual species accounts would provide limited information for evaluating the proposed action. The MMS has identified a number of proposed BMPs that would strongly guide developers and regulators in the siting, design, approval, construction, operation, and decommissioning of future energy projects. Many of these BMPs specifically target the minimization or avoidance of impacts to biological resources, including marine mammals and birds. In addition, as energy technologies evolve, the MMS will support studies of the interactions of these technologies with the marine environment and work on developing appropriate mitigation measures.

Comment: OCS80-015

Comment: 5.2.9 Marine and Coastal Birds - The statement that the nature and magnitude of effects depends on the specific location of the offshore wind park and its associated infrastructure is entirely accurate. Indeed, as real estate agents have long been reported to say, it is all about “location, location, location.” Some sites may be highly risk prone if they are in wintering areas for waterfowl or are traversed by high numbers of passerine migrants. For that reason, it is disappointing that the DEIS does not contain more specific information in Chapter 4 on the distribution of birds and their high use habitats.

The impacts discussed under 5.2.5.2 and 5.2.9.3 appear founded (e.g., possibility of increased energetic costs reducing body condition, displacement for short or long-term, reduced foraging efficiency, etc) and we appreciate the admission that “it is not possible to identify how birds would be affected.” Section 5.2.9.4.1 discusses collision risk and concludes that “it is not possible to estimate the collision rate for offshore turbines, as this would depend on the specific location of the facilities and the marine and coastal birds that occur in or migrate through the surrounding areas.” This is also true. Yet the DEIS does not appear to provide a specific recommendation as to what type or duration of “surveys of coastal and offshore areas” should be undertaken. Further, the nature and recommended methodology for the surveys is not suggested. Aerial and vessel surveys serve different purposes. Radar or acoustic monitoring may provide clearer notions of the degree of use. There should be a discussion of the merits of various appropriate survey

technologies. Further, because of inter-annual variability in habitat use patterns, more than one year of monitoring is warranted but this is not a recommendation.

The mitigation measures are so generic in nature that they could be satisfied by a few weeks of day-time monitoring by small boats during a single year that could fail to detect key species or areas at greatest risk. Nor does the DEIS attempt to define “areas of low bird abundance or use” as the second bullet recommends. What is “low?” This is entirely subjective and thus of no use; one person’s notion of reasonable avian risk may well be another’s idea of avian genocide.

Section 5.2.10.4 on risk to terrestrial biota should expand its discussion of risk to bats which are known to migrate across water in coastal areas and have been placed at significant risk in terrestrial wind facilities. In particular silver-haired and hoary bats have been observed far offshore (Kunz, 2005)

Response: Chapter 4 presents an overview of the avian fauna that may occur along the Atlantic, Pacific, and GOM coasts and associated OCS waters. Given the programmatic nature of the EIS, more specific information on the species and their habitats is not appropriate. More detailed information would be presented as part of project-specific NEPA analyses.

The mitigation measures presented in the programmatic EIS, although broad in nature, identify types of activities, actions, and design considerations that, if implemented at the project level, could minimize or mitigate impacts to applicable biota. Based, in part, on these mitigation measures, the MMS has developed a number of BMPs for future energy projects proposed for OCS waters. Among these BMPs are surveys of project areas to determine the level of use by aquatic and terrestrial biota. The amount of baseline ecological data that would be required, as well as the methods and study design that would be used, would depend on the biota of interest, the size of the project area, the availability of existing data, and the type of project being considered, and thus could be determined only on a project-by-project basis.

Section 5.2.10.4 has been expanded to include migrating bats.

Comment: OCS80-017

Comment: 5.3.9 Marine and Coastal Birds - Section 5.3.9.4.4 discusses collision risk and states that “because of the relatively small number of mooring cables that may be used with each wave energy device, relatively few birds may be affected.” But section 5.3.8.4.1 (page 176) stated that “wave energy facilities may have as many as 2,500 mooring lines securing the wave energy devices to the ocean floor.” These two statements would seem at odds with one another. If each device has a relatively “small number” of cables, having 2,500 cables for a facility would mean that there is an extremely large number of the devices and thus the risk of striking a cable is not small, as is acknowledged in the discussion of risk to marine mammals. The DEIS should reconcile these statements.

The mitigation measures described in 5.3.9.6 seem appropriate, but we reiterate our comment under wind facilities that “low bird abundance” is relative and MMS would greatly facilitate risk avoidance if this document identified high risk areas or land areas where bird abundance is not “low.” Our comments on pre-construction habitat surveys for wind facilities are also appropriate in this section.

Response: The text and impact discussion correctly points out the very small number of cables that would be associated with each wave energy device. The number of potential mooring cables used at a wave energy facility has been revised from 2,500 to 200 to 300 (i.e., 2 to 3 cables per device, 100 devices per installation). In addition, diving birds foraging at a wave energy facility would only be expected to encounter those cables at the diving location. It is assumed that the diving birds would not visit each and every wave energy device during a foraging event, but rather would forage in very few locations, especially if abundant forage is encountered. In contrast, marine mammals (as discussed in Section 5.3.8.4.1) swimming through a wave energy facility during migration could encounter multiple cables associated with many wave energy devices over a relatively short period of time.

The MMS will require (via a BMP) evaluations of the level of use by marine and coastal birds of any proposed project areas. The results of these evaluations will then be used to site and design individual projects in order to minimize or mitigate impacts to marine and coastal birds.

Comment: OCS80-020

Comment: Section 5.4.9.4 discusses risk to diving birds. For some species, such as pelicans and gannets, the risk of collision with, and death from, the rotating blades may be more than minor. Cormorants and other underwater foragers may also be at considerable risk. We also reiterate our comments on mitigation measures under Wind Energy. Section 5.4.9.6 cannot reasonably recommend avoiding areas if they are not adequately identified, nor should MMS assume that there is a universal understanding of the term “low bird abundance or use.” Further, the DEIS should recommend ideal survey methodologies and multiple years of data gathering to account for interannual variability.

Response: The impact levels used in the programmatic EIS are presented in Section 5.1. The impact-level definitions have been revised to clarify that the impact levels, when applied to biota, reflect population-level impacts rather than impacts to individual organisms. On the basis of these impact levels, birds such as pelicans and cormorants encountering a moving rotor would likely receive fatal wounds. However, on the basis of bird strike estimates from land-based wind facilities and offshore wind facilities in European waters, the number of individuals encountering rotors is expected to be relatively low and not result in population-level impacts to the affected species. Thus, a “minor to moderate” impact level is identified.

Potential impacts to threatened and endangered species of marine and coastal birds from wind energy technology testing, site characterization, construction, operation, and

decommissioning would be similar in nature to the impacts identified for nonlisted species, and could range from negligible to major, depending on the species affected and the nature, duration, and magnitude of the affect. Compliance with the ESA regulations and coordination with the NMFS and USFWS would ensure that project activities would be conducted in a manner that would greatly minimize or avoid impacting listed species or their habitats.

Specific survey study design and duration to evaluate bird abundance and use of a project area would be determined at the project level and is outside the scope of this programmatic EIS.

Comment: OCS83-005

Comment: (vi) Bats. Although bats are periodically seen aboard sea vessels and in and around coastal areas, there is very little information about how or if these species utilize areas off the coast for migration or foraging. DGIF recommends consideration of bats and research into how they use coastal and offshore areas and what, if any, impacts upon them may result from a wind energy project.

Response: Potential impacts to bats are discussed in Section 5.2.10.4. Additional text has been added acknowledging that migrating bats may, on occasion, be driven to offshore OCS waters by prevailing winds and thus encounter wind towers and rotors. The text acknowledges that although the frequency of bats occurring over OCS waters is unknown, it is likely to be very low, and potential population-level impacts would be negligible. In addition, as technology evolves, the MMS will support studies of the interactions of these technologies with biological resources and work on developing appropriate mitigation measures.

Comment: OCS83-007

Comment: (i) Impacts on Sea Ducks and Seabirds. - Given the high occurrences of sea ducks and seabirds in this area, it is likely that these species would be most susceptible to turbine collision fatalities or loss of important foraging and wintering habitat due to turbines and associated disturbances. It is also possible that the turbines may form a barrier along migration routes causing birds to alter their course significantly, which may result in the depletion of critical energy reserves. DGIF recommends that any applicant and/or MME perform research into exactly how areas offshore of Virginia are used by these species and how these species and their habitats may be affected by the installation and operation of wind turbines.

Response: The MMS has identified a BMP that requires evaluation of avian use (which could include sea ducks and sea birds) of a proposed project area, and project design that minimizes or mitigates the potential for bird strikes. Section 5.2.9 discusses the types of potential impacts that might be incurred by sea ducks, sea birds, and other avifauna. More detailed evaluations would be conducted at the project level. In addition, as technology

evolves, the MMS will support studies of the interactions of these technologies with biological resources and work on developing appropriate mitigation measures.

Comment: OCS83-008

Comment: (ii) Impacts on Birds and Bats. - It is not clear what impacts a wind project may have on birds and bats that are closely associated with the barrier islands and seaside lagoon system. Research is needed to determine which of these species occur in the project area, the role nearshore habitats play in the life history of these species, and what kind of flight behavior they exhibit over these waters.

Some migratory landbirds mentioned above may select flight paths that could intersect with a wind energy project off shore. Depending on the siting of the turbines, this could put them at considerable risk of collision fatalities, especially since they will likely be flying at lower elevations prior to making landfall or following takeoffs.

Response: The types of impacts that could be incurred by birds and bats on barrier islands would be similar to the impacts identified to birds and bats in Sections 5.2.9 and 5.2.10. What would differ would be the individual species affected, the population status of the affected species, the number of individuals of each species affected, and the nature of the affect (noise disturbing roosting or nesting, collisions with rotors). In addition, facilities would be located 3 nautical mi (3.5 mi [5.6 km]) or more from shore and, therefore, species likely to encounter turbines would not necessarily be shorebirds that normally nest and feed on barrier islands, coastal beaches, and seaside lagoons. While some species may also be displaced to such distant offshore waters by storm events or weather fronts, the displacement of specific species by such conditions would not be expected to be a regular occurrence but rather an infrequent event.

The MMS has developed BMPs that would evaluate bird use (including migratory bird use) of project areas and design projects to minimize or mitigate potential impacts.

Comment: OCS83-034

Comment: Lastly, there are bats. Although bats are periodically seen aboard sea vessels and in and around coastal areas, there is very little information about how or if these species utilize areas off the coast for migration or foraging. We recommend consideration of bats and research into how they use coastal and offshore areas and what, if any, impacts upon them may result from a wind energy project.

Response: Potential impacts to bats are discussed in Section 5.2.10.4. Additional text has been added acknowledging that migrating bats may, on occasion, be driven to offshore OCS waters by prevailing winds and thus encounter wind towers and rotors. The text acknowledges that although the frequency of bats occurring over OCS waters is unknown, it is likely to be low, and potential population-level impacts would be negligible. In addition, as technology evolves, the MMS will support studies of the

interactions of these technologies with biological resources and work on developing appropriate mitigation measures.

Comment: OCS83-036

Comment: Given the high occurrences of sea ducks and seabirds in this area, it is likely that these species would be most susceptible to turbine collision fatalities or loss of important foraging and wintering habitat due to turbines and associated disturbances. It is also possible that the turbines may form a barrier along migration routes causing birds to alter their course significantly, which may result in the depletion of critical energy reserves. We recommend that any applicant and/or MME perform research into exactly how areas offshore of Virginia are used by these species and how these species and their habitats may be impacted by the installation and operation of wind turbines.

Response: The MMS has identified a BMP that requires evaluation of avian use (which could include sea ducks and sea birds) of a proposed project area, and project design that minimizes or mitigates the potential for bird strikes. Section 5.2.9 discusses the types of potential impacts that might be incurred by sea ducks, sea birds, and other avifauna, and more detailed evaluations would be conducted at the project level.

Comment: OCS83-037

Comment: It is not clear what impacts a wind project may have on birds and bats that are closely associated with the barrier islands and seaside lagoon system. Research is needed to determine which of these species occur in the project area, the role nearshore habitats play in the life history of these species, and what kind of flight behavior they exhibit over these waters.

It is possible that a portion of the migratory landbirds mentioned above that are going to or dispersing from migratory stopover sites may select flight paths that could intersect with a wind energy project off shore. Depending on the siting of the turbines, this could put them at considerable risk of collision fatalities, especially since they will likely be flying at lower elevations prior to making landfall or following takeoffs.

Response: The types of impacts that could be incurred by birds and bats on barrier islands would be similar to those identified for birds and bats in Sections 5.2.9 and 5.2.10. What would differ would be the individual species affected, the population status of the affected species, the number of individuals of each species affected, and the nature of the effect (noise disturbing roosting or nesting, collisions with rotors).

The MMS has developed BMPs that would evaluate bird use (including migratory bird use) of project areas and design projects to minimize or mitigate potential impacts.

Comment: 80052-020

Comment: Section 5.3.9 on marine and coastal birds does not indicate the possible impact of devices by encouraging perching and roosting by marine and coastal birds, except in the mitigation measures (see page 5-184). For consistency, MMS should also indicate this as possible impact of projects and provide information on the anticipated level of impact during operation and decommissioning of devices.

Response: Perching and roosting alone would not be expected to adversely affect marine and coastal birds. Section 5.3.9.4.4 discusses the potential for birds to be injured from collisions with underwater mooring cables and wave energy devices. To reduce the potential for birds diving near wave devices, a mitigation measure is included in Section 5.3.9.6 that calls for the use of antiperching devices or audio devices to deter birds from perching on or foraging within the immediate vicinity of the wave energy devices. Similar “antiperching” mitigation measures are identified for wind energy (Section 5.2.9.6) and current energy (Section 5.4.9.6) devices.

The programmatic EIS discusses potential impacts from project decommissioning in Sections 5.2.9.5, 5.3.9.5, and 5.4.9.5.

Comment: 80058-019

Comment: CESA disagrees with the PEIS recommendations to “avoid locating facilities in areas of known high migratory bird use” and “reduce or stop operation of turbines that are located directly in migration paths during peak migration periods.” (5-54). There is insufficient information to indicate that offshore wind projects will have significant impacts on migratory birds or that areas with migratory bird use should be off-limits to development and year-round operation. Rather, early OCS wind projects should be monitored to determine if offshore wind projects pose a significant risk to migratory bird species before establishing such a blanket siting restriction.

Recent studies in Europe support this perspective. In the recent Danish study of two major offshore wind farms, Danish Offshore Wind Environmental Issues (November, 2006), radar, infra-red and video monitoring and visual observation confirmed that most of bird species showed avoidance responses to offshore wind farms, although responses were highly species specific. Birds tended to avoid the vicinity of turbines and there is considerable avian movement along the periphery of the Danish offshore wind farms. *Id.* at 15. According to the Danish study, slightly extended migration distances are unlikely to produce consequences for any avian species. Although bird displacement represents habitat loss, it is important to assess the loss in terms of the proportion of potential habitat affected relative to the areas which remains outside the project. For most species, the proportion lost will be relatively small and therefore of little biological consequence.

Response: The recommendations identified by the comment are presented in the programmatic EIS not as a “blanket siting restriction,” but rather as a mitigation measure that, if implemented, may reduce the likelihood of adverse effects on birds. This

mitigation measure is proactive in nature, in contrast to the comment recommendation to proceed with a project and then monitor to determine if the project proposes a significant risk to migratory birds.

While the Danish study shows that many birds migrate through the study area to avoid the wind facility, many birds (as evidenced by the radar tracks) continued to fly into the wind facility, where they would have been at risk of collision with the towers and/or rotating turbines. In addition, the report acknowledges that avoidance responses of migratory birds are “highly species specific, that individuals show different responses to wind farms and that all birds can potentially enter wind farms.” Among the species noted to show no signs of avoidance were cormorants and greater black-backed and herring gulls, which are common in many U.S. coastal waters. While the Danish study suggests that the increased energetic costs that may be incurred by avoidance response of some species would not be expected to have any major consequences to any affected species, this may not be the case for species undergoing very long-distance migrations across the GOM. Many species crossing these waters undergo extreme energetic costs without needing to alter their flight routes to avoid offshore wind facilities.

Comment: 80068-001

Comment: Weaknesses include: a tendency to minimize adverse impacts with regard to migratory birds and fisheries.

Response: Comment noted. Migratory bird use of Atlantic, GOM, and Pacific OCS waters is discussed in Sections 4.2.9.3, 4.3.9.3, and 4.4.9.3, respectively. Mitigation measures that call for avoiding the siting of energy facilities in areas of high migratory bird use are included in Sections 5.2.9.6, 5.3.9.6, and 5.4.9.6. Additional text regarding impacts to migratory birds has been added to Sections 5.2.9, 5.3.9, and 5.4.9, and to Sections 5.2.10, 5.3.10, and 5.4.10.

Comment: 80068-031

Comment: 1. Impacts on migratory birds (including endangered species), which are characterized as moderate. This should probably be upgraded to moderate to major.

Response: The primary potential impact to migratory birds would be from the collision of birds with offshore above-water infrastructure (wind turbines and current energy support structures). Additional discussion of impacts to migratory birds to this infrastructure has been added to the terrestrial biota Sections 5.2.10.4 (wind energy operations), 5.2.10.6 (wind energy mitigation measures), 5.4.10.4 (current energy operations), and 5.4.10.6 (current energy mitigation measures). Text discussing potential impacts to marine and coastal threatened and endangered bird species has been added to Sections 5.2.9, 5.3.9, and 5.4.9. The summary impact level for migratory birds presented in Table 7.1.1-1 has been revised from “minor to moderate” to “minor to major.”

Comment: 80070-010

Comment: Our understanding of the temporal and spatial use of the OCS to migrating and wintering birds, particularly those considered pelagic, is very cursory. Large numbers of Northern Gannets, common and red-throated loons, black scoters, and lesser scaup winter in Georgia's offshore waters. The southeast OCS is the winter habitat of large numbers of red phalarope. A survey and monitoring project using advanced sonar systems is recommended to determine use patterns and help predict potential negative impact to bird populations of Georgia's OCS, particularly from wind turbines, before any development projects are initiated.

Response: The MMS has identified a BMP that calls for the evaluation of avian use of a project area prior to initiation of project development. This BMP would apply to all projects proposed for Atlantic, Pacific, and Gulf of Mexico OCS waters.

Comment: 80077-001

Comment: I am very concerned about neotropical migratory birds, falcons, birds of prey, ducks and geese and shorebirds, all bats which use important flyways which are of HEMISPHERIC IMPORTANCE which pass through the gulf coast area of Texas. The proposed wind power facilities WILL IMPACT these populations. At present, there is a plan for 600 TURBINES along the Laguna Madre and Baffin Bay on the Kenedy Ranch which will in combination with offshore facilities spell devastation for migrating birds and bats. The US must honor the Migratory Bird Treaty and these facilities will affect this in a major way.

Response: The MMS recognizes the potential for OCS energy projects to affect migratory birds, as well as its responsibilities under the Migratory Bird Treaty Act. Potential impacts to migratory birds as well as possible mitigation measures to minimize or avoid potential impacts are discussed in several sections of Chapter 5. In addition, the MMS has identified a BMP that calls for the evaluation of migratory bird use of a proposed project area, together with the need to design projects to minimize or mitigate the potential for bird strikes and habitat loss. This BMP would be applied prior to project development.

Comment: 80083-002

Comment: On a minor point (ES-P6), "Above water, marine and coastal birds as well as migrating inland birds may experience minor to moderate impacts due to turbine collisions". There is likely a better choice of words. I suspect a bird that flies, at speed, into a turbine blade will have encountered a severe "impact due to turbine collision"

Response: The impact level (minor to moderate) refers to population-level impacts rather than impacts to the affected individual. The impact definitions presented in Section 5.1 have been revised to more clearly indicate that for biota the impact categories refer to population-level effects, and the words "populations of" have been added to the

referenced sentence of the EIS. The programmatic EIS does acknowledge that individual impacts may pose a much greater threat to threatened and endangered species than to species that are not listed under the ESA.

Comment: 80085-013

Comment: In general, the DPEIS properly notes that wind energy impact to wildlife, including avian species, is extremely low at most projects. The PEIS should also give greater emphasis, however, to the fact that any cumulative impact of wind energy projects is particularly low in relation to other sources of bird mortality due to human activities. The PEIS should reference in this regard the recent report from the National Research Council of the National Academies, the Committee on Environmental Impacts of Wind Energy Projects, which concluded that “Clearly, bird deaths caused by wind turbines are a minute fraction of the total anthropogenic bird deaths – less than 0.003% in 2003 based on the estimates of Erickson et. al. (2005).” This report used existing data from on-shore wind energy projects in the U.S. to reach this conclusion but, as AWEA describes below, there is no empirical evidence to suggest that bird deaths offshore would be any more significant.

Response: The conclusions of the referenced National Research Council report (National Research Council 2007) included the following: “Although the analysis of cumulative effects of anthropogenic energy sources other than wind was beyond the scope of the committee, a better analysis of the cumulative effects of various anthropogenic energy sources, including wind turbines, on bird and bat fatalities is needed, especially given projections of substantial increases in the numbers of wind turbines in coming decades.” And “There is insufficient information available at present to form a reliable judgment on the likely effect of all the proposed or planned wind-energy installations in the mid-Atlantic region on bird populations. To make such a judgment, information would be needed on the future number, size, and placement of those turbines; more information on bird populations, movements, and susceptibility to collisions with turbines would be needed as well.”

At this early stage of development of wind energy facilities on the OCS, the National Research Council conclusions do not support stating that cumulative impacts from multiple wind energy facilities would be low. The conclusion remains that impacts may be minor to major, depending on the species affected and the nature, duration, and magnitude of the effect. Compliance with the ESA regulations and coordination with the NMFS and USFWS would ensure that project activities would be conducted in a manner that would greatly minimize or avoid impacting listed species or their habitats.

Comment: 80085-015

Comment: AWEA believes that Section 5.2.9 can and should include more positive conclusions regarding the limited potential threat to avian species from offshore wind projects, and should discuss such potential threat in perspective to the far greater avian harms arising from other human activities. In particular, Section 5.2.9 should go beyond

simply indicating that effects upon marine and coastal birds “would depend upon the specific location of the offshore wind park...” In this regard, reference to the recent Danish Report, a peer-reviewed analysis of empirical operating data obtained through the rigorous monitoring protocols of actual operating offshore wind farms, is particularly appropriate, and Section 5.2.9 should indicate that the operation of no offshore wind farm has been demonstrated to present a serious threat to any avian species.

In material part, the Danish Report confirms that water bird collisions with offshore wind farms are rare events, and that water birds have demonstrated effective avoidance behaviors, such that pre-construction avian presence cannot be presumed to be indicative of post-construction avian presence or risk, as follows:

“The studies have shown that the ... offshore wind farms have had very little impact on the environment, neither during their construction nor during their operational phases. ... Development of a technology to measure collisions of birds, the “TADS” or “thermal animal detection system” has been another of the major achievements of this programme. *The TADS provides empirical evidence that waterbird collisions are rare events.* Collision risk modeling and bird tracking by radar as well as visual observations show that many waterbird species tend to avoid the wind farm, changing flight direction some kilometers away to deflect their path around the site. Birds flying through the wind farm tend to alter altitude to avoid risk of collision. Under adverse weather conditions, which were thought to be likely to increase collision risk, results show that waterbirds tend to avoid flying. *The strong avoidance behaviour results in very low estimates of collision risk...*” (Id. at 18)

Also see the Danish Report at 103 (“Deflection behavior was readily visible amongst radar tracks, resulting from birds making gradual and systematic modification to their flight routes in response to the visual stimulation of the [offshore] wind farm...”) The DPEIS should thus be modified to reflect the fact that there has never been a documented instance of significant avian mortality involving offshore wind farms, that the most complete and empirical study regarding the actual operation of offshore wind farms shows effective avian avoidance patterns and no significant adverse impact to avian populations.

Response: Text has been added to Section 5.2.9.4.1 summarizing the results of the Danish wind facility studies.

Comment: 80085-016

Comment: With respect to more specific avian comments, the statement at page 5-51 of the DPEIS that, in contrast to onshore wind parks, there may be a relatively increased likelihood of bird strikes at offshore wind parks, should be deleted or modified. As noted above, the empirical evidence regarding offshore wind farms indicates a contrary conclusion of a “very low estimate” of collision risk with, as noted above, demonstration

of significantly reduced actual avian presence during adverse weather conditions in the offshore environment. (Danish Report at 103)

Several of the possible avian mitigation measures suggested at page 5-54 should also be correspondingly revised. For example, the empirical evidence does not support the proposed recommendation of raising the rotor-swept area to more than 100 feet above the ocean surface. The European models have routinely utilized lesser heights without any adverse effect reported, as noted above. Further, there is no empirical data indicating that result of raising the height of swept area would not in fact heighten risks, since the Danish data on offshore night activity “provided the unexpected evidence that no movements of birds were detected below 120 m during the hours of darkness, even during the periods of heavy migration.”(Id. at 103) Further, and as discussed above, the avian section of the PEIS should refer to adaptive management as the best means of recognizing and addressing the residual uncertainties as to avian and other issues.

Response: The statement and subsequent discussion in Section 5.2.9.4 compare the likelihood of collision, and not magnitude, between onshore and offshore wind facilities. While the Danish studies reported a predicted collision rate for a single species, the report acknowledges that wind facility avoidance is very species-specific. The programmatic EIS discusses the likelihood of collisions, and under what conditions risk of collision might be greatest.

Comment: 80087-017

Comment: National Marine Sanctuaries Act Compliance

While the comments that follow this section deal with resources managed by NOAA under multiple statutes including the NMSA, the following comments address marine birds managed by NOAA as sanctuary resources solely under the authority of the NMSA: Wind turbine generators (WTGs) on the Outer Continental Shelf are potential threats to marine birds. This issue should be thoroughly explored and seabird habitat considered in siting if wind power generators are planned. The western wall of the Gulf Stream at the Outer Continental Shelf of eastern North America between the Virginia-North Carolina border and Cape Canaveral (South Atlantic Bight) was ranked as the highest priority marine bird habitat at a Marine Bird Conservation Workshop in Shepherdstown, West Virginia in 2007. This area has the highest species diversity of any priority marine habitat identified at the workshop. Furthermore, the diversity includes one endangered species, the Bermuda Petrel, and several other species of special concern (e.g., Black-capped Petrel, Madeira/Fea’s Petrels, Herald Petrel, and Audubon Shearwater) because of low population numbers. These species are documented as occurring on the Outer Continental Shelf off Cape Hatteras in the area called “The Point” (Lee 1999).

Although precise documentation of the Madeira/Fea’s Petrel may not be certain because of the close resemblance to two other “soft plumaged” petrel species, all four are eastern Atlantic species and only the Madeira/Fea’s petrels are known to occur in the Western North Atlantic. These birds fly long distances to forage and spend most of their time at

sea in the air. The Bermuda Petrel presently exists as a population of only about 30 pairs, breeding only in Bermuda (Lee, in prep.). The global population of the Black-capped Petrel is estimated at 1,000-2,000 pair, breeding only in Hispanola. They feed their young by foraging on the Outer Continental Shelf off eastern North America, flying back and forth between the OCS and Hispanola possibly daily. The Madeira Petrel is considered the rarest bird in Europe, the entire population consisting of less than 50 pairs and maybe only 20 (Lee 1999). The Fea's Petrel population consists of only a few hundred pairs. The Herald Petrel population also consists of only a few hundred pairs. The current population of the Audubon Shearwater is 3000-5000 pairs (Lee 2000). All are long-lived, late maturing species with few young. Populations have been depleted by damage to nesting colonies through predation or habitat degradation. Any increase in the mortality of adults could be devastating to these populations.

Response: The MMS is sensitive to impacts to marine birds and important marine bird habitats. It has identified a BMP that (1) calls for the evaluation of avian use of all proposed project areas prior to project development, and (2) calls for projects to be designed to minimize or mitigate the potential for bird strikes and habitat loss. More specific environmental analyses, as well as coordination and consultation with the NMFS, USFWS, and other appropriate Federal and State natural resource programs and staff, would be conducted at the project level.

Comment: 80106-009

Comment: Effects on birds: Birds that use offshore areas are likely to experience some of the most significant adverse environmental impacts caused by alternative energy projects, particularly wind power projects. Although the potential adverse effects of many activities — e.g., construction-related, fuel spills, etc. — could be avoided or reduced by implementing known and effective mitigation measures, the designs of some facilities — particularly wind power projects — will almost certainly result in substantial impacts to bird life.

The PEIS provides only a cursory evaluation of potential effects on birds, and in some sections, makes unsupported conclusions. We note in particular this statement in Section 5.2.9.4.1:

Because many of the threatened and endangered birds that could be found in coastal habitats would not be expected to fly to areas where offshore wind parks may be located, impacts to these species may be negligible. Other marine and coastal birds, as well as migrating inland birds... may readily encounter offshore wind parks and thus have the greatest potential for colliding with rotors and towers. Impacts to these species may be minor to moderate, depending on the species involved and the number of individuals affected.

This statement could be interpreted to suggest in its first sentence that because a bird is threatened or endangered, it would not fly into a wind facility, while other birds would. Next, it suggests that the loss of other birds would not cause significant impacts. There is

no basis for this statement, especially since there are a number of threatened or endangered bird species in California that use shoreline, nearshore, and offshore areas, and would likely be adversely affected. Additionally, many bird species, while not protected under the federal Endangered Species Act, are protected under the federal Migratory Bird Act, and would likely be adversely affected. Further, as the PEIS states, if the offshore structures serve as fish attracting devices, then it is likely that birds would be attracted to the area and therefore subject to even more substantial adverse impacts.

The PEIS should be revised to address these concerns by evaluating which wind power designs are more harmful or less harmful to birds, what locations and layouts may reduce bird strikes, and what mitigation measures are available to reduce impacts. Additionally, and as noted above, the document should identify which areas may not be suitable for certain types of facilities due to their heavy use by birds. As noted above, we recommend that the MMS use the opportunity provided by the few years of postponing the development of the proposed permitting and regulatory program to instead develop and implement more rigorous studies of the existing effects of offshore structures on birds, the potential effects of proposed wind energy structures, and needed mitigation measures.

Response: The referenced text has been revised to clarify that those listed species largely restricted to coastal areas and not likely to visit relatively distant open waters (birds such as the spotted owl and Bell's least vireo) would not be expected to be affected by offshore wind facilities.

The referenced text does not state (as suggested in the comment) that impacts to other species would be insignificant. Rather, the text states that depending on the species, there could be minor to moderate population-level impacts.

The programmatic EIS does identify types of impacts that could result from all phases of a wind energy project and includes a number of potential mitigation measures that could reduce potential impacts to birds. The MMS is aware of the protection afforded to birds by the Migratory Bird Species Act and acknowledges its responsibilities under this Act. The MMS has identified a number of BMPs that target the reduction of impacts to birds and that will be required for all OCS energy projects.

Comment: 80107-001

Comment: As president and CEO of The Peregrine Fund and a biologist with more than 40 years experience working with raptors, I am very concerned with the potential impact that an extensive wind farm could have on migrant bird populations along the South Texas coast. The south Texas coast is a well known migration corridor for raptors and other neo-tropical migrants, many of whom migrate at night. It is also the only concentrated northward migration corridor for the Peregrine Falcon. I would encourage those involved to conduct a thorough study to determine the impact of the proposed wind farm project prior to construction.

Response: The potential for impacting migratory birds is discussed in several sections of Chapter 5, and additional discussion has been added to the terrestrial biota (Sections 5.2.10, 5.3.10, and 5.4.10) and marine and coastal birds (Sections 5.2.9, 5.3.9, and 5.4.9) impact sections of Chapter 5. The MMS has identified a BMP that would require predevelopment evaluation of migratory bird use of a proposed project area, as well as project design that minimizes or mitigates potential impacts to migratory birds, including the peregrine falcon and other migratory birds of prey. This BMP would be implemented prior to project development. In addition, as energy technology evolves, the MMS will support studies of the interactions of these technologies with biological resources and work on developing appropriate mitigation measures.

Comment: 80118-010

Comment: The key for minimizing impacts to migratory birds is siting. The Service recommends evaluating potential locations with regard to migratory pathways, key foraging areas, or nonbreeding congregations. This should be done prior to the geophysical and geological site characterizations. Geophysical and geological investigation is costly, and if the site is inappropriate based on migratory bird use, then it is not cost effective to proceed with those evaluations. It is not possible to mitigate for lost migratory pathways. There is no means available to create alternate pathways for birds to travel or to forage in. Therefore, the Service recommends avoidance of key areas to minimize impacts to birds during migration or foraging bouts. One suggested solution may be to include radar on the meteorological station to monitor bird use of the site prior to other site characterization activities. In general, comprehensive presiting evaluation for migratory bird impacts is recommended and construction of onshore facilities should be conducted in the non-breeding season to minimize impacts.

Response: The MMS has identified a BMP that would require all proposed OCS energy projects to evaluate avian use of the proposed project area, and to design the project to minimize or mitigate the potential for bird strikes and habitat loss. The amount and extent of required ecological baseline data would be determined on a project-by-project basis. All proposed projects would also undergo project-specific NEPA analyses and coordination and consultation with the USFWS and NMFS as appropriate.

Comment: 80118-011

Comment: The DPEIS listed the impacts from the operation of offshore facilities as minor to moderate for migrating inland birds depending on species (especially those using the Gulf of Mexico). The evidence to support this statement, however, was not provided. Please provide explanation and/or justification for classifying offshore facilities as having a minor to moderate impact on migrating inland bird species.

Response: The justification for minor to moderate population-level impacts is presented in Section 5.2.10.4. Per the impact level definitions, impacts to migrating birds are unavoidable (some will certainly collide with towers and rotors), and with proper mitigation or remedial action, the affected resource may be expected to recover

completely. For example, limiting, reducing, or stopping turbine operations during peak migration times would greatly reduce or eliminate bird strike impacts.

Comment: 80118-015

Comment: The areas that provide potential for development of ocean current technology also provides habitat for migratory birds. For example, the Florida current, particularly offshore of Cape Hatteras, North Carolina is known to be a very important foraging area for pelagic seabirds. During the breeding season, some of these birds travel significant distances on a daily basis from their nests on Caribbean islands to this area of the Florida current to forage. In addition to entanglement concerns, a loss of foraging habitat may occur if alterations to local aquatic systems result from reduced energy along the current. This should be carefully studied to evaluate potential changes in food resources for foraging seabirds, using available tools, such as modeling. Likewise, there is little information regarding the impacts of ocean current turbines to diving birds. We recommend site-specific studies be conducted to assess avian impacts of ocean current turbines.

Response: A discussion of the potential effects of altered ocean processes (sediment transport, wave height, and current energy) on coastal and offshore foraging habitat has been added to Section 5.3.9.4.

The MMS will require site-specific NEPA reviews for any projects in the OCS. These reviews may identify the need for monitoring some energy projects during operations.

Comment: 80118-024

Comment: Pages ES-4-6 Wind Energy: Impacts and minimization measures for birds are mentioned (e.g., nesting/forage habitat); however, please be more specific regarding plans for analysis and avoidance of collision impacts for migratory birds for this activity. Guidelines have been developed for similar terrestrial activities, and some of the guidelines would be applicable for facilities located on the OCS (<http://www.fws.gov/habitatconservation/wind.htm>)

Response: In the absence of specific proposed projects and project locations, it is not possible to provide detailed information regarding site-specific baseline and impact analyses, nor to discuss project designs. The MMS has identified a BMP that will require these activities for all projects, and more detailed information would be provided during project-specific NEPA analyses.

Comment: 80118-031

Comment: Page 1-10: "Aside from oil and gas, the only other significant mineral resources currently extracted from the OCS are sand and gravel used for coastline restoration projects." Considerable care must be given to assessing shoals where wind facilities may likely be developed. The "mining" of these sites for sand and gravel puts

certain sea ducks, especially scoters, at direct risk since sand and gravel extraction reduce scoter winter rafting and feeding habitats. However, if these shoals are left intact for wind development, this may also put these birds at direct risk of collision, site avoidance, and habitat quality modification. The White-winged Scoter, Black Scoter, Surf Scoter, and perhaps to a lesser extent the Harlequin Duck, and Long-tailed Duck (Oldsquaw) represent five species of immediate concern. Eiders such as the Common and King Eider may also be potentially put at risk. Please include impacts to shoals as a result of project development.

Response: The mining of shoals is an ongoing activity in some OCS areas and occurs independent of the proposed action. It is not known whether any wind projects would be located in shoal areas. Additional site-specific impact analyses would be required for individual projects and would consider potential impacts to the specific habitats and areas that could be affected by the project. Potential impacts to marine and coastal birds from habitat loss (including foraging and overwintering habitats), regardless of whether they are associated with a shoal or not, are discussed in Section 5.3.9.

Comment: 80118-033

Comment: Table 1.6-1, p. 1-15: Migratory Bird Treaty Act (MBTA) and Executive Order 13186. The summary of pertinent provisions under this section is not technically correct. The MBTA is a strict liability, criminal statute prohibiting the unauthorized take of any protected migratory bird, including the take by a Federal agency. Executive Order 13186, which is based on the legal premise of the MBTA, requires Federal agencies taking actions or about to take actions likely to negatively impact migratory birds and their populations to enter into a Memorandum of Understanding (MOU) with the Service. In Table 1.6-1, the DPEIS acknowledges that the EO requires MMS to enter into a Memorandum of Understanding (MOU) with the Service on how it will implement those responsibilities. An MOU has not yet been completed.

As a designated Federal entity under the Executive Order, MMS must develop and implement an MOU with the Service, explaining how they plan to minimize impacts to protected avifauna from offshore wind development. That effort has not yet been completed. A status report from MMS on progress in developing and implementing this MOU should be reported in the final PEIS.

The Service is in anticipation of a response from MMS on the draft MOU it sent to MMS in August 2004. As MMS continues to consider the new OCS program, the Service is ready to assist MMS in having an MOU in place prior to the issuance of the final PEIS to protect and conserve migratory birds on the OCS. Four recommendations to include in the MOU follow:

- 1) Map migratory bird resources areas, as has been done for wind resource areas, and identify the relative value of each based on functions and values for birds;

- 2) Identify migratory bird areas that will be off limits for the various types of energy and activity for which MMS has jurisdiction under section 8 of the EPAct;
- 3) For remaining areas, identify categories of bird-related information that will be required to provide a sound basis for deciding whether or not, and under what conditions, MMS will authorize a proposed renewable energy project or alternative use on the OCS; and
- 4) Establish a 3-stage consultation process with the Service (modeled after 18 CFR 4.38) for projects to complete prior to filing an application with MMS.

If the MOU is not in place prior to final PEIS, the responsibilities of MMS under the EU are not diminished.

Additionally, there is no mention of the Bald and Golden Eagle Protection Act (16 USC 668- 668d). Eagles could potentially be put at risk by offshore wind development, both resident bald eagles, and migrating bald and golden eagles. We recommend this statute and potential impacts be included in the final PEIS.

Response: The MMS submitted a draft MOU to the USFWS in June of 2004 under signature of its Director. The MMS has been in further contact with the USFWS regarding the status of this MOU and completion of the agreement. The MMS looks forward to working closely with the USFWS to complete this MOU in a timely fashion.

Table 1.7-1 is a summary of laws and executive orders that apply directly to the OCS; it is not meant to be an exhaustive summary of all potential laws with which an applicant would need to comply. The table focuses on those laws, such as an ESA consultation, an EFH consultation, or consistency determination, that directly require a response from the MMS or the applicant. An applicant would be required to comply with all Federal, State, and local laws even though those laws are not directly identified in this table.

Potential impacts to all migratory birds, including eagles, are addressed in Section 5.2.10, Terrestrial Biota, Section 5.2.9.2, Site Characterization, and Chapter 7, Analysis of the Proposed Action and Its Alternatives.

Comment: 80118-043

Comment: Page 4-57, Section 4.2.9.1 Threatened and Endangered Species: Many marked birds, from the Great Lakes piping plover breeding population (listed as endangered) have been documented wintering on the southern Atlantic Coast. These populations have been observed on migration as far north as New Jersey. For more on the marked plovers, contact Anne Hecht, Endangered Species Biologist at Anne_Hecht@fws.gov.

Response: Comment noted. The USFWS will be contacted as appropriate during project-specific NEPA analyses.

Comment: 80118-044

Comment: Page 4-57, Section 4.2.9.2 Nonendangered Species: Pelagic seabird use should be discussed.

Response: Pelagic seabirds have been added to the discussion.

Comment: 80118-045

Comment: Pages 4-57 — 4-59. Section 4.2.9.3 Use of Atlantic Coast Habitats by Migratory Birds: This section fails to discuss the migrations of songbirds that may be driven hundreds of miles off shore and off course during both spring and fall migrations by inclement weather. When weather conditions become inclement and visibility deteriorates during the nighttime, migrants frequently drop down from higher migration elevations, possibly putting them directly at risk with the rotor swept areas of proposed wind facilities along their routes (Manville 2005). The Service recommends this issue be addressed in the final PEIS.

Atlantic coastal waters offshore from Cape Hatteras are critically important feeding grounds for a number of pelagic seabird species. Some of these are globally imperiled, notably the Bermuda Petrel, a federally endangered species which is now a regular visitor in this area of the OCS. Another imperiled species is the Black-capped Petrel whose total global population is likely to be less than 2,000 individuals. Black-capped Petrels are in danger of becoming extinct due to loss of breeding habitat, especially in Haiti. All evidence at present indicates that waters in or adjacent to the Gulf Stream between north Florida and southern Virginia provide for the primary non-breeding range of Black-capped Petrels. Concentrations of birds can be found along the Gulf Stream in U.S. waters throughout the year, but particularly in May, August, and late December through early January. The main foraging area appears to be along the Gulf Stream directly east of Cape Hatteras National Seashore, North Carolina. Concentrations during winter, when peak breeding activity is underway, is suggestive of breeding birds foraging along the Gulf Stream moving to and from breeding colonies (Lee 1986). Other species of concern include Northern Gannet, Greater Shearwater, Cory's Shearwater, Band-rumped Storm Petrel (more so in the Gulf of Mexico), Bridled Tern, Manx Shearwater and nonbreeding Sooty Tern and Brown Noddy. A list of these species should be included in this section similar to what is provided in Table 4.3.9-1.

Response: The situation described in the comment, migrating birds blown hundreds of miles out to sea, would be an occasional and infrequent event. Chapter 4 presents a summary of the general avian fauna and their habitats, and a discussion of storm-related events is unnecessary. Such events, and the subsequent likelihood of such displaced migrating birds encountering OCS wind facilities, are discussed in Section 5.2.10.4.

Section 4.2.9 includes a table that identifies all ESA-listed threatened and endangered species that may occur in Atlantic OCS waters. The MMS recognizes the potential for offshore wind facilities to affect these listed species, as well as the species identified in

the comment and others. More detailed information, including some species-specific impact analyses, would be developed at the project level.

Comment: 80118-046

Comment: Page 4-60, Figure 4.2.9-1 Major North American Migration Flyways: In regard to this diagram, species are often found occupying areas outside of these delineations. Flyways are generally administrative designations, especially for waterfowl management. Ducks, geese, and swans, for example, fly hundreds of miles outside these designated political corridors/boundaries. Neotropical migratory songbirds generally fly in broad fronts during spring and fall migrations, with masses of probably billions of songbirds moving from the Rocky Mountain Front to the Atlantic Ocean and along the Pacific Coast during nighttime movements. This behavior makes it much more difficult to delineate specific pathways or corridors for many species of migratory birds since the pathways can be very large, and they can change in concentration and timing within and between seasons and years.

Response: The figure is intended to provide the reader with an understanding of where the major migration pathways occur along the Atlantic, Pacific, and Gulf of Mexico Coasts. At the scale of the map (which shows the entire continental United States), it is not possible to show specific, individual migration pathways. The figure does accurately show the major paths that the vast majority of migrating birds would follow, and the figure caption identifies these as major flyways and not specific routes. The MMS has identified a BMP that will require the evaluation of proposed project areas for avian use, which would permit evaluation of use of the project area by migrating birds.

Comment: 80118-050

Comment: Page 4-145, Section 4.3.9 Marine and Coastal Birds: Hummingbirds should be added to list of migrating landbirds.

Response: Hummingbirds have been added as suggested.

Comment: 80118-051

Comment: Page 4-146, Section 4.3.9.1 Threatened and Endangered Species: Red Knot should be added as a potential candidate for listing.

Response: The red knot has been added to Section 4.3.9.1 as a candidate species.

Comment: 80118-052

Comment: Page 4-149, 4.3.9.3 Use of Gulf of Mexico Habitats by Migratory Birds: "The Gulf of Mexico is an important pathway for migratory birds, including many coastal and marine species, and large numbers of terrestrial species." It needs to be noted that the Gulf of Mexico, and the offshore areas being considered for commercial wind

development, represent a critically important pathway for probably at least 150 species of neotropical migrants, plus numerous other species of shorebirds, waterfowl, waterbirds, and others. Particularly during spring migration when many of these trans-Gulf migrants are approaching landfall, depending on winds and weather conditions, they frequently arrive completely exhausted, dropping out at the shoreline for landings. Many migrant species will fail to reach their final destination if wind facilities are sighted in these locations.

Response: The text currently identifies the GOM as an important migratory pathway for birds, especially ones that overwinter in the neotropics. The text also points out that as many as 300 million birds may cross the Gulf each spring, with recent studies indicating that the majority of these trans-Gulf migrating birds are directed to the coastlines of Louisiana and eastern Texas.

Comment: 80118-053

Comment: Page 4-150, Figure 4.3.9-1: This Figure needs a footnote indicating that these migration routes are only general representations of travel corridors, which can change sizably between seasons and years, depending on weather and prevailing wind conditions in the Gulf of Mexico, the Atlantic Ocean and the Caribbean Ocean.

Response: The figure caption has been revised to indicate that specific routes may vary within and between years, depending on local and regional weather conditions such as storms and prevailing winds.

Comment: 80118-056

Comment: Page 5-47. Section 5.2.9 Marine and Coastal Birds: The Service recommends this section also include a discussion on all potential behavioral issues for waterbird staging and resting; and for overflight of migrating songbirds and chiroptera — including federally listed species. They are not in this DPEIS. This section of the document should include migrating inland birds in the title.

Response: Text has been added to Sections 5.2.9.3 and 5.2.9.4 to include disturbance and displacement of marine and coastal birds in staging and resting areas. Potential impacts to migrating terrestrial birds (nonmarine or coastal birds) are presented in Section 5.2.10 Terrestrial Biota. The discussion of impacts to bats would not be appropriate in the Marine and Coastal Birds section. Impacts to bats can be found in Section 5.2.10, Terrestrial Biota.

Comment: 80118-057

Comment: Page 5-48, Section 5.2.9.2 Site Characterization: The Service recommends examining potential bird use of the area as a primary consideration in site characterization because siting is the only mitigation measure available for decreasing or minimizing impacts to migratory/coastal/and pelagic birds.

Response: Section 5.2.9.2 presents the potential impacts that might be incurred by marine and coastal birds during site characterization. Mitigation measures presented at the end of Section 5.2.9 include surveys to identify important feeding, nesting, staging, and overwintering areas and avoiding siting infrastructure in those areas. The MMS has developed a BMP that will require evaluations of bird use of proposed project areas.

Comment: 80118-058

Comment: Page 5-49, Section 5.2.9.2.2 Collision with Meteorological Towers: The Service suggests that the statement made in this subsection (that hundreds of millions of birds colliding with communication towers, windows, electric transmission lines, and other structures are killed each year) be qualified. The DPEIS fails to state that these are estimates based on extrapolation procedures with wide, perhaps indeterminable error or confidence intervals. No research study or comprehensive evaluation of bird mortality at man-made structures, with the possible exception of tall communication towers, has been completed to provide verification for these estimates. The Service cautions there is even less information on collision-related mortality in offshore areas.

Response: The text has been revised to indicate that “hundreds of millions of birds...” is an estimate that has been reported in several publications (which are referenced).

Comment: 80118-059

Comment: Page 5-49, Section 5.2.9.3 Construction: Construction of onshore facilities may displace foraging birds from wetlands or beaches. If construction is carried out during the breeding season, nesting may be interrupted or nest habitat destroyed. The Service recommends construction be timed to minimize impacts to nesting shorebirds and wading birds.

Response: Section 5.2.9.3 acknowledges the potential for adversely effects to nesting birds, and Section 5.2.9.7 identifies two mitigation measures for minimizing such effects. One mitigation measure includes surveys to identify important nesting areas and avoiding siting facilities in such areas, while the other mitigation measure calls for timing major construction and noise-generating activities to avoid periods when birds are nesting in the project vicinity.

Comment: 80118-060

Comment: Page 5-50, Section 5.2.9.3.3 Onshore Construction: This section should identify potential impacts to federally listed critical habitat for piping plovers.

Response: The text currently acknowledges potential impacts to foraging, roosting, overwintering, and nesting habitats of birds, regardless of whether the bird species is listed or not. New text has been added to Sections 5.2.9, 5.3.9, and 5.4.9 that states that listed species and critical habitats may potentially be affected in a similar manner.

Because of the listed status of the critical habitat for the piping plover, construction in known piping plover nesting habitat would not be allowed.

Comment: 80118-061

Comment: Page 5-51, Section 5.2.9.4 Operation: This section mentions that marine and coastal birds may be benefited by offshore turbine platforms. The statement needs to be elaborated on to clarify exactly how such benefits would be derived.

Response: It has been suggested that migrating birds crossing the GOM have been reported to use offshore oil platforms as rest sites during times of bad weather as well as toward the end of long, open-water flights, thereby incurring an energetics benefit. Because this potential benefit has not been documented, the text has been deleted.

Comment: 80118-062

Comment: Page 5-51, Section 5.2.9.4.1 Turbine Collisions: Migrating inland birds should be added in the last sentence of the first paragraph in this section to the list of birds affected by collisions.

This same oversight mentioned above for Section 5.2.9.2.2 is repeated in Section 5.2.9.4.1. In addition, the DPEIS makes the statement in this section that frequent bird mortality at inland wind projects has been reported from only a few exposed sites with high migration density or a large number of soaring birds. While wind energy developments are still early in the buildout phase in the northeastern U.S., we are unaware of any wind project in the Northeast that does not lead to bird mortality. Our review of the mortality studies at Buffalo Ridge, Minnesota; Buffalo Mountain, Tennessee; Kewaunee County, Wisconsin; and Mountaineer, West Virginia indicates that about one-third of the species collected at these wind projects were species undergoing long-term population decline based on breeding bird survey data. While we have no mortality data for offshore wind projects, the issue should be thoroughly evaluated. Clearly, significant cumulative impacts are affecting many migratory bird and bat populations.

Response: Impacts to migrating inland birds are addressed in Section 5.2.10, Terrestrial Biota. The text in Section 5.2.9.4.1 does not state, and was not intending to imply, that there are inland wind facilities with no mortality. Rather, the text states that frequent collisions have been reported from a few sites that experience high migratory bird density or large numbers of soaring birds. The text has been clarified to reduce any confusion on these points.

Comment: 80118-063

Comment: Page 5-52, Section 5.2.9.4.2 Service Vessel Traffic: A statement is made that disturbance effects due to maintenance vessel visitation would not be expected to result

in adverse effects. However, vessel traffic will cause birds to flee and result in potential mortality. We believe this disturbance should be considered as a potential adverse effect.

The Service suggests the DPEIS address the potential habitat fragmentation impact associated with the construction and operational phases of wind projects. Species avoidance of an area is a form of exclusionary occupation of public waters and also represents a loss of an existing use. The Service believes that habitat fragmentation has the potential to have major adverse effects and recommends evaluation of specific sites and potentially designating areas unsuitable for wind energy development.

Response: The MMS recognizes the importance of habitat fragmentation and its impact on biological resources. The programmatic EIS discusses the potential for habitat fragmentation in coastal habitats. While the concept of habitat fragmentation is less applicable to marine environments at the scale addressed in the programmatic EIS, many of the adverse impacts associated with habitat fragmentation such as habitat disturbance and loss, and impacts to dispersal as well as daily and seasonal (migratory) movements of biota in marine and terrestrial environments are discussed. A number of mitigation measures are presented in the programmatic EIS that would involve surveys to identify levels of biota use and the presence of important habitats. The MMS has developed a number of BMPs that would require evaluations of biota use of project areas and the design of projects to minimize or mitigate habitat disturbance or loss, as well as limiting the displacement of organisms from, or their passage through, project areas. Potential habitat impacts, including habitat fragmentation, from the development and operation of energy facilities in OCS waters would be evaluated in regional, activity-specific, and site-specific NEPA analyses.

The programmatic EIS acknowledges the potential for habitat *fragmentation*, disturbance, and loss from wind projects, particularly for some bird species. A number of mitigation measures are presented in the programmatic EIS that would involve surveys to identify levels of use and the presence of important habitats. The MMS has developed a number of BMPs that would require monitoring of project areas to determine usage prior to development. Potential habitat impacts, including habitat fragmentation, from the development and operation of energy facilities in OCS waters would be further evaluated in regional, activity-specific, and site-specific NEPA analyses.

Comment: 80118-064

Comment: Page 5-54, Section 5.2.9.6 Mitigation Measures: Migrating inland birds should be added to the list of affected birds in this section.

The Service suggests that mitigation actions be listed separately for pre- and post-construction phases and that the hierarchy be established with avoidance first, followed by minimization, and then by compensatory measures.

Additionally, the Service recommends the following items be added and sorted accordingly to the bulleted list of mitigation measures:

- Conduct preliminary avian monitoring for a two-year period prior to the wind farm construction phase. Preliminary monitoring should consist of a combination of the following monitoring techniques (acoustic, thermal, radar, and observational).
- Conduct direct collision monitoring during the two-year preliminary monitoring period by installing a pilot wind mill that will monitor avian collisions for 9-months, including one fall and one spring migration period. Collision monitors should detect height of impact. Additionally, a laser net to detect fallout within a 600-foot arc at a 100-foot elevation should be installed. Continuous read cameras should also be installed during bird migration.
- Use inclement weather conditions as a trigger for stopping or reducing turbine operation to minimize bird collisions.
- Where the height of the rotor-swept area produces a high risk for collision, adjust the tower height to reduce the intensity of bird strikes.
- Use a turbine design that can be lowered down to 200 feet or less when the wind operation is hostile due to high concentrations of migrating birds.
- Reduce or stop operation of turbines that are located in migration paths during peak migration periods.
- If existing structures are used, retrofit to minimize perch sites.
- Conduct post-construction monitoring for a minimum of five years after construction to measure marine and coastal bird displacement and bird strikes.
- Restore habitat in surrounding area caused by disturbance from facility.
- Avoid locating facilities in areas of known high migratory bird use.
- Time major noise-generating activities to occur outside of nesting seasons of marine and coastal birds.
- Use monopole towers rather than lattice towers to minimize bird perch sites.
- Use low-intensity white strobe lights to minimize attracting night migrants.
- Turbine blades should not come within 100 feet of the ocean surface due to marine bird flight patterns.
- Paint moving rotors to increase visibility.

MMS suggests reducing or stopping operation of turbines during peak migration periods. This is an important recommendation but needs to be expanded. Use of thermal imagery

cameras — as we are now seeing at some offshore wind facilities in Europe — may help to validate when these migrations are taking place. Because bird migration (both land-based and offshore) is essentially a year-round event, “feathering” shutdowns need to be timed to the migrations of various suites of avifauna which will frequently differ considerably in timing, duration, intensity, and location. Where listed or imperiled birds are documented to be present, shutdowns should be keyed to these species to minimize impacts and avoid unauthorized takes. Lighting is also a key issue, but the MMS reference (Curry and Kerlinger 2002) needs to be updated. As previously referenced, based on studies conducted by Gehring et al. (2006) and Evans et al. (2007), minimum intensity, maximum off-phased (3 seconds between flashes) white strobe lights should represent the preferred lighting alternative for offshore facilities. The Service recommends no steady-burning lights (red, white or multicolor) be used. Removing steady-burning L-8 10 red lights at 18 communication towers, for example, reduced avian collision mortality by 71% (Gehring et al. 2006). The Service in February 2, 2007, comments to the Federal Communications Commission (Docket 03-187, “Effects of Communication Towers on Migratory Birds”) provisionally recommended use of minimum intensity, maximum off-phased red strobe lights and/or minimum intensity blinking red incandescent beacons, provided that white strobes could not be used.

The Service is aware of very limited research on audio deterrents, specifically infrasound, which is only presently known to deter homing pigeons. This may be a promising deterrent, but requires considerably more study. Research has shown that blade painting does not seem to effectively deter land birds in a statistically significant way. Because little information is known about offshore waterbirds, blade painting may be a more effective deterrent for offshore birds. Additional offshore studies on waterbirds are needed. All the issues suggested above need much greater review and analysis in the final PEIS.

Response: Thank you for your many suggestions as to how to mitigate impacts to avian species. This programmatic EIS is taking a broad look at the issues and concerns regarding offshore alternative energy facilities. Migrating inland birds are addressed in Section 5.2.10, Terrestrial Biota. The MMS recognizes that there is a lot to consider regarding the specific interactions between avian species and the proposed technologies, particularly wind turbines in the offshore environment. The MMS is proposing that preconstruction surveys be conducted at site-specific locations and will be consulting with the USFWS for site-specific projects where your suggested mitigative measures could be applied most effectively. In addition, the MMS is planning environmental studies to gather key information concerning migratory species and their presence in the areas under consideration, which are greater than 3 nautical mi (3.5 mi; 5.6 km) from shore.

Comment: 80118-065

Comment: Page 5-54, Section 5.2.10 Terrestrial Biota: A discussion of migrating landbirds under the section regarding operation of turbines should be included. There is a

great deal of potential for collisions, especially in the Gulf of Mexico, if turbines are not sited with respect to migratory pathways.

Response: Text has been added that discusses migrating land birds.

Comment: 80118-075

Comment: Page 5-179, Section 5.3.9 Marine and Coastal Birds: Include the loss of foraging habitat due to changes in aquatic resources that result from reduced wave energy. Also include loss of foraging/nesting wetland and beach habitat again as a result of reduced wave energy and onshore construction of facilities.

Response: Potential impacts to foraging and nesting habitat from onshore construction are discussed in Section 5.3.9.3.3. New text addressing potential effects of changes in coastal sedimentation processes, wave height, and current energy has been added to Section 5.3.9.4.

Comment: 80118-076

Comment: Page 5-180, Section 5.3.9.2 Site Characterization: In addition to concerns over fuel and contaminant discharges to birds, and impacts from marine plastic debris and other debris entanglement issues, the Service suggests the final PEIS address construction vessels and maintenance vessel traffic using steady-burning “crab” lights and other steady-burning, bright lighting. These types of lighting have been well documented to attract birds, especially during inclement weather.

Response: A mitigation measure calling for limiting the use of steady-burning bright lights on construction and service vessels has been added.

Comment: 80118-077

Comment: Page 5-184, Section 5.3.9.6 Mitigation Measures: Mitigation should include restoration of related wetland and/or beach habitat after construction is completed.

Response: Wetland and beach habitat restoration is addressed in the Coastal Habitats section, Section 5.2.13.

Comment: 80118-079

Comment: Page 5-293, Section 5.4.9 Marine and Coastal Birds: The Service is concerned that the Florida Current is a very important area for seabirds, including several globally imperiled species, and impacts should be avoided.

Response: Comment noted. The MMS concurs with the need to avoid impacts to seabirds, especially threatened or endangered species. Section 5.4.9 identifies several mitigation measures that may greatly reduce or avoid impacting such species. In addition,

compliance with the ESA regulations and coordination with the USFWS and NMFS would ensure that any future project activities would be conducted in a manner that would greatly minimize or avoid impacting listed species and their habitats.

Comment: 80118-081

Comment: Page 7-1, Section 7.1.1 Offshore Alternative Energy: The list of potential impacts to living resources and their habitats is incomplete and does not adequately characterize the suite of potential impacts. To better capture the potential impacts, we suggest changing the bullet “Marine and coastal birds” on page 7-3 to include bats.

Additionally, we suggest changing the “severity of impacts” rating noted in Table 7.1.1-1 on page 7-7 from “negligible to moderate” to “negligible to severe.” Collision mortality with towers and rotor blades is a separate adverse effect. Impacts include, but are not limited to, collision mortality and habitat fragmentation (direct loss of habitat, increased human disturbance, increased stress, interruption of travel patterns and activities, displacement, decrease in habitat suitability, and other behavioral effects).

Response: The list of potential impacts is based on the resource categories identified and addressed throughout the programmatic EIS. In the programmatic EIS, bats are discussed as part of the terrestrial biota, and thus also fall within this category in the Section 7.1.1 list.

The severity of impacts identified in Table 7.1.1-1 of the draft EIS, based on the impact definitions presented in Section 5.1, and the impacts identified elsewhere in Chapter 5 are appropriate as presented. Text identifying minor to moderate impacts to migrating bats and terrestrial birds has been added to the Terrestrial Biota/Wind cell of the table.

Comment: 80118-087

Comment: Page 7-37, Section 7.5.2.9 Marine and Coastal Birds: This section should be revised as discussed above under “Page 7-1, Section 7.1.1 Offshore Alternative Energy” to place qualifications on the reference to “hundreds of millions of bird strikes” and to expand the list of impacts. Additionally, this section should acknowledge that many species of migratory birds and bats are already experiencing significant, long-term population decline due to cumulative effects from mortality at man-made structures and other factors. The expansion of wind projects into the OCS will add to these cumulative effects by authorizing the construction and operation of avoidable known hazardous structures to migratory birds and bats where none currently exist.

Response: See the response to Comment 80118-081. Text has been added to Section 7.6.2.9 to qualify that the “hundreds of millions of bird strikes” is an estimate. The existing text adequately acknowledges that the cumulative impacts could range from minor to major, depending on the species involved and the number of individuals affected.

B.2.16.10 Terrestrial Biota**Comment: OCS83-042**

Comment: The proposed alternative energy development and use of the Outer Continental Shelf is not expected to affect existing farm land. On-shore pipeline and support facility construction, vessel traffic, and inadvertent oil spills may adversely impact protected plant and insect species found along the Chesapeake Bay and Atlantic Coastal shorelines of Virginia. Two federal protected species, *Amaranthus pumilus* and *Cicindela dorsalis dorsalis* occur in the state's shoreline habitats. Protection of these species, and other sensitive natural resources, should be considered in the analysis on the effects of the proposed project.

Response: The MMS recognizes the importance of identifying and protecting listed species and their habitats. The programmatic EIS (Section 4.2.10) calls out *Amaranthus pumilis* as an example of listed species that may occur in coastal areas adjacent to Atlantic OCS waters. The programmatic EIS identifies mitigation measures that include coordination regarding listed species and their habitats with the USFWS and appropriate State agencies during the siting and construction of onshore facilities.

Comment: 80118-013

Comment: The DPEIS does not address potential wind-farm impacts to bats. Therefore, we recommend text be added to address this issue.

Response: The potential for impacts to bats from wind facilities is discussed in Section 5.2.10 of the programmatic EIS.

Comment: 80118-067

Comment: Page 5-56, 5.2.10.5 Operation: While bats — including listed species — are not known to forage while migrating over water, they have been well documented to migrate over OCS waters, especially when prevailing winds drive them off the Atlantic Coast well out to sea. Where thermal imagery cameras document bat presence within rotor swept areas of operating wind facilities, temporary blade “feathering” should be considered a mitigation tool for reducing collision mortality to these mammals. The Service recommends including the above reference to bats in the final PEIS.

Response: No specific reference was provided in the USFWS comment package.

Text has been added stating that migrating bats may on occasion be driven to OCS waters by storm fronts and their prevailing winds, at which time the bats may encounter wind turbines. The added text also acknowledges that such a situation may be expected to occur very infrequently.

Because of the likely infrequent occurrence of displaced migratory bats at wind turbines in OCS waters and the likely difficulty in detecting the presence of displaced bats at specific turbines or turbine complexes, a “feathering” mitigation measure has not been added. A “feathering” mitigation measure has been added to the bird mitigation measures presented in Section 5.2.9.6.

Comment: 80118-068

Comment: Page 5-57, 5.2.10.6 Mitigation Measures: In addition to the timing of facility construction to avoid bird nesting, care should also be taken to avoid disturbing newly fledged juvenile avifauna which may frequently continue to be dependent upon adult feeding and teaching behaviors. Mitigation should include: avoid siting in migratory bird routes and avoid siting onshore facilities near high density migration staging areas or areas where large fallouts occur during spring migration. We recommend that MMS expand this section in its final PEIS.

Response: Mitigation measures related to bird nesting and fledging are presented in Section 5.2.9.6, Mitigation Measures. This section address marine and coastal birds that would be using coastal habitats for nesting, feeding, and rearing of young. This section also includes mitigation measures for avoiding areas of high migratory bird use, which would include staging areas. Migratory bird staging areas has been added as an example of areas of high wildlife use in the first mitigation measure identified for terrestrial wildlife in Section 5.2.10.6.

B.2.16.11 Fish Resources and Essential Fish Habitat

Comment: OCS25-001

Comment: I have been working with a group called MACOORA, M-A-C-O-O-R-A. They are the Mid-Atlantic Ocean Observing Research Association made up of a lot of university people who are in studies and some private and public institutions. I would like for you to bring this group in also to help give input to what’s underneath the water. We are talking about a lot what’s above the water. As a fisherman, I like to see what’s underneath the water. Like the hummingbirds and like the rest of the migratory birds, there are a vast number of migrations of different kinds of species from close in to way out and most of these are not even known. They don’t know the migrations of certain tuna, of shark, blue fish, fluke, whatever. These will be greatly impacted by all kinds of future energy choices. It’s a great forum here. I think the vision of the future for sustainable energy is wonderful. I think we are all very concerned about it and I think we all want to get there, but I hope that you are bringing the proper resources, the ones that I mentioned. The others that I don’t know about and we all get this together and we can come up with a very good formula for the future.

Response: Comment noted. As identified in the programmatic EIS, site-specific evaluations would be conducted prior to development of specific projects in OCS waters.

At the time of these additional evaluations, input from and consultation with various stakeholders would be sought.

Comment: OCS70-004

Comment: 5.3.4.6 lists prohibition of commercial and recreational fishing inside wave farm boundaries as a mitigation measure for operational impacts listed in Section 5.3.4.4. The inference is that commercial and/or recreational fishing access will be determined on a site-specific basis; but the threat of potential loss to local fishing interests certainly exists. And certainly aquaculture operations will result in additional restrictions on traditional fishing practices.

If the water column beneath and around wind and/or WEC generators could be utilized for marine aquaculture, this would somewhat mitigate the loss of access to fishing grounds. Personnel maintaining the aquaculture operation could also perform device inspection operations, thus eliminating the need for inspection-only trips to the site, and dealing with one aquaculture company on contract would involve much less operational risk to wind and wave farm owners than allowing commercial and/or recreational vessels inside their boundaries.

Response: Comment noted. The programmatic EIS does recognize the potential for such conflicts in Section 5.3.23. However, given the lack of details regarding project-specific locations and designs, further evaluation of potential space and use conflicts with fisheries operations will need to be deferred for project-specific evaluations.

Comment: 80052-016

Comment: Section 4.4.11.2.2. Demersal Fishes. In the Pacific region, there are six species of groundfish classified as overfished. (Source: Pacific Fisheries Management Council) Please add information regarding the status of groundfish.

Response: As of May 1, 2007, there were seven species of Pacific Coast groundfish considered overfished. This information has been added.

Comment: 80055-003

Comment: 5.2.11.4 Fish Resources and Essential Fish Habitat – Operation p. 5-62 This section discusses the impact of WTG noise, vibration and electromagnetic fields on fish. The WTG lights near the ocean surface will impact fish. Some fish species are nocturnal feeders and may be disturbed by the light. Other, possibly invasive, species may be attracted and may flourish. The impact of the lighting should be discussed in this section and in Section 7.5.2 Cumulative Impacts and evaluated for all projects.

Response: Text has been added to Section 5.2.11.4 that states that while lighting may attract some fish species and life stages, there is little information available about the potential effects of lighting on fish populations. Because no one would be stationed at

wind turbines, it is anticipated that there would be little need for the continual use of work lights. It is a likely that lighting for aiding navigation would be placed on some structures.

Comment: 80068-029

Comment: Sec. 5.2.1.3 Removal of boulders to prepare sites would likely impact fish and invertebrates that shelter in boulder piles.

Response: Text has been added to Section 5.2.14.3 that identifies that the removal of boulders could affect habitat for some fish and invertebrate species.

Comment: 80079-015

Comment: Moreover, the touted benefits are not unmixed with problems. It is certainly true that if one places hard substrate tower/legs in an otherwise featureless benthic habitat that epibenthic plants and animals characteristically found in areas of hard substrates will settle and grow. Although this will increase production of epibenthic biota and the pelagic/reef-associated fish that feed on these organisms, this change from a sedimentary to a hard substrate/associated fish community will diminish the food sources in the sediments and the demersal fish communities. Many local factors will determine in this situation whether the result of the energy infrastructure results in “increased fish production” or simply “attraction”. Adding a small amount of hard substrate from a project is not likely to increase the productivity of the benthic invertebrates or associated fish communities. The three dimensional structure addition provided by the energy infrastructure might increase the relative abundance of “reef-associated” fish species (like the red snapper associated with oil/gas platforms in the Gulf of Mexico), but for a species that is being overfished, this attraction component would not be a positive outcome (like shooting fish in a barrel). The attraction component is likely to be greater in situations where the energy infrastructure is installed in featureless sedimentary environments. Yet another aspect of this problem is an exacerbation of user conflicts.

Response: The MMS agrees that many local factors will influence whether increasing hard substrates will result in increased production of fish or whether these structures simply attract fish from other areas. Consequently, the programmatic EIS recognizes that the potential effects on diversity and abundance would be project-specific and would largely depend upon the prevalence of various types of habitat in surrounding areas.

Text has been added to explain that some rare or overfished fish species attracted to these structures could be negatively affected if increased harvest due to a concentration of fishing effort occurs.

Potential effects on user conflict with fisheries are described in the fisheries sections of the programmatic EIS.

Comment: 80087-031**Comment:** ESA Consultation and Related Issues

Fishery resource and EFH discussions should include an analysis of impacts to endangered fishes, such as endangered and threatened Pacific salmon, sturgeons, and Atlantic salmon. Other listed species that may be affected include Johnson's seagrass and white abalone. Furthermore, species proposed for listing and species of concern should be included in the analyses. Attached is a list of the Species of Concern that could be included in the PEIS.

Response: Additional text identifying the general potential for impacts to threatened and endangered fish and shellfish species has been added to Sections 5.2.11, 5.3.11, and 5.4.11. As identified in that text, it is recognized that there is a greater potential for population-level effects on threatened or endangered species if they occur in the vicinity of specific projects. Further assessments of potential impacts to ESA species and consultations with the USFWS and NMFS would be deferred until the preparation of site-specific evaluations for specific projects.

Comment: 80087-034

Comment: Essential Fish Habitat - NOAA recommends MMS include in Section 8.3 an explanation of how they will address project-level essential fish habitat (EFH) consultations pursuant to the process identified in the Magnuson-Stevens Fishery Conservation and Management Act (MSA). The MSA requires Federal agencies to consult with the Secretary of Commerce, through NMFS with respect to "any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken, by such agency that may adversely affect any EFH identified under this Act." 16 U.S.C. § 1855(b)(2). When a Federal action agency determines that an action may adversely affect EFH, the Federal action agency must initiate consultation with NOAA. 16 U.S.C. § 1855(b)(2). In order to carry out this EFH consultation, NOAA regulations at 50 C.F.R. § 600.920(e)(3) call for the Federal action agency to submit to NOAA an EFH assessment containing "a description of the action; an analysis of the potential adverse effects of the action on EFH and the managed species; the Federal agency's conclusions regarding the effects of the action on EFH; and proposed mitigation, if applicable." Should the project result in substantial adverse impacts to EFH, an expanded EFH consultation may be necessary. 50 C.F.R. § 600.920(i). NOAA recommends MMS identify in the PEIS a process for conducting project-level EFH consultations to ensure the requirements of the MSA are satisfied prior to authorizing any site-specific projects. NOAA will work with MMS to ensure the process meets the requirements of the MSA.

In Table 7.1.1-1, which summarizes "Potential Impacts from Testing, Site Characterization, Construction, Operation, and Decommissioning for Wind, Wave, and Ocean Current Technologies" NOAA notes that MMS anticipates only minor to moderate impacts to fishery and EFH resources, yet impacts to coastal habitats (which include EFH) would range from negligible to major. Major impacts are defined by MMS as those

that would threaten a resource's viability and result in incomplete recovery, even with proper mitigation. Major impacts to coastal habitats (for example estuarine wetlands and seagrass beds) may constitute a major impact to EFH and associated fishery resources. Therefore, MMS should revise the classification of potential EFH impacts to include a range from minor to major, and these impact levels should be consistent throughout the document. Prior to authorization of any site-specific or technology-specific authorizations, MMS should develop EFH mitigation measures in cooperation with NOAA to ensure that resultant impacts to EFH will be negligible to minor in scope and that unavoidable impacts are appropriately compensated for.

The Fish Resources and Essential Fish Habitat subsections of the Affected Environment Sections for each region should include a discussion of the Habitat Areas of Particular Concern (HAPC) designated in each fishery management plan (FMP) for the appropriate regional Fishery Management Council.

Response: Text has been added to Chapter 8 of the programmatic EIS that describes the procedures that would be implemented for consultation between the MMS and NOAA Fisheries on EFH.

Text in Table 7.1.1-1 of the programmatic EIS has been modified to identify that potential impacts to EFH could range from negligible to minor, assuming mitigation measures are implemented and depending upon project-specific aspects, such as design and location.

Additional discussion of habitat areas of particular concern (HAPCs) has been added to Sections 4.2.11.3, 4.3.11.3, and 4.4.11.3.

Comment: 80087-042

Comment: Impingement, Entrainment, and Trapping from Wave Energy Generation Units

Section 5.3.11.1 and 5.3.11.4 note the potential for fish at various life stages to become impinged on screens, entrained through turbines, or trapped within water collection chambers. MMS concludes there would be negligible impacts to fish resources and no detectable changes in fish populations because only a small number of fish would be affected regardless of the unit design. However, no supporting research or study documentation is provided to support this conclusion.

NOAA recommends MMS provide additional information regarding the anticipated water volume intake, the velocity and location of the intakes, the size and maintenance requirements of the intake screens, the methods that would be employed to ensure various life stages of fish are not trapped within water collection chambers, and the results of any relevant studies or sampling undertaken to document the number of eggs, larvae, juvenile, and adult fish that are likely to be entrained, trapped, or subject to impingement by wave energy generation units.

Impingement, Entrainment, Trapping and Turbine Strikes from Current Energy Units

Section 5.4.11.1 and 5.3.11.4 mention the potential for fish at various life stages to become impinged on screens; entrained through turbines, concentrators, or shrouds; struck by turbines; or trapped within various components of current energy units. MMS concludes there would only be negligible impacts to fish resources and no detectable changes in fish populations because only a small number of fish would be affected regardless of the unit design. However, no supporting research or study documentation is provided to support this conclusion. Because ocean currents are a known method of transport and dispersal for early life history stages (e.g., egg, pre-larval, and larval) of many fish species, NOAA is concerned that MMS has not fully considered the potential population-level impacts of current-based energy production.

NOAA recommends that MMS' analysis include information regarding the anticipated water volume intake, necessary velocity and location of current flow through turbines, the size and maintenance requirements of the intake screens, the methods that would be employed to ensure various life stages of fish are not trapped within current energy generation units, and the results of relevant studies or sampling undertaken to document the number of eggs, larvae, juvenile, and adult fish that are likely to be entrained, trapped, impinged, or struck by components of current energy generation units and turbines.

Response: The subject statement has been deleted, and additional text has been added to the section. Without more specific designs, it is not possible at this time to evaluate the potential numbers of organisms that would be affected. It is beyond the scope of the programmatic EIS to identify specific methods that would be used to reduce or avoid impingement, entrapment, and entrainment.

Comment: 80087-087

Comment: Table 4.2.11-1, Pg 4-65 – This table should be either broken out for each region or added to each region's description in full.

Response: No change has been made to the table. A callout for the table has been included in each of the pertinent affected environment sections.

Comment: 80087-088

Comment: Table 4.2.11-2, entitled "Fish Species for Which Essential Fish Habitat Has Been Designated in the Atlantic, Gulf, and Pacific Regions" is not accurate. For example, the table only identifies five species for the South Atlantic Fishery Management Council. A comprehensive list of species managed by the Fishery Management Councils can be found at the appropriate Council website. NMFS' webpage provides links to the individual Councils' websites at <http://www.nmfs.noaa.gov/councils.htm>.

Response: Additional species have been added to Table 4.2.11-2.

Comment: 80087-097

Comment: 4.4.11.1 – The Affected Environment section for Fish Resources and Essential Fish Habitat in the Pacific Region should include a discussion of the green sturgeon in Section 4.4.11.1, Threatened or Endangered Species

Response: Information about green sturgeon has been added to Section 4.4.11.1.

Comment: 80087-098

Comment: 4.4.11.1.3, Pg 4-238 – Pink salmon are not listed under the ESA. The sentence needs to be rewritten. NOAA suggests moving the bracketed list of all five salmon stocks to page 4-241 where they describe salmon in general.

Response: The suggested change has been made.

Comment: 80087-099

Comment: 4.4.11.2.1 Anadromous Fishes, Pg 4-241 – There are other fish that occur that are not listed here, e.g. sea-run cutthroat trout, sturgeon, and shad.

Response: The text in Section 4.4.11.2.1 has been modified to add information about additional anadromous fish species.

Comment: 80087-100

Comment: 4.4.11.2.2, Pg 4-242 – There is currently no foreign fishing fleet fishing in the EEZ, delete reference. The text refers to the “Southwest Fishery Management Council.” The correct name is the Pacific Fishery Management Council.

Response: The recommended changes have been made to Section 4.4.11.2.2.

Comment: 80087-104

Comment: 5.2.1.4 – NOAA agrees that some fish species could be attracted to the new structure in the ocean. However, whether these fish species are the same that would “normally” be found in the area is unclear. Adding structure may change the local fish community in unpredictable ways.

Response: Section 5.2.11.4 of the PEIS recognizes that placement of wind facility structures could result in changes in local community assemblages and diversity, and the effects on diversity and abundance of organisms would be project-specific. While the MMS agrees that some organisms not normally seen in the area could occur, the MMS maintains, as stated in the programmatic EIS, that effects on diversity and abundance would be “largely dependent on the prevalence of various types of habitats within surrounding areas.”

Comment: 80087-125

Comment: 5.2.11 & 5.2.14 – Depending on the type of installation, there may be substantial localized destruction of seafloor and EFH habitat. Section 5.2.14.3 indicates that construction could take 6 months to 2 years. It is unknown how quickly a benthic community would rebound after disturbance for this length of time.

Response: The time estimate reflects construction time for the entire wind facility area, not for an individual structure. Disturbance in a localized area would be less, although seafloor habitat within the footprint of a particular structure would be unavailable for at least the lifetime of the project.

Comment: 80087-126

Comment: 5.2.11.2, Pg 5-60, Paragraph 2 – The last two sentences appear to contradict each other. If any additional mortality of adult rockfish could be considered a major impact, then even a small number of meteorological towers requiring removal could have a major impact on rockfish.

Response: Text has been added for clarification. Although mortality of some rockfish species could constitute a major impact, most other fish species would recover from removal of meteorological towers without mitigation. The mitigation measure identified in Section 5.2.11.6, which calls for avoiding the use of explosives for removing pilings, would likely reduce the potential for direct mortality of rockfish that colonize such structures, although some displacement of individuals could occur.

Comment: 80087-127

Comment: 5.2.11.3, Pg 5-61, Paragraph 2 – Clarify or provide the rationale for the statement that “...wind structures for a particular project would be somewhat dispersed over the project area and the total area affected by seafloor disturbance would usually be relatively small compared to the availability of similar seafloor habitat in surrounding areas.”

Response: On the basis of past experience at large wind facilities developed in areas offshore from Europe, the structures that would be used for anchoring wind turbines would be relatively dispersed within the project area. As a consequence, the area disturbed by the footprint of the structures, plus the area affected by sediment deposition, would constitute a small proportion of the overall seafloor within the overall project area, and there would be areas between structures that remain unaltered by construction activities. Assuming that projects would be sited to avoid sensitive habitat features, it is likely that such structures would be placed in substrate and habitat types that are relatively common, such as sand-bedded or mud-bedded areas.

Comment: 80087-128

Comment: 5.2.11.3, Pg 5-61, Paragraph 4 – Clarify or provide the rationale for the statement “Overall, the noise associated with placement of platforms would not result in measurable changes in fish populations, although distribution of fishes within the project area could be temporarily altered.”

Response: The text has been modified to identify that while it is known that the distribution of fishes could be affected by construction noise, at least temporarily, experience shows that fishes eventually return and colonize project areas. A reference has been added.

Comment: 80087-144

Comment: 5.2.23 & 5.3.23 – For both wind and wave energy, it seems that the installation of multiple projects could negatively impact commercial fisheries as they would preclude fishing in some areas and cause changes in fish distribution, both of which could reduce the market value of a fishery. Some benefits could occur if commercially-important fish are attracted to the new “structure” in the water column. The analysis defers potential impacts on fishery resources to site-specific NEPA analyses. However, site-specific analyses are very focused and do not necessarily consider the impacts of a policy that promotes large-scale changes in the use of the marine environment. It is possible that site-specific analyses would conclude that there are no important impacts on commercially-important fish species, yet the unprecedented broad scale development of the coastal zone for energy production would have an impact. This issue should be better understood before commercial operations are allowed.

Response: As identified in the comment, site-specific environmental evaluations would be conducted prior to placement of individual projects. As part of such evaluations, potential conflicts with fisheries operations would be considered. Although individual projects could potentially include multiple structures dispersed over a fairly large area, it is believed, at least in the time frame considered by the programmatic EIS, that there would be considerable distance between most projects. The potential for cumulative effects of other proposed and ongoing projects would also be considered as part of each project-specific evaluation. This is necessary, because the potential for cumulative impacts on specific fisheries resources would depend upon the fisheries resources that occur in the vicinity of specific structures.

Comment: 80087-154

Comment: Section 5.3.11.1 states, “Therefore, as long as sensitive seafloor habitats are identified and avoided, impacts to fish resources would be negligible.” NOAA disagrees with this statement. MMS should analyze the potential for the installation of a wave energy facility to change the surrounding environment by attracting and/or repelling aquatic organisms, thereby impacting fish resources.

Response: The text has been modified to clarify that this is referring only to the potential for effects of anchoring systems used during the technology testing phase of development. Given the small area of the seafloor that would be potentially damaged, avoidance of sensitive seafloor habitats would result in negligible impacts to fish resources.

Comment: 80087-155

Comment: 5.3.11.1, Pg 5-187, last paragraph – Most shellfish are not mobile.

Response: The text has been corrected.

Comment: 80087-156

Comment: 5.3.11.6, Pg 5-193, first mitigation measure – As stated on Page 5-178, surveys to characterize potentially sensitive habitats for fish should be conducted during siting studies, rather than prior to facility construction. Earlier studies and proper siting would ensure that impacts to sensitive habitats could be avoided. Also, NOAA commends MMS for including the other mitigation measures, such as to design wave energy generation units to reduce the potential for entrainment, entrapment, or impingement of fish and invertebrates and avoiding the use of explosives for removing pilings.

Response: The text has been modified to recommend that surveys should be conducted during siting studies.

Comment: 80095-001

Comment: Please accept the attached SAFMC Energy Policy Statement as our comments on the DEIS.

Response: Thank you for your thoughtful and useful comments pertaining to protection of EFH and HAPCs from threats associated with energy exploration, development, and transportation activities. Consultation regarding potential impacts to EFH and HAPCs will be initiated at a site-specific level as individual projects are proposed. Text has been added to Chapter 8 of the programmatic EIS that identifies the procedure that the MMS will follow to consult with NOAA Fisheries regarding EFH.

Comment: 80096-015

Comment: Response 15: The EIS states that “At most, only a small number of fish would be subject to impingement, entrainment, entrapment, or turbine strikes regardless of the unit design, and there would be no detectable changes in population levels as a result.” We disagree with this statement, even at testing levels. There are many commercially important and arguably rare or declining fish that transit the Straits of Florida alone or in schools. Collisions with turbine blades by pelagic fish, mammal, and

turtles represent a significant concern and no research exists (as far as we are aware) that quantifies this issue in the Straits of Florida in a practical manner. We believe that small test turbines need to be installed offshore and be increased incrementally in size to quantify the issue prior to the deployment of any full scale commercial platform. This is a very serious site specific issue and needs to be addressed thoroughly.

Response: The text in Sections 5.4.11 and 5.4.11.4 has been modified to recognize that the potential for population-level impacts to fish resources from impingement, entrapment, or entrainment are not known at this time. As identified in the comment, it is anticipated that this would be considered further at the site-specific level for particular projects. Also note that Section 5.4.11.6 includes a mitigation measure that calls for consideration of the potential for impingement, entrainment, entrapment, or fish strikes during the design of current energy generation units and the incorporation of features to reduce the potential where feasible.

Comment: 80096-016

Comment: Response 16: It is unclear in the EIS if the fish attraction to the turbine platform is considered. Pelagic fish tend to concentrate around any structure in the water column and this could significantly increase fish strike. As well, any lights on the structure, maintenance vessels/equipment, or surface structure will attract fish and invertebrates at night.

Response: The potential for structures to attract fishes is discussed in Section 5.4.11.4. Text has been added to this section to identify that the use of lights on maintenance vessels could attract some fishes to the surface.

Comment: 80118-047

Comment: Page 4-61, Section 4.2.11: Fish Resources and Essential Fish Habitat: Fishery management plans are discussed and listed in Table 4.2.11-1. However, fishery management plans developed by the Atlantic States Marine Fisheries Commission (ASMFC) and the Gulf States Marine Fisheries Commission (GSMFC) are not included. This section should include applicable fishery management plans that have been developed by these entities. These plans can be found on their websites, www.asmfc.org and www.gsmfc.org. Additionally, "The Striped Bass Fishery of the Gulf of Mexico, United States: A Regional Management Plan" (GSMFC 2006), which is not available on the GSMFC website, was not included in this section.

Response: The document has been revised to add information about the role of the Marine Fisheries Commission in developing fishery management plans.

Comment: 80118-048

Comment: Page 4-66, Section 4.2.11.1 Threatened or Endangered Fish Species: The federally-threatened Gulf sturgeon (*Acipenser oxyrinchus desotoi*), is not included.

Additionally, the Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), was designated a candidate species under the Endangered Species Act (ESA) on October 17, 2006, by the National Marine Fisheries Service. These should be included in this section.

Response: The Gulf sturgeon is addressed in the section pertaining to the GOM (Section 4.3.11.1.1). Text has been added to identify that the Atlantic sturgeon is being considered for listing under the ESA.

B.2.16.12 Sea Turtles

Comment: OCS56-004

Comment: Again, my name's Kristen French, and I had two questions. One is -- you mentioned, for instance, there could be a moderate to major impact on sea turtles, due to construction lighting, and hatchlings.

And I'm wondering if you're going to offer specific proposals for mitigation in terms of either setting up the construction site so that it won't send light to the shore or not allowing it in areas where sea turtles hatch, you know, either one. Do you -- I don't know if you have anything specific for that. That would definitely be a local interest here.

Response: The MMS is aware of the detrimental effect of lighting on or near sea turtle nesting beaches. Mitigation measures to minimize or avoid impacts to sea turtles are presented in Sections 5.2.12.6, 5.3.12.6, and 5.4.12.6. Among these mitigation measures is compliance with sea turtle-applicable Federal and State statutes, regulations, and stipulations (such as lighting restrictions and requirements) that would limit the potential impacts to nests and emerging hatchlings.

Comment: 80070-009

Comment: Five species of endangered or threatened sea turtles occur on the Georgia continental shelf, including the green, hawksbill, Kemp's ridley, leatherback, and loggerhead sea turtles. The loggerhead turtle (*Caretta caretta*) is the most abundant sea turtle in offshore Georgia, occurring from coastal estuaries out to 500 miles from shore. Loggerheads nest on Georgia's barrier islands, averaging 1,000 to 1,300 nests per year. Primary causes of mortality include incidental take by shrimp trawlers, coastal development, coastal erosion, beach armoring, beach renourishment, and pollution. There is also growing concern over vessel strikes. Other endangered species or species of concern (Georgia Endangered Wildlife Act of 1973 [O.C.G.A. §27-3-130 et seq.]), occurring on the Georgia shelf include fish (Atlantic sturgeon, shortnose sturgeon, and smalltooth sawfish) and marine birds (least and gull-billed terns, black skimmer, Wilson's plover, piping plover, red knot, and American oystercatcher).

Response: Comment noted. The programmatic EIS does not specifically address species distributions, occurrence, or life histories on a state-by-state basis. All five species are

currently identified and discussed regarding their distribution and life history in suitable habitats along the Atlantic Coast of the United States.

Comment: 80087-024

Comment: Sea Turtles- Personal communication citations should not be used when written, peer-reviewed documents are available. Most or all NOAA 2006c citations should be replaced with citations to written documents (preferably primary literature). The definition of juvenile turtles (“those which have commenced feeding but have not attained sexual maturity”) does not match typical descriptions of the juvenile stage of sea turtles, and may incorrectly imply that hatchlings are not feeding.

The sentence “These species use coastal waters for foraging...” should be amended to include oceanic foraging.

It is not clear what is meant by “Mating may occur directly off the nesting beaches or remotely.” MMS should better describe what is meant by “remotely.” The range of the leatherback turtle extends much further south than stated. The statement that “The leatherback’s range in the Atlantic extends from Cape Sable, Nova Scotia, south to Puerto Rico and the US Virgin Island.” should be amended. If the document is only discussing the range of the leatherback WITHIN the action area, this should be explicitly stated, otherwise the full extent of the species range should be provided along with a literature citation.

The statement that “Thousands of subadult loggerhead turtles forage on horseshoe crabs in Chesapeake Bay during the summer months” seems out of place. Mentioning only a single location and single food source inappropriately emphasizes one small portion of the range and diet.

When considering impact and mitigation measures, the DPEIS seems to focus on protecting nesting females (which is certainly important), but the document should also thoroughly discuss mitigation measures to protect aggregations of juveniles and nonnesting adults. A more thorough discussion of distribution patterns and water temperature would help.

In several sections, the document suggests juvenile and adult sea turtle avoid dangerous situations (“areas with heavy vessel traffic,” entanglements, entrainments, etc.”). Statements that sea turtles are “active swimmers” and “slow and deliberate swimmers” are not scientifically sufficient to support the premise that all sea turtles will actively avoid dangerous situations. Sea turtles are found entangled in fixed fishing gear (gillnets, pound net leaders, and lines associated with crab, whelk, and lobster gear), documented with propeller marks from boat motors, and caught in dredges and mobile fishing gear. Hence, it is inappropriate to suggest that turtles are likely to avoid dangerous situations, unless scientific evidence is provided to support this claim. The fact that alternative energy actions (e.g., construction of alternative energy sites) are expected to be staggered

does not diminish the impacts to sea turtles, unless the actions are limited to times and areas where the distribution of sea turtles is limited.

The document inappropriately argues that because sea turtles are threatened and endangered, there are few of them, and therefore the total impact is necessarily low (i.e., because there are so few animals to impact). Hence, the following sentence and all similar and associated statements should be revised: “However, because of the threatened or endangered status of all the sea turtle species, impacts could be minor for these species.” Relatively minor impacts to individuals or populations may be important to recognize and mitigate and should be better characterized and evaluated in the PEIS. Even impacts to a few individuals could be problematic if the populations are low and the resilience is weak.

Response: The NOAA 2006c citation is used as an excellent resource for an overview of sea turtles and contains the level of detail appropriate for this programmatic EIS. The personal communication (Dutton 2006) was used at the direction of the Southwest Fisheries Research Center, as the preliminary data on the Center’s Web site was not yet published in a peer-reviewed document.

It is unclear why the NOAA commentor disagrees with the citation to the NOAA’s sea turtle Web site. As used, the callout provides the reader with direct access to many of the species-specific recovery plans from which much of the sea turtle information summarized in Chapter 4 of the programmatic EIS was obtained.

The definition of “juvenile turtle” has been revised to remove feeding but to incorporate more powerful swimming ability.

“Oceanic” foraging has been added to the text.

The text has been clarified to more clearly explain that mating may occur well away from nest beach locations.

The discussion of the leatherback turtle’s range is stated as specific to the Atlantic (and is presented in the “Atlantic Region” portion of the Affected Environment chapter of the programmatic EIS). A literature citation (NMFS and USFWS 1992b) is provided.

The loggerhead foraging text has been revised to delete mention of the horseshoe crab. This single location is mentioned because it is an example of a very important, localized habitat for this species.

A mitigation measure recommending the avoidance of known sea turtle aggregating areas, foraging areas, and developmental habitats has been included. The mitigation would apply to those activities that could potentially cause impacts.

Text related to turtles avoiding areas with heavy vessel traffic and swimming capabilities has been largely deleted. Text related to sea turtles avoiding mooring cables has not been deleted. The text acknowledges sea turtle mortality from entanglement with fishing gear

and other anthropogenic materials. These latter materials are generally smaller in diameter and less obvious than the steel mooring cables that would be used to anchor wave or current energy infrastructure to the seafloor. In addition, the mooring cables would not be towed through the water column or allowed to drift like commercial and recreational fishing gear. Thus, sea turtles may be expected to avoid mooring cables.

The PEIS identifies potential population-level impacts to sea turtles from various aspects of alternative energy development on the OCS; with potential impacts ranging from negligible to major, depending on the impacting factor, energy activity, and life stage potentially affected.

The intent of the statement “However, because of the threatened or endangered status...impacts could be minor to these species.” Text immediately preceding such language in the PEIS points out that the potential effects would be considered negligible. The text in question was intended to point out that because of the listed status of these species, population-level impacts would not be negligible but rather could be minor to moderate (a higher impact level as defined in Section 5.1.1). It was not the intent of the document to minimize potential impacts to these species, and the text has been revised to clarify this distinction in potential impact level.

Comment: 80087-129

Comment: 5.2.12.1 Technology testing, Pg 5-65 – the last sentence about the minor impacts to sea turtles contradicts earlier statements in the paragraph that no impacts to sea turtles are anticipated.

Response: The text is not contradictory. The earlier statements point out that because developers are anticipated to skip the demonstration phase and go directly to development, no impacts from demonstration are anticipated. However, demonstration projects could still occur, and the text continues to discuss potential impacts should a demonstration project be undertaken.

Comment: 80087-130

Comment: 5.2.12.2.5, Pg 5-68, Paragraph 2 (also on Page 5-73, Paragraph 4) – Acoustic criteria used in section 7 consultations for underwater explosions have been 182 dB re 1 $\mu\text{Pa}^2\text{sec}$ and 12 psi. However, acoustic criteria continue to evolve and will likely be different for projects proposed in the future.

Response: Comment noted. The text discusses the potential for impacts using the example criterion, and acknowledges that the actual sound levels that could be experienced by sea turtles would depend on the size of the explosives charge used, surrounding water conditions, and distance to the nearest turtle. Specific acoustic criteria (including any future ones) would be applied at the project-specific level, and are outside the scope of analysis of this programmatic EIS.

Comment: 80087-131

Comment: 5.2.12.3.2, Pg 5-69, Paragraph 4 – Provide the basis with literature references for the assumption “that habitats such as sea-grass beds and live-bottom areas commonly used by turtles for feeding or resting would be avoided during facility siting and pipeline routing, and that some soft-bottom areas affected by construction or trenching would recover.”

Response: The referenced text states “It is assumed that habitats such as sea-grass beds...would be avoided...” Many of the activities associated with alternative energy development would occur on Federal waters far from the coast. Those activities that could impact the coast would require consultation and consistency determinations. During this process, site-specific mitigation measures would be developed to reduce or prevent impacts to sensitive areas such as seagrass beds and live bottom areas. The programmatic EIS also recognizes that some seafloor communities would take a long time to recover from disturbances.

Comment: 80087-132

Comment: 5.2.12.3.3 Vessel Traffic, Paragraph 1, Pg 5-70 – Provide the basis with literature references for the statement that “juvenile and adult sea turtles might avoid areas with heavy vessel traffic” and “most species generally exhibit considerable tolerance to ships.”

Response: The text has been revised to indicate that hatchlings might be more susceptible to vessel collisions than juvenile or adult turtles.

Comment: 80087-133

Comment: 5.2.12.3.3 Vessel Traffic, Paragraph 2, Pg 5-70 – Sea turtles are usually difficult to spot, even in daylight and clear visibility and are very difficult to spot from a moving vessel when below the water surface.

Response: Text revised as suggested.

Comment: 80087-134

Comment: 5.2.12.4.4, Pg 5-72, Paragraph 4 – Correct “hatching” to hatchlings. This misspelling is repeated in other sections. Perform a search and replace, as appropriate.

Response: Text corrected as suggested.

Comment: 80087-135

Comment: 5.2.12.5, Pg 5-73, Paragraph 2 – Explain what is meant by decommissioning activities would be similar to construction but at lower levels.

Response: The text has been revised to clarify the sequence of decommissioning activities, while the text discussing “lower levels” has been removed.

Comment: 80087-136

Comment: 5.2.12.6, Pg 5-74, Mitigation Measures – Measures to be taken during explosive severance removals should be updated to reflect the 2006 biological opinion and 2007 incidental take authorization for removals in the Gulf of Mexico. Some of these measures may be applicable to the alternative energy projects.

Response: The mitigation measures have been updated.

Comment: 80087-160

Comment: 5.4.12.1.2, Pg 5-309 – MMS should state how deep the turbine blade rotors would be placed.

Response: It is not possible to identify how deep turbines would be placed. Turbine rotors would be placed at a depth that optimizes energy production, and this depth would be a function of the specific technology selected and site-specific conditions (such as depth of the current).

Comment: 80087-161

Comment: 5.4.12.6 Mitigation Measures, Pg 5-316 – An additional measure to protect turtles would be to design and place rotors to avoid turtles from being struck by the blades or other moving parts.

Response: The second mitigation measure addresses siting offshore facilities away from important onshore and offshore habitats in order to minimize sea turtle impacts. The third mitigation measure discusses the use of turtle exclusion devices to discourage turtles from approaching operating turbines, thus minimizing or eliminating rotor strike potential.

Comment: 80118-016

Comment: Along the coast of Georgia, all sea turtle nesting areas occur on barrier islands (see Attachment 3). As an additional mitigation measure, we recommend onshore facilities and cable landfalls be located outside State or federally-owned, or otherwise protected, barrier islands. Another recommended mitigation measure is to use sea turtle-friendly lighting during the nesting and hatching season. In Georgia, this period is May 1 through October 31 (GDNR 1994); however, this period will vary coastwide with latitude.

See hard copy for Attachment 3: Sea Turtle Locations and Nesting and Hatching Season Dates (Table)

Response: Proposed mitigation measures call for the avoidance of nesting areas during nesting season by those activities that could cause impacts. Future consultation would determine detailed mitigations to avoid or minimize impacts.

The fifth mitigation measure calls for compliance at the project-specific level with applicable Federal and State statutes, regulations, and stipulations. Lighting restrictions or requirements have been added as a parenthetical example.

Comment: 80118-069

Comment: Page 5-74, Section 5.2.12.6 Mitigation Measures: The last three bullets on this page (bullet three, four, and five) address sea turtle nesting beaches, potential affects, and mitigation measures. Applicable statutes, regulations, and stipulations are generally referred to without identifying them or where they may be identified elsewhere in the document. We recommend the applicable statutes, regulations, stipulations and mitigation measures are identified in a table in this section or in an appendix; and, that the table and/or appendix be referenced in the text. In these bullets, it is stated that implementation of all mitigation measures required by Federal and State statutes and regulations would greatly limit the potential for impacts to nests and emerging hatchlings. However, none of the mitigation measures to be incorporated are noted.

Additionally, Table 7.1.1-1 (cont.) on page 7-8 claims that minor to major impacts will occur and that if mitigation measures are employed that populations level impacts would not be expected. Because sea turtles are protected, measures to minimize population impacts need to be in place. For that purpose, the Service recommends avoiding locating onshore facilities and cable landfalls in known sea turtle nesting areas generally and on NWRs. The Service web site lists following northeast United States NWRs where sea turtles have been sited:

Eastern Shore of Virginia NWR Kemp's ridley, loggerhead, leatherback
Fisherman's Island NWR Kemp's ridley, loggerhead, leatherback
Oyster Bay NWR Kemp's ridley, loggerhead, leatherback
Back Bay NWR loggerhead
Chincoteague NWR loggerhead
Elizabeth Morton NWR loggerhead
Target Rock NWR loggerhead
Wertheim NWR loggerhead

Response: Table 1.6-1 in the draft EIS identifies the Federal statutes and Executive Orders (and the responsible Federal agencies) that would apply for future projects. Table 1.6-2 in the draft EIS identifies the State agencies responsible for CZM activities in each state. Identification of location-specific statutes, regulations, stipulations, and mitigation measures would be conducted at the project-specific level during project-specific NEPA evaluations.

The sea turtle mitigation measures identified for the Atlantic, Pacific, and GOM include avoiding activities that could impact nesting beaches during the nesting season. Specific beaches are not identified in this programmatic EIS, because each may require site-specific mitigation measures that will be developed during consultations for individual projects.

Comment: 80118-083

Comment: Page 7-8, Table 7.1.1-1 (cont.) Sea Turtles: See comments above for “Page 5-74, Section 5.2.12.6 Mitigation Measures.”

Response: The text on sea turtle impacts in Table 7.1.1-1 already acknowledges the need to avoid known onshore sea turtle nesting areas. At the time of site-specific NEPA analyses when specific project locations are known, the USFWS would be consulted to determine known nesting areas (both in NWR areas and other areas) that would need to be avoided.

B.2.16.13 Coastal Habitats

Comment: OCS56-005

Comment: Do you know if wetlands would be irreversibly impacted by cable installation or substation installation and maintenance of the equipment that’s going to carry the electricity?

Response: As described in Sections 5.2.13, 5.3.13, and 5.4.13, impacts to wetlands from these construction activities could include direct losses of wetland habitat. However, because of Federal, State, and local regulations, as well as engineering concerns, projects would typically be located to avoid or minimize impacts to wetlands.

Comment: OCS85-010

Comment: 10. Comment: -Washington Ports and Dredging

The PEIS references the possibility that Washington ports may not be large enough to accommodate shipping of wind or wave energy components. The PEIS goes on to discuss that Washington ports may need expansion, including dredging, in order to accommodate such building material (section 5.2.13.3, p. 5 -75, and elsewhere).

This appears to be a reasonable assumption for this document, but no analysis is associated with the statement. Did MMS review the capabilities of Washington ports? How much expansion is really required? Are there any ports along the western coast currently capable of handling the building materials? If so, instead of impacting the listed habitats by expanding smaller ports up and down the western coast, would it be more appropriate to use the existing ports for points of assembly?

In general, while the analysis is helpful, it appears port expansion or dredging is outside of the MMS jurisdiction. At a minimum, further detail on why such activities are truly required is requested. Both would need coordination with DNR Aquatics Program, Ports Program and Dredged Materials Management Program.

Response: Initial offshore alternative energy projects are expected to utilize existing ports with the required infrastructure to support the proposed action. However, there may be instances where some aspect of the port may need some modification. A detailed analysis of all U.S. ports along the Atlantic, Gulf, and Pacific Coasts is not within the scope of this programmatic EIS. At the time that a specific project is proposed, the MMS will work with the affected States and other stakeholders to determine local project impacts.

Comment: 80068-022

Comment: Chapter 4. Affected Environment - More discussion of the ecological processes that shape coastal ecosystems and maintain diversity and ecological services, especially those processes that may be affected by various ocean energy technologies, would be extremely useful. These processes may include sediment loading, wave action, tidal flows, nearshore circulation, and wind patterns. The document includes dozens of pages of description of coastal habitats, but it is difficult to find any mention of these critical processes in this chapter. At large scales, attenuation of waves by wave energy technologies, attenuation of winds that shape dunes and beaches by offshore wind technology, etc. may have profound impacts on the fundamental physical processes essential for maintaining biodiversity, ecological functions, and ecosystem resilience to climate change and other factors.

Response: Additional text has been provided in Sections 4.2.13, 4.3.13, and 4.4.13 regarding coastal processes.

Comment: 80070-004

Comment: Onshore facilities can have significant impacts on sensitive coastal land features, such as estuaries, sand dunes, beaches, and offshore bars and shoals, through land-disturbing activities associated with site preparation and construction. Also, land-disturbing activities can lead to significant impacts on local water bodies and estuaries. Exposed soils are subject to erosion during precipitation events and can lead to sedimentation of nearby creeks, rivers and marshes. Impervious surfaces from buildings and pavement increase the volume and velocity of stormwater runoff which can result in erosion of stream banks and the scouring of stream channels. In addition, stormwater can transport pollutants from the land surface and degrade water quality in receiving streams.

Response: Sections 5.2.13, 5.3.13, and 5.4.14 of the draft programmatic EIS described these impacts, however, additional text has been provided in these sections to address commentor concerns.

Comment: 80118-014

Comment: Construction of onshore facilities should occur during the non-breeding season. Mitigation of lost breeding habitat (beaches/wetlands) should be required. Wave energy operation may cause impacts such as seabird entanglement. Methods to deter seabirds should be employed to reduce the potential for impacts.

Response: The mitigation measures presented in Sections 5.2.9.6, 5.3.9.6, and 5.4.9.6 include measures that include avoiding siting facilities in or near important nesting habitats, avoiding noise-generating activities during nesting periods, designing above-water structures that minimize perch sites, using antiperching devices, and designing lighting schemes that reduce the attractiveness of structures to birds.

B.2.16.14 Seafloor Habitats**Comment: OCS54-004**

Comment: And another item that I noticed was your discussion about construction impacts when they actually build these offshore. As a pilot flying up and down the east coast all the time -- there is tremendous damage to the environment from shrimpers and from those people that drag nets across the bottom of the ocean. And if you ever saw that, you would be appalled at the damage. It's a wasteland out there.

And the construction impact of a properly managed process would be very minimal to the environment.

Response: Thank you for your comment.

Comment: 80055-004

Comment: 5.2.14.3 Seafloor Habitats - Construction p. 5-81 The section states that "Construction of platforms to support wind structures and placement of transmission lines on the seafloor to transport electricity to shore could affect seafloor habitats." The statement should be expanded to include the very significant transmission lines between all the WTGs and the ESP. For many wind projects this will involve disturbing hundreds of miles of seafloor habitat. Although the total area of the trenching activities is small compared with the total area of the wind farm, the trenching operation and surrounding trenching equipment could disperse turbid water and current borne sediments throughout a large area of the wind farm.

Response: The text has been modified to include transmission lines between structures in addition to those that run to shore.

Comment: 80068-035

Comment: Sec. 7.6.2. The PEIS concludes that impacts associated with construction of offshore facilities would be short term and mitigable; however, this may not be the case regarding the displacement or mortality of extremely long-lived species such as cold water corals.

Response: The text has been modified to clarify that construction impacts associated with construction of offshore facilities would be short term and could likely be mitigated, as long as damage to unique or rare habitats and to long-lived species is minimized. Under the BMPs identified in the programmatic EIS, site characterizations to identify sensitive habitats would be required, and known sensitive communities, such as live bottoms and coral reefs, would be avoided during siting of projects.

Comment: 80087-050

Comment: Siting in Southeast U.S. Waters: The transmission of generated energy from the OCS to the shoreline will take place via sub-sea cables, many that will be buried underneath the sediment. Page 3-23 indicates that “additional precautions would be needed if it were deemed necessary to transmit the energy over rocky or seismically active areas.” Live bottom (rocky) reef habitat comprises a large area of the continental shelf in the South Atlantic Bight of the U.S. (Miller & Richards, 1980; Sedberry & Van Dolah, 1984; Levin & Hay, 1996), and this habitat supports sponges, hydroids, corals, invertebrates, seaweed beds, and a diverse assemblage of tropical and temperate fishes. Therefore, the specific methods and plan for routing cables through these rocky habitats must be included here, rather than the generic “additional precautions.”

The fact that the precise locations of potential new alternative energy facilities or alternate use program facilities are currently unknown (ES-14) indicates that selection of locations needs to be a priority, identified well in advance of operations. Although the DPEIS is programmatic and, therefore, evaluates the generic impacts from potential activities occurring in the environment (p. 1-4), it is critical that the location of alternative energy facilities be determined as early as possible during the planning stages of these projects.

As stated throughout the document, most impacts from nearly all phases of development and production (i.e., technology testing, site characterization, construction, operation, and decommissioning) are expected to be negligible to minor if the proper siting and mitigation measures are followed (emphasis). The most important component of the previous statement is that proper siting and mitigation measures need to be followed, and this would be dependent on accurate characterizations of benthic habitats in the proposed areas of interest. With regard to the southeast U.S., the most extensive and best evaluation of the distribution of bottom habitats from Florida through North Carolina, and from the beach out to 200 m depth is a coarse estimate (1 min grid squares, SEAMAP-SA, 2001). Until estimates of the distribution of bottom habitats in this region is improved, proper siting and mitigation measures will be nearly impossible to achieve.

Impacts thought to be negligible or minor may instead trend towards moderate and higher levels unless the distribution of bottom habitats is more accurately known.

Much of the DPEIS suggests that noise impacts to marine communities from Alternative Energy Development will be the primary impact affecting fish, sea turtles, and marine mammals. While increased noise may be a key impact for marine mammals and some turtles and fishes, the direct effect on marine communities of disturbance to the seafloor should not be discounted, whether through Technology Testing, Site Characterization, or Construction (see Decommissioning). Various bottom habitats can be essential habitat for commercially and recreationally harvested species and the alteration and destruction of bottom habitats may be as, or more important than noise to many marine community members.

Response: The MMS agrees that appropriate siting of specific projects is critical to managing potential environmental impacts, including impacts to sensitive bottom habitats such as hard grounds, which may support a diverse biological community. Before development, site characterization, as described in Section 3.5, will be required to identify sensitive biological communities, and the MMS will require that these areas be avoided.

Comment: 80087-052

Comment: Siting in Southeast U.S. Waters: Land based wind parks can require substantial land areas. Assuming that the largest available land based turbine is used (currently, 1.5 MW), the total acreage for a wind park with 400 turbines in optimal wind conditions could require more than 2,000 acres; about 200 acres would be dedicated to the turbine footprint (assuming approximately 0.5 acres per turbine base, p. 7-21). Offshore WTGs are bigger than onshore turbines—a typical onshore turbine installed today has a tower height of about 60 to 80 m (200 to 260 ft) and blades about 30 to 40 m (100 to 130 ft) long; most offshore wind turbines are larger in size, and new prototype designs are even bigger (p. 3-4). Given the larger size and footprints of offshore WTGs, the DPEIS does not provide sufficient scientific support for the conclusions that it reaches.

Response: It is unclear which conclusions the comment is referring to. However, the MMS agrees that the footprint of offshore wind facilities will be quite large, with the spacing of the turbines being on the order of one-half mile. Individual monopile diameters of approximately 15 ft would suggest that the actual area occupied by the turbines is small relative to the entire facility size; therefore, the area of seafloor impacted is relatively small, justifying the impact analyses, irrespective of the precise location of these facilities.

Comment: 80087-089

Comment: 4.2.14 Seafloor Habitats and Chapter 5: – The importance of soft sediment seafloor habitats on fisheries and EFH needs to be better emphasized in the DPEIS. Soft

sediments on the OCS are dynamic habitats, not just mixtures of different grain-sized mineral particles. Seafloor sediments contain varying amounts of organic matter depending on grain size and oceanographic conditions. Thousands of invertebrates per square meter live in—or on—the sediments of the ocean bottom, along with bacteria and protozoa. Amphipod and polychaete tubes can cover and cement the sediment surface over hundreds of square km² at certain locations during certain time periods. These emergent tubes can provide habitat for other important macroinvertebrates, as well as fish. Bioturbation and microbial metabolism recycle nutrients into the overlying water column. There are also many important biogeochemical processes within the sediments. All of these processes form a mosaic of structure and function within the sediments. The macrofauna, meiofauna, and microfauna associated with the sediments account for a major portion of the biomass in the ocean, and constitute an integral part of the marine food web that supports exploitable fish species. MMS should describe how OCS alternative energy projects would disturb and affect these processes within the soft sediments.

Response: Text has been added to Section 4.2.14 that describes the importance of the processes and fauna associated with sediments. Text has also been added to Sections 5.2.14.3, 5.3.14.3, and 5.4.13.3 to identify the potential for affecting the ecological function of disturbed sediment communities.

Comment: 80087-090

Comment: 4.2.14, Paragraph 3 Seafloor Habitats, Pg 4-79 – MMS should check up-to-date references on slope habitats. Wigley and Theroux used 1mm sieve sizes that may have missed many smaller invertebrates.

Response: While the MMS understands that using 1-mm sieve sizes could affect the numbers and types of benthic organisms collected, the suggested change would not substantially alter the descriptions of the affected environment.

Comment: 80087-091

Comment: 4.2.14.1 – This section should refer to maps where Stellwagen Bank, the Charleston Bump, and the Oculina Bank are depicted. Topographic Features including ridge and swale structure should also be mentioned under this section. MMS should describe the function and importance of the ridge and swale topography. There is an extensive ridge and swale system off the NJ coast and also in other areas along the Atlantic. The Hudson Shelf Valley is also an important topographic feature of the NY Bight.

Response: Figures 4.2.1-1 and 4.2.1-3 were modified to include Stellwagen Bank, the Charleston Bump, and the Oculina Bank topographic features. The ridge and swale topography is discussed in Section 4.2.14.2. The Hudson Shelf Valley was not added to the figures.

Comment: 80087-092

Comment: 4.2.14.2, Sentences 1 & 2 Benthic Communities, Pg 4-81 – MMS should include “Crustaceans” in these sentences.

Response: The suggested changes have been incorporated into the programmatic EIS.

Comment: 80087-093

Comment: 4.2.14.2, Pg 4-82 – MMS should explain why the ridge and swale topography is important to the OCS environment and (Chapter 5) how alternative energy development will directly or indirectly affect these habitats.

Response: Ridge and swale topography is described in Section 4.2.14.2, and it is explained that the characteristics of ridges and swales affect the benthic community associated with these features. Although general impacts to seafloor habitats are evaluated in the programmatic EIS, it is beyond the scope of the programmatic EIS to fully evaluate how alternative energy may alter these specific habitat types.

Comment: 80087-103

Comment: Chapter 5 – More attention should be given to possible functional effects due to loss of resources or loss of habitat. In many sections throughout Chapter 5, especially under seafloor habitats, statements are made that disturbance will be small compared to the availability of similar seafloor habitats in surrounding areas. This cannot be known until the proposed site has been characterized.

Response: Statements in the programmatic EIS that disturbance will be small compared with the availability of similar seafloor habitats in surrounding areas are predicated upon the assumption that rare and unique habitats will be avoided when siting projects. It is clear that individual offshore alternative energy structures will be relatively dispersed within a designated project area and, compared with the overall project area, the total footprint of structures, together with directly affected seafloor areas, will be undoubtedly small. The MMS agrees that a full characterization of a proposed site needs to be completed in order to identify and avoid habitats that are unique or limited.

Comment: 80087-137

Comment: 5.2.14.2, Paragraph 2, Pg 5-80 – The gravel pavement and ridge and swale should also be avoided. It cannot be certain that natural habitat conditions would return in one or two years after removal of pilings.

Response: Comment noted. Section 5.2.14.2 states, “If the towers were constructed on sensitive seafloor habitats, measurable damage to those habitats and nearby organisms could occur if explosives were used during removal and could require a considerable amount of time (e.g., 10 or more years for some hard-bottom habitats) for recovery.”

Ridge and swale areas and gravel pavement areas are included in the designation of “sensitive seafloor habitats.”

Comment: 80087-138

Comment: 5.2.14.4, Pg 5-82, last paragraph -- The effects of operations on diversity and abundance are discussed. MMS should describe the effects on ecological function especially for the large-scale projects.

Response: Text has been added to Section 5.2.14.4 to further identify that changes in ecological function could occur in the vicinity of large wind facilities.

Comment: 80087-139

Comment: 5.2.14.6 – Gravel pavements and ridge and swale should be added to the second mitigation measure

Response: The suggested change has been made.

Comment: 80087-176

Comment: The assertion is made on p. 5-79 that mobile organisms would likely move temporarily from affected areas but could return after construction of alternative energy platforms is completed. MMS should provide scientific evidence to support this statement.

Response: The sentence has been modified to clarify that while some individuals may be able to move to avoid construction impacts, other invertebrates within the footprint of construction activities could be killed.

Comment: 80096-018

Comment: Response 18: Long term studies with test systems are needed to identify and characterize the impact on potentially sensitive habitats.

Response: The MMS agrees that monitoring should be conducted concurrently with the testing of technology to more fully understand the potential impacts of the technology on the marine environment.

Comment: 80118-078

Comment: Page 5-212, Section 5.3.14.6 Mitigation Measures: In addition to impacts from vessel traffic and anchorages on coral reefs and the sea bottom, the Service recommends that MMS carefully review known and potential impacts from “sand mining” operations especially to scoters, eiders and other sea ducks — as was previously mentioned. Since these shallow water areas are or may be important feeding, rafting, and

staging grounds for scoters, eiders, Longtail and Harlequin Ducks (among others), we recommend that a careful review and assessment of this issue be included in the final PEIS.

Response: This programmatic EIS is evaluating the potential environmental impacts from alternative energy projects and the reuse of existing structures. Sand mining, while a program within the MMS, is not the subject of this EIS and is evaluated through NEPA documents prepared by the USACE and reviewed by the MMS.

B.2.16.15 Areas of Special Concern

Comment: 80087-086

Comment: Figure 4.2.10-1 appears to be missing an “S” (as indicated in the legend) for the Gerry E. Studds Stellwagen Bank National Marine Sanctuary in Massachusetts Bay.

Response: Thank you for your comment. The sanctuary was inadvertently left off the map and has been added to the figure.

Comment: 80087-094

Comment: Figure 4.2.15-1 should be corrected to read: Monitor National Marine Sanctuary.

Response: The text in Table 4.2.15-1 has been corrected as indicated.

Comment: 80087-096

Comment: Figure 4.4.10-1 includes a reference to National Marine Sanctuaries in the legend, but the sites are not included in the figure. They are, however, referenced in the text beginning on page 4-252.

Response: Although the names of individual marine sanctuaries are not included in the figure, the locations of marine sanctuaries are indicated by symbols in the figure. Names of National Marine Sanctuaries are included in Table 4.2.15-1.

Comment: 80087-140

Comment: 5.2.15 Areas of Special Concern – Although alternate energy projects cannot be sited within marine sanctuaries, areas closed to fishing or HAPC, care must be taken as to where these projects are sited outside of such areas. Alternate energy projects should not be sited in areas where they would interfere with the transport of fish and invertebrate larvae destined to settle in areas of special concern.

The DPEIS's estimates of Potential Impacts to Areas of Special Concern should be expanded, as described below, to address impacts to National Marine Sanctuaries from activities occurring both within and outside their boundaries.

Response: As identified in the programmatic EIS, more detailed analyses of potential impacts to areas of special concern would be conducted as part of site-specific evaluations for proposed projects once specific locations and technical specifications are better understood. Sections 5.2.15.4, 5.3.15.4, and 5.4.15.4 recognize that there is a potential for OCS alternative energy projects to interact with fishery resources and ecological resources within nearby areas of special concern. Siting of individual projects will consider the presence of sensitive species and life stages, as well as the potential for impacts to areas of special concern, such as marine sanctuaries or HAPCs.

Comment: 80087-142

Comment: 5.2.15.4, Pg 5-88 – “Operations” states the following: Noise and vibrations associated with the operation of the turbines would be transmitted into the water column and through the sediment. Depending on the proximity of OCS wind turbines to areas of special concern and the intensity and frequency of the sounds generated, such noises could potentially disturb or displace some marine mammals (Section 5.2.8) or fish (Section 5.2.11) within areas of special concern or could mask sounds used by these species for communicating and detecting prey. The potential for such effects would be project specific and would be considered further during project-specific evaluations.

We agree with this statement's inclusion of masking as an impact of particular concern due to increasing noise levels from industrial activities adjacent to sanctuaries, and reiterate the importance of using site-specific modeling techniques to estimate the propagation of noise within various frequency bandwidths to educate decision making during all phases of alternative energy development in the OCS.

Response: As noted in the comment, there would be requirements for site-specific evaluations of potential impacts, including impacts from noise generated by construction and operation of alternative energy projects, prior to development of individual projects.

Comment: 80087-143

Comment: 5.2.15.6. – Because the noise and physical disturbance of construction and operation will extend beyond the physical structure of the wind structure, one appropriate mitigation measure would be a buffer zone around Areas of Special Concern where no structures can be located.

Response: Although a BMP to establish buffer zones around areas of special concern has not been identified, the proximity of proposed alternative energy sites to such areas and the potential for impacts to the resources within those areas would be considered during site-specific evaluations for individual projects.

Comment: 80091-002

Comment: The draft programmatic EIS ignored the point raised in my scoping comments of July 5, 2006, that there should be a presumption against any aesthetic impact upon national, state, and municipal parklands held in the public trust, or places listed in the National Registry of Historic Places. This presumption should make any site that would impact such places per se inappropriate.

Response: The programmatic EIS states that impacts for individual proposed projects would be assessed at a site-specific level in accordance with NEPA. The site- and time-specific nature of visual impacts and other factors that affect visual impacts are noted in the visual impact analysis in the PEIS; the impact levels described in that section are levels that are considered likely to occur, but the analysis does preclude impacts above or below the stated levels. It should be noted that some anticipated levels of visual impacts in the programmatic EIS are stated to potentially be “moderate” or “major.”

Assessment of impacts under NEPA does not categorically preclude impacts on particular visual resources. Identifying a preferred alternative may involve difficult judgments, particularly when one environmental value must be balanced against another. In identifying a preferred alternative, the agency seeks to fulfill its statutory mission and responsibilities, giving consideration to economic, environmental, technical, and other factors. The alternative that best meets the requirements while minimizing environmental impacts overall could in some cases lead to impacts to sensitive visual resources. The nature of such impacts would be determined during the site-specific analysis. Mitigation measures would be used to lessen impacts considered unavoidable.

Comment: 80118-025

Comment: Page ES-6 Mitigation Measures: Marine and aquatic reserves should be included in “areas of special concern,” and eelgrass/sea-grass and other vegetated habitats should be included under “seafloor habitats.”

Response: Comment noted. The reference to areas of special concern does include marine and aquatic reserves, and seafloor habitats do include eelgrass/seagrass and other vegetated habitats.

Comment: 80118-049

Comment: Page 4-85, Table 4.2.15-1 Marine Protected Areas in the Atlantic Region: Several errors and omissions need to be corrected on pages 4-86 and 87 in Table 4.2.15-1 (cont.) - Marine Protected areas in the Atlantic Region. Specifically, Rachel Carson NWR is in Maine (not New Hampshire), Blackwater NWR is in Maryland (not Delaware), and Sayville NWR and Lido Beach Wildlife Management Area on Long Island, New York need to be listed. Likewise, Canton Pond Waterfowl Production Area in Maine should be added to the table.

Response: With the exception of the Canton Pond Waterfowl Production Area, the suggested changes have been made. The Canton Pond Waterfowl Production Area could not be found on lists of Marine Protected Areas.

Comment: 80118-070

Comment: Page 5-85, Section 5.2.15 Areas of Special Concern: The Service recommends that wilderness and proposed wilderness areas be considered areas of special concern, particularly when on a NWR.. Many wilderness designations sit in “proposed status” for many years until a report is prepared and approved by Congress. Service refuge managers are required to manage proposed wilderness as designated wilderness in anticipation of Congressional action.

Response: Comment noted. As identified in Section 5.2.15, NWRs are considered areas of special concern in the programmatic EIS. Consequently, wilderness areas within NWRs would be considered as identified in the programmatic EIS.

Comment: 80118-071

Comment: Page 5-87, Section 5.2.15.3 Construction: In several areas of the DPEIS, impacts to wildlife and their habitats on or off shore are assumed to be minimized due to regulations. For example, it states on page 5-76 the following for onshore construction impacts to coastal habitats: “Impacts would generally require permitting from Federal, State, or local regulatory agencies. Therefore, impacts from construction of facilities and installation of power cables would likely result in negligible to moderate impacts to coastal habitats.” The final PEIS should clarify if MMS will issue best management practices or standards with which compliance will be required in any authorization it may issue.

The DPEIS considers NWRs to be Areas of Special Concern, which are given special consideration as an affected environment. With regard to transmission lines, it states on page 5- 88 that “... transmission lines may be allowed to pass through. .. national wildlife refuges... the managing agency grants a right-of-way.., to the facility operators.” For NWRs, the National Wildlife Refuge System Administration Act of 1966 (NWRSA), as amended, requires that these areas be administered by the Secretary of the Interior through the Service. Only the Service is delegated the authority to approve uses, such as the designating of an energy corridor on a national wildlife refuge. The NWRSA requires that any use of a NWR must be compatible with refuge purposes and the mission of the National Wildlife Refuge System. Compatibility policy and regulations adopted to implement the law require that this determination must include, in the analysis consideration, all associated facilities, structures, and improvements, including those constructed or installed by the Service or at its direction. Each proposal for designation of a corridor or issuance of a right-of-way through a refuge would require a case-by-case evaluation.

Refuge managers must evaluate potential impacts to refuge lands and wildlife resources to determine if such use is appropriate and compatible. Service policy states that inherent in fulfilling the National Wildlife Refuge System mission is not degrading the ecological integrity of the refuge. If the proposed use cannot be made compatible with stipulations or modifications, the Service cannot allow the use.

Please refer also to our General Comments above, specifically “Avian Impacts.”

Response: Section 2 of the programmatic EIS includes a large number of BMPs that would be applied to individual OCS alternative energy projects, as applicable. The MMS would also consult with all appropriate agencies and follow all applicable regulations in reviewing and approving specific alternative energy projects proposed in the future. Any exclusionary areas and use conflicts would be addressed on a site-specific and project-specific basis.

Comment: 80118-072

Comment: Page 5-88 — 5-89, Section 5.2.15.4 Operation: MMS indicates that changes in the ecological community due to the placement of artificial platforms (turbine towers) in the ocean will not be of concern but provides little support for this conclusion. Please explain how these platforms may or may not affect ecological communities.

Response: Text has been added to Section 5.2.15.4 to clarify the statement that is the subject of the comment.

Comment: 80118-073

Comment: Page 5-90, Section 5.2.15.6 Mitigation Measures: See recommendation under the Section 5.2.15 heading above to include wilderness and proposed wilderness areas as areas of special concern. To mitigate visual impacts (see page 5-91 and also page 5-119, section 5.2.21), the DPEIS recommends, “Avoid, to the extent practicable, placement of OCS wind energy facilities within visible distances from areas of special concern, especially National Parks and National Seashores.” The Service recommends including wilderness areas in this list of areas that should be avoided due to the potential visual impacts.

Response: The recommended mitigation measure identified in the comment has been modified to read “Avoid, to the extent practicable, placement of OCS wind energy facilities within visible distances from areas of special concern.”

B.2.16.16 Military Areas

Comment: OCS26-001

Comment: I would just like, with the EIS, address the interference with the aircraft radar. If you get a chance before you leave Long Island to go down, say maybe to

Amityville. Go to the end of one of the streets that overlook the Great South Bay, late afternoon and watch the number of flights, planes that are going to be going over this specific area where they are proposing. In the EIS you -- mandate is even being, even if it's a minor interference with radar, where do we go. One plane down, oops that was a little to much. Two planes down, now we really screwed up. Let's shut it all down. That's just, you know, be very careful of that. As far as interference of radar, they can't be any whatsoever, minor, moderate, nothing, zero tolerance for that.

Response: The programmatic EIS has documented the potential for conflict between radar and wind facility development and recognizes that the only way to determine whether there is any conflict at all will require site-specific analysis. The MMS, the proponent for this programmatic EIS, has no authority over decisions regarding aircraft or airway safety and will work closely with the Federal Aviation Administration (FAA) in any project siting decision.

Comment: OCS63-001

Comment: One of the questions that I have -- and I've sailed by the towers in Savannah. And you're not very far from one of the largest nuclear sub bases in the country. Is the defense department also interested in this? Because if you're generating huge amounts of kilowatt power, it would not be hard to believe that they could use it for underwater SONAR, which, obviously, is not what we're here to talk about.

But has the defense department issued an interest in this? Or are you -- are they working with you, or do they even have to go through this process, or can they do pretty much whatever they want?

Response: The MMS initiated contact with the USDOD during the programmatic EIS process, and it is clear that coordination between the two agencies will be part of site-specific consideration for any energy-related facility considered pursuant to this programmatic EIS.

Comment: OCS95-001

Comment: The EIS does not accurately portray the Navy's Range Complexes (Range Complexes consist of: Restricted Areas, Warning Areas, and Military Operating Areas.) The Navy has many offshore training locations that need to be represented in this document.

Response: Thank you for your comment. Additional maps have been added to Sections 4.2.16, 4.3.16, and 4.4.16 in the EIS showing the Navy's range complexes and offshore operating areas.

Comment: OCS95-003

Comment: The EIS does not sufficiently acknowledge the potential for impacts upon DoD readiness and training. DoD is mentioned only once in the Executive Summary (Cumulative Impacts of the Proposed Action). The likely interaction between MMS and DOD regarding planned activities on or near DoD operating areas should be addressed more extensively throughout the document.

Response: The MMS is proposing a policy to require coordination with USDOD which states: “MMS will work toward an interagency protocol agreement with the U.S. Department of Defense (USDOD) to establish a consultation process and will consult with USDOD prior to issuing any lease, easement or right-of-way for an AEAU project on the OCS. Entities seeking to develop projects on the OCS shall consult with USDOD regarding the location of the project and siting of facilities as early in the planning process as possible.”

Comment: OCS95-004

Comment: Executive Summary (Wind Energy), pg. ES-5, Site Characterization, after the first sentence, add the following: “Prior to conducting these studies, MMS will consult with DoD, to ensure proposed site location does not conflict with the national defense mission and related military training operations and exercises.”

Response: The MMS will coordinate with all appropriate Federal, State, and local agencies for any activities occurring on the OCS. In addition, the MMS is proposing a policy to require coordination with USDOD, which states: “MMS will work toward an interagency protocol agreement with the U.S. Department of Defense (USDOD) to establish a consultation process and will consult with USDOD prior to issuing any lease, easement or right-of-way for an AEAU project on the OCS. Entities seeking to develop projects on the OCS shall consult with USDOD regarding the location of the project and siting of facilities as early in the planning process as possible.”

Comment: OCS95-005

Comment: Executive Summary (Wind Energy), pg. ES-6, Mitigation Measures, first sentence, add the following: after “archaeological sites” ... “and DoD training and exercise activities, to include land, air, surface and sub-surface operations.”

Response: Thank you for your comment. The suggested text was added to the document.

Comment: OCS95-006

Comment: Executive Summary (Wave Energy), pg. ES-8, Site Characterization, after the first sentence, add the following: “Prior to conducting these studies, MMS will consult with DoD, to ensure proposed site location does not conflict with the national defense mission and related military training operations and exercises.”

Response: The MMS will coordinate with all appropriate Federal, State, and local agencies for any activities occurring on the OCS. In addition, the MMS is proposing a policy to require coordination with USDOD, which states: “MMS will work toward an interagency protocol agreement with the U.S. Department of Defense (USDOD) to establish a consultation process and will consult with USDOD prior to issuing any lease, easement or right-of-way for an AEAU project on the OCS. Entities seeking to develop projects on the OCS shall consult with USDOD regarding the location of the project and siting of facilities as early in the planning process as possible.”

Comment: OCS95-007

Comment: Executive Summary (Wave Energy), pg. ES-9, Mitigation Measures, first sentence, add the following: after “archaeological sites” ... “and DoD training and exercise activities, to include land, air, surface and sub-surface operations.”

Response: Thank you for your comment. The suggested text was added to the document.

Comment: OCS95-008

Comment: Executive Summary (Ocean Current Energy), pg. ES-10, Site Characterization, after the first sentence, add the following: “Prior to conducting these studies, MMS will consult with DoD, to ensure proposed site location does not conflict with the national defense mission and related military training operations and exercises.”

Response: The MMS will coordinate with all appropriate Federal, State, and local agencies for any activities occurring on the OCS. In addition, the MMS is proposing a policy to require coordination with USDOD, which states: “MMS will work toward an interagency protocol agreement with the U.S. Department of Defense (USDOD) to establish a consultation process and will consult with USDOD prior to issuing any lease, easement or right-of-way for an AEAU project on the OCS. Entities seeking to develop projects on the OCS shall consult with USDOD regarding the location of the project and siting of facilities as early in the planning process as possible.”

Comment: OCS95-009

Comment: Executive Summary (Ocean Current Energy), pg. ES-11, Mitigation Measures, first sentence, add the following: after “archaeological sites” ... “and DoD training and exercise activities, to include land, air, surface and sub-surface operations.”

Response: Thank you for your comment. The suggested text was added to the document.

Comment: OCS95-010

Comment: Executive Summary (Summary of Potential...), pg. ES-13, Mitigation Measures, add the following: after last sentence, “In all cases, alternate use of existing

facilities should take into account impacts on DoD at-sea training activities, to include air, surface and sub-surface operations.”

Response: Thank you for your comment. The suggested text was added to the document.

Comment: OCS95-011

Comment: Executive Summary (Cumulative Impacts ...), pg. ES-14, add the following: 3rd paragraph, after “commercial fisheries,” add “DoD training and exercises,”

Response: The paragraph lists the impact areas considered in the EIS to be most significantly affected by alternative energy development. The impact on military areas is not considered to be large enough to be included in this group. The proper siting of any facility would minimize any impact to the military as is expected for other impact areas such as land use and transportation.

Comment: OCS95-012

Comment: Executive Summary (Cumulative Impacts ...), pg. ES-14, add the following: 4th paragraph., after 3rd sentence, add new sentence ...” Cumulative impacts to DoD training activities could be of concern if exclusion areas were established in the vicinity of Fleet concentration areas and/or adjacent to DoD areas of operations.”

Response: Thank you for your comment. The suggested text was added to the document.

Comment: OCS95-013

Comment: Question/Comment... Chapter 1 (Intro), pg. 1-13, Section 1.6. Second paragraph: Is MMS not required to consult with DoD as with other federal agencies?

Response: The MMS is proposing a policy to require coordination with the USDOD, which states: “MMS will work toward an interagency protocol agreement with the U.S. Department of Defense (USDOD) to establish a consultation process and will consult with USDOD prior to issuing any lease, easement or right-of-way for an AEAU project on the OCS. Entities seeking to develop projects on the OCS shall consult with USDOD regarding the location of the project and siting of facilities as early in the planning process as possible.”

Comment: OCS95-014

Comment: Chapter 3 (Overview), pg. 3-18, Section 3.5.2 (Site Characterization), 1st paragraph, 1st sentence, add: “...commercial fishing and DoD training and operations).”

Response: The suggested text change was made to the document.

Comment: OCS95-015

Comment: Chapter 3 (Overview), pg. 3-18, Section 3.5.2 (Site Characterization), Add the following bulleted-paragraph prior to the 1st bulleted paragraph, “to ensure the alternative energy project does not interfere or conflict with military training operations consultation with DoD will occur prior to the initiation geological, geophysical, and geotechnical surveys.

Response: The MMS will coordinate with all appropriate Federal, State, and local agencies for any activities occurring on the OCS. In addition, the MMS is proposing a policy to require coordination with USDOD, which states: “MMS will work toward an interagency protocol agreement with the U.S. Department of Defense (USDOD) to establish a consultation process and will consult with USDOD prior to issuing any lease, easement or right-of-way for an AEAU project on the OCS. Entities seeking to develop projects on the OCS shall consult with USDOD regarding the location of the project and siting of facilities as early in the planning process as possible.”

Comment: OCS95-016

Comment: Chapter 4, pg. 4-92, Section 4.2.16, first paragraph, add: “..U.S. Air Force, Navy, Marine Corps and Special Operations Forces to conduct ...”

Response: Thank you for your comment. The suggested text change was made to the document.

Comment: OCS95-017

Comment: Chapter 4, pg. 4-93, Section 4.2.16, fourth paragraph, It is stated that “Warning areas are the most relevant to the alternative energy program”, Warning Areas define where military Air Operations will occur, however many of these same Warning Area footprints are also classified as military operating areas (OPAREAs). OPAREAs define where the Navy conducts surface and subsurface training and operations. These areas are the most “relevant” to the alternative energy program. Furthermore, suggest adding the following sentence: “Most importantly, Navy Fleet and Marine Corps amphibious training occurs nearly 365 days per year all along the east coast (OPAREAs, Warning Areas and Restricted Areas from the Virginia Capes to Jacksonville). The level of activity varies from unit level training to full scale Carrier/Expeditionary Strike Group operations and certification.”

Response: The cited text refers to FAA regulations with respect to airspace and aircraft. The suggested text was incorporated into the previous paragraph that deals with ocean surface and subsurface operations.

Comment: OCS95-018

Comment: Chapter 4, pg. 4-176, section 4.3.16, add the following sentence: “The Gulf of Mexico region supports a wide variety of military test and training activities that stretch from the eastern Gulf adjacent to Key West all the way west to include the onshore and offshore areas of Texas.”

Response: Thank you for your comment. The suggested text was added to the document.

Comment: OCS95-019

Comment: Chapter 4, pg. 4-255, section 4.4.16, add the following sentence: “Navy Fleet and Marine Corps amphibious training occurs nearly 365 days per year all along the west coast (Warning Areas and Restricted Areas from Washington to Southern California). The level of activity varies from unit level training to full scale Carrier/Expeditionary Strike Group operations and certification.”

Response: Thank you for your comment. The suggested text was added to the document.

Comment: OCS95-020

Comment: Figures 4.2.17-1, 4.2.17-2, 4.3.17-1, 4.3.17-2, 4.4.17-1, 4.4.17-2, do not accurately depict the Navy’s training areas in the Atlantic, Gulf of Mexico and the Pacific. (the attached pdf, illustrates the Navy’s training areas). Recommend revising the figures and label the Navy Range Complexes. The Navy Range Complexes include the associated restricted, warning and operating areas.

Response: Thank you for your comment. Additional maps have been added to Sections 4.2.16, 4.3.16, and 4.4.16 in the EIS showing the Navy’s range complexes and offshore operating areas.

Comment: OCS95-021

Comment: Ch 5 “Potential Impacts”: Sect 5.2.16, 5.3.16, 5.4.16 address in a superficial analysis the potential impacts on “Military Use Areas” from Wind, Wave and Ocean Current alternative energy projects. The mitigation measures say only that effective coordination is required w/ DoD to minimize or eliminate impacts. These paragraphs should be rewritten to be stronger and specific in their analysis.

Response: The MMS is proposing a policy to require coordination with USDOD which states: “MMS will work toward an interagency protocol agreement with the U.S. Department of Defense (USDOD) to establish a consultation process and will consult with USDOD prior to issuing any lease, easement or right-of-way for an AEAU project on the OCS. Entities seeking to develop projects on the OCS shall consult with USDOD regarding the location of the project and siting of facilities as early in the planning process as possible.”

Comment: 80085-017

Comment: Radar: Although at some sites wind turbines could interfere with civilian or military radar, the PEIS should indicate that there are mitigation solutions that can be implemented in such event. Any study of wind energy's effects on radar should also explore these solutions. A number of military bases have wind turbines operating on or near them, so turbines and radar can clearly co-exist. It is important to review each project site for potential impacts to the facilities mission and to evaluate the measures available to mitigate any potential concerns, and AWEA recommends reference to the following project evaluations:

- F.E. Warren Air Force Base, Wyoming – two 660-kW turbines
<http://www.afcee.brooks.af.mil/ms/msp/center/Vol11No3/10.asp>
- U.S. Navy at Guantanamo Bay, Cuba – four 950-kW turbines
http://www.defenselink.mil/news/Mar2005/20050329_342.html
- U.S. Air Force Space Command on Ascension Island – four 225-kW and two 900-kW turbines
http://www.inl.gov/powersystems/ascension_island.shtml
- U.S. Navy at San Clemente Island Base – three 225-kW turbines
http://www.nelp.navy.mil/pdf_cases/Conservation_Wind_Power_SCI.pdf
- Logan International Airport in Boston, Massachusetts – near Hull, MA turbines
http://www.ceere.org/rerl/publications/whitepapers/AWEA_Hull_2003.pdf

Response: The programmatic EIS does not indicate that radar facilities and wind facilities are necessarily incompatible but rather that site-specific analyses should be employed wherever there is a possibility for conflict. Application of mitigating measures could come from such an analysis.

B.2.16.17 Transportation**Comment: OCS83-031**

Petroleum Storage Tank Compliance/Inspections:

Any tank vessels transporting 15,000 gallons or more of oil as cargo through state waters to service OCS energy facilities will require either state approved Tank Vessel Oil Discharge Contingency Plans or US Coast Guard approved Vessel Response Plans and applicable financial assurance demonstrations. Please contact Ms. Janet Queisser, Program Manager, DEQ Office of Spill Response and Remediation at (804) 698-4268 for more information.

Response: The MMS will involve the State of Virginia in the review of any site-specific alternative energy facilities proposed on the OCS off the Virginia coast. Any aspect of these facilities, such as a need for 15,000 gallons or more of oil as cargo, that impacted state waters would need to comply with all applicable State requirements.

Comment: OCS83-046

The Virginia Department of Transportation has reviewed the information provided for the referenced project. Our review covers impacts to existing and proposed transportation facilities. After checking the Six Year Plan and the 2026 Plan, we have concluded that there are no conflicts with the current or future construction projects.

Response: Thank you for your review.

Comment: 80085-021

Comment: The PEIS should note the favorable experience of the European offshore wind industry with regard to coexisting with marine transportation. AWEA also notes that concerns regarding potential impacts to marine navigation relating to offshore wind energy projects in the United States were addressed by Congress in Section 388 of the recent Energy Policy Act, which calls for navigation risk assessments to be conducted by the United States Coast Guard. The PEIS should thus note that the Coast Guard will be responsible for such review process.

Response: The MMS interprets your description of a favorable experience to indicate that there have been no conflicts or accidents. The MMS has been unable to locate references discussing this experience, and, therefore, this comment has not been incorporated. The European offshore wind industry has worked in concert with all affected parties to address concerns related to navigation and multiple use in an effort to minimize any adverse impacts. Please note that Section 388 of EPAct does not require a navigation risk assessment, rather this was added to the Coast Guard Reauthorization Act in 2006 and was specific to facilities in Nantucket Sound. The USCG subsequently chose to be proactive and released a Navigation and Vessel Inspection Circular (NVIC 02-07) outlining guidelines for offshore renewable energy installations. This NVIC is discussed in the transportation sections of the programmatic EIS. As noted, such reviews will consider navigational safety, traditional uses of the waterways, and USCG missions.

Comment: 80101-004

Comment: Frequency of Maintenance Trips: The Draft PEIS states “Human activity on the OCS related to a wind facility is relatively low, with only a few support vessels in operation at any one time during the highest activity period (construction).” Throughout the document, MMS refers to vessel traffic as “low-level” and uses this characterization to assess risk of vessel collision for marine mammals and sea turtles. The source of information on the number of vessels and maintenance trips needed to support construction and operations of an offshore wind facility is not provide in the Draft PEIS,

but is cited as either one vessel per week per year per turbine or one vessel a day. Based on these estimates, MMS determined the potential for impacts to endangered marine mammals and sea turtles is considered moderate. The 40 Turbine Offshore Wind Facility proposed by the Long Island Power Authorities preliminarily estimated 400 maintenance trips annually or over 1 trip a day.⁴ In reality, existing offshore wind turbine facilities have required an extremely high number of maintenance trips, including over 75,000 trips to Horns Rev off the coast of Denmark in just an 18-month period.

The PEIS must utilize existing data and information on offshore facilities currently in operation to adequately assess the impacts of vessel traffic, emissions, noise, and general activity of marine resources.

Response: Existing data and information on offshore facilities are being used to the extent that they are relevant to the programmatic EIS. The 75,000 trips to Horns Rev were in part a result of transformer and generator failures due to manufacturing problems, which eventually led to the return of all 80 nacelles to shore for refurbishment. Later wind facilities incorporating the same manufacturer's turbines and those by others have not encountered a similar problem.

Current maintenance trips are estimated at 2 service inspections per turbine per year at Horns Rev in Denmark (with possibly an extra 1 to 3 trips per year) and at Kentish Flats in the United Kingdom. Thus, slightly more than 1 service trip per day could be expected at Horns Rev.

At the Nysted wind facility in Denmark with 72 wind turbines, as many as 2 service vessels may be in operation during workdays, with the potential for each vessel to service up to 2 turbines a day.

Comment: 80105-008

Comment: 2. Inadequate Assessment of Transportation Impacts

The Draft PEIS discusses the port infrastructure and vessel needs of alternative energy projects. It fails, however, to address the problem of increased congestion from the addition of construction vessels including crew boats, tug boats, and barges. Also, the PEIS states that helicopters would be used in the construction and operation of alternative energy projects. It does not, however, discuss the problem of interference with helicopter instruments from wind turbines, as discussed in the U.K. report on aviation impacts of wind farms. See Draft PEIS, p. 4-96.

Response: Increased congestion is not expected from the addition of construction vessels. Section 5.2.17.3 of the draft EIS discusses the sequential installation of wind turbines with the use of one or two purpose-built vessels and another cable-laying vessel, which may not be operating concurrently. Even with the addition of another support boat or two, such as a crew boat, the number of vessels employed during construction is small.

Potential impacts are presented in Chapter 5 of the draft EIS. Section 5.2.17.4 discusses and references the United Kingdom report (Brown 2005) on tests of helicopter communication and navigation instruments in wind facilities.

B.2.16.18 Socioeconomic Resources

Comment: OCS20-004

Comment: The other thing is as far as the costs and it's like whose going to build this thing? Is this going to be -- 35 years ago, if I recall, there was people on Long Island developing wind power. There's no developing wind power on Long Island to generate any impact on the economy, but if it was going to be built it wouldn't be built by Long Island people. It might not even be built by American people, these wind generators. So what impact is that going to give anyone's economy. Beyond the impact of that, whose going to install this great structure, one by one? What I see going on in my world is that they fly a team, let's say a Florida team, into Long Island, put them up at a hotel and have them do the work. So no Long Islander is going to put this piece up. And then whose raw materials going to build this thing, even the foundation. Not a company on Long Island is going to be or even in New York State, will get a dime into the construction of any aspect of this. So, whose, all we get is an opportunity is to pay for this thing. But nobody is going to have an opportunity to work on this thing to create whatever it takes to support your facilities and your incomes and your families. No one is going to generate a dime locally through this thing being done. It's only going to be the people who've commissioned this thing and are building this thing. And it's all going to be done at a distance, no where close to home. Not a dollar is going to come in to the local economy. It's just going to be our money going out the door.

Response: Although the commentor identifies the extent of local labor recruitment as an important part of the local benefit of wind energy, the EIS analysis was conducted at the programmatic level, with no specific project identified for development in any particular location. The extent to which construction and operating labor would be available locally cannot be determined.

The availability of a local labor force would be discussed in site-specific NEPA documents for specific projects.

Comment: OCS30-002

Comment: More important than the visual impact is to consider the environmental justice as you address in chapter four, and that is to disproportionately burden minority populations with environmental effects of proposed developments. The case of environment view shed, for example, the influence of property owners of very expensive seaside residences should not override considered view shed of properties of minority populations. For example, some may say I agree with the need for offshore wind farms but, please, put it somewhere else, like off the coast of New Bedford or Fall River. The emotional and nostalgic feelings of NIMBY owners must not override the environmental

justice. To say that any one ocean view is more or less desirable than any other is unfair. Unlike terrestrial historic sites, all ocean views are equally exquisite. To paraphrase an old nursery rhyme, I would say window, window on the wall, whose view is most expensive of all?

Response: We concur that visual impacts can equally impact all income and racial/ethnic populations. In the environmental justice sections, visual impacts are included as one consideration.

Comment: OCS32-004

Comment: And I would ask that you also consider contacting the former AG of California, Bill Locklear, who would be able to provide a wealth of information relative to the Altimonte Pass wind resource area, also others like Henning Gastrip of Denmark, offshore wind pioneer, who could give you a great description of the economic adverse impact of wildlife deaths, particularly birds, and that it's an economic setback that adversely effects improperly sited wind towers, and I ask you to pay close attention to that, the conflicts.

Response: The MMS prepared a cost-benefit analysis that addresses the issues of wildlife loss compared with the benefits gained from offshore alternative energy development. The report can be found on the programmatic EIS Web site (<http://ocsenergy.anl.gov/index.cfm>).

Comment: 80052-017

Comment: Section 4.4.18.2 Sociocultural Systems. MMS states that northern California's subsistence and ceremonial purposes are similar to those of Oregon and Washington. However, MMS does not indicate what the specific uses are in Oregon and Washington. Please provide additional information on subsistence and ceremonial purposes to clarify this section.

Response: Text has been added to Section 4.4.18.2 to provide a more detailed discussion of Native American subsistence and ceremonial practices in Northern California, Washington, and Oregon.

Comment: 80068-023

Comment: Chapter 4. Affected Environment - With respect to the socioeconomic environment, scant mention is made of demographic, real estate, property value, or other trends that may be influenced by the development of ocean energy. For example, ocean energy may have secondary impacts (through the provision of more infrastructure, workers, etc.) on rural and isolated areas of the coast which may have retained their fishing heritage or other valued attributes in part due to isolation.

Response: The activities that may occur during the time frame of this programmatic EIS (5 to 7 years) would most likely be developed in areas with large energy markets and diverse populations. Rural or isolated areas would not be likely to experience effects.

Comment: 80068-026

Comment: Sec. 4.2.18.3. The concept of analyzing environmental justice impacts is laudable; however, the analytical approach described, with its focus on description of low income communities and communities of color and their distribution, may reduce its effectiveness. Research suggests that the most salient attribute of families and communities that are disproportionately affected by large infrastructure projects and/or pollution tends to wealth and mobility, not necessarily income or color.

Response: Executive Order 12898 defines environmental justice and requires the Federal government to determine the disproportionate impacts on minority and low-income population with every Federal action. Therefore, the discussion in the programmatic EIS focuses on these populations. Impacts of offshore developments on specific resources that might be of concern to wealthier, more mobile population groups, including property values, visual resources, and recreation, are discussed in the programmatic EIS.

Comment: 80085-018

Comment: A common concern about wind energy projects is the potential to impact nearby property values. The PEIS should note, however, that the empirical evidence gathered in the three most methodical studies conducted to date demonstrates that wind turbines do not negatively affect property values, as demonstrated by studies of sales transactions of properties located in the vicinity of wind projects:

- “Six counties reported that residential properties have views of the wind turbines, but the turbines have not altered the value of those properties.”
Economic Impacts of Wind Power in Kittitas County ECONorthwest,
November 2002 <http://www.wind.appstate.edu/reports/kittitas.pdf>
- “Although there is some variation in the three Cases studied, the results point to the same conclusion: the statistical evidence does not support a contention that property values within the view shed of wind developments suffer or perform poorer than in a comparable region. For the great majority of projects in all three of the Cases studied, the property values in the view shed actually go up faster than values in the comparable region. “ - The Effect of Wind Development on Local Property Values, Renewable Energy Policy Project, May 2003 http://www.repp.org/articles/static/1/binaries/wind_online_final.pdf
- “Our analysis of 280 home sales within 5 miles of the Fenner windfarm, in Madison County, New York failed to uncover any statistically significant relationship between either proximity to or visibility of the windfarm and the sale price of homes. Additionally, the analysis in this report failed to uncover

a relationship even when concentrating on homes within a mile or that sold immediately following the announcement and construction of the windfarm. Therefore it is safe to conclude, in this community, a view of the windfarm does not produce either a universal or localized effect, adverse or not.”
Impacts of Windmill Visibility on Property Values in Madison County,
New York Hoen, Ben. April 2006.

Response: Text has been added to Sections 5.2.18, 5.3.18, and 5.4.18 of the programmatic EIS to suggest that impacts of offshore energy developments on property values would be location-specific.

Comment: 80105-007

Comment: 1. Inadequate Assessment of Socio-Economic Impacts - The Draft PEIS discusses job creation but omits any consideration of negative impacts such as potential loss of tourism or fishing revenue. This provides an unbalanced perspective of the socio-economic impacts of alternative energy. In the case of the Cape Wind project, for example, the negative effects on the regional economy will greatly exceed any positive impacts, such as construction-related job creation.

Response: The text in Section 5.2.18 of the programmatic EIS has been modified to provide more description of the potential impact of offshore energy developments on tourism and recreation, fishing revenue, and local employment.

B.2.16.19 Cultural Resources

Comment: OCS18-002

Comment: Number two, the National Energy Policy should apply to as the speaker just before me said, the national historic registry and the state historic registry. There is no reason to eliminate state historic sites.

Response: The MMS meets its responsibilities under the NHPA for projects over which it has permitting authority on the OCS through the following procedures:

- The MMS begins the Section 106 process by initiating consultation with the appropriate States, affected tribes, and other interested parties. Consultation begins with the MMS informing the parties of the project’s details and the steps the MMS undertakes to identify and consider cultural resources in the project area. Consultation is ongoing throughout the project.
- The MMS policy requires marine remote sensing surveys within all areas where MMS archaeological baseline studies indicate there is potential for cultural resources (historic and prehistoric) to exist.

- If the results of these surveys indicate the presence of a potential cultural resource within the project area, the MMS requires that the project either be modified to avoid the location of the potential cultural resource, or that further investigations be conducted to conclusively determine the identity of the potential resource.
- If further investigations indicate that a significant cultural resource exists and cannot be avoided by the proposed project, the MMS would continue Section 106 consultation with the State, affected tribes, and other interested parties to determine the appropriate mitigation.
- The MMS also requires through regulation and/or lease stipulation that if any unanticipated cultural resource is encountered during project-related activities, all activities within the area of the discovery be immediately halted and the MMS contacted.
- For onshore cultural resources including historic architectural resources, districts, and landscapes that may be subject to adverse visual effects from an OCS project, the MMS will develop appropriate mitigation through consultation with the States, affected tribes, and other interested parties in accordance with the procedures outlined in the ACHP regulations at 36 CFR 800.

The text in Sections 4.2.19, 4.3.19, and 4.4.19 has been changed to more fully discuss how the MMS satisfies its responsibilities under the NHPA.

The MMS has no authority to permit or regulate project-related construction activities in State waters or onshore.

Comment: OCS21-001

Comment: My first concern -- I haven't had a chance yet to read the draft Environmental Impact Statement but my first concern for the nationwide programmatic but especially this project off Long Island, off Jones Beach, is that MMS recognize that the land and the seascapes aesthetic value is part of our cultural, artistic, intellectual tradition. And that is an integral part of our national psyche past, present and future and should not simply be considered a trivial or expendable concern to be done away with every time we come up against a material need. Walter Arnold spoke about the difficulty of quantifying certain economic questions and whatnot, jobs and whatnot. Well I ask you, the losses that we might incur by sacrificing something that we have long considered in our tradition to be important, which is sacred or sanctified places we preside, how will you qualify those losses, because they are certainly not going to be quantified through a cost benefit analysis and the cold logic behind that or through science. So that's my first concern that you really consider that anywhere. Whether it's California, Florida, Maine, anywhere.

Response: Visual impact assessment is required as part of the determination of environmental impacts under NEPA, and visual impact assessments would be undertaken at the site-specific level for offshore alternative energy developments. While visual

impacts are not quantifiable, they can be systematically described and evaluated, and the description and evaluation serves as a basis for determination of the visual impacts. Section 5.2.21.6 of the draft programmatic EIS provides mitigation measures that include viewshed mapping and public participation in evaluating visual aspects of project design, which help ensure that the public's aesthetic values are incorporated into the visual impact assessment process. The visual impacts are considered along with other factors in the decision to issue a permit for the development. With respect to visual impacts on significant cultural resources, all projects would comply with Section 106 of the NHPA and the ACHP implementing regulations at 36 CFR 800. The NHPA requires the consideration of the effects of Federal projects on significant cultural resources.

Comment: OCS83-017

Comment: 6. Historic Resources. Depending on their location, wind turbines, wave energy collectors, and other alternative energy facilities may affect a variety of cultural resource types including the following:

- significant historic, prehistoric, and underwater archaeological sites;
- historic and/or cultural landscapes;
- important architectural buildings or structures; and
- historic districts.

(a) Archaeological Sites. As discussed in the Draft PEIS, archaeological sites may be found on shore and under water. Any project planning should include provision for identification and evaluation of these resources, as required by section 106 of the National Historic Preservation Act, as implemented through the regulations at 36 CFR Part 800 (hereinafter "section 106"). The Department of Historic Resources (the State Historic Preservation Office) indicates that preservation of archaeological resources in place is always the preferred mitigation option, and the federal agencies must consider alternatives to disturbing or destroying archaeological properties listed on or eligible for the National Register of Historic Places. If avoidance of these properties is not possible, the agency must consult with the Department, the Advisory Council on Historic Preservation, and other interested parties to develop mitigation for the adverse effects of the undertaking to the archaeological property.

(b) Nature of Impacts: Architectural Resources. According to the Department of Historic Resources, the Draft PEIS evaluates only the potential for impacts to archaeological resources, and does not address potential impacts upon historic architectural resources, districts, or landscapes. However, evaluation of the effects upon all historic properties is essential to completing both the section 106 and NEPA processes. Siting of facilities at a considerable distance offshore may make them invisible from any coastal historic property, while siting on-shore facilities in existing industrial complexes may also reduce the potential for secondary effects (as long as the industrial complexes themselves are not

listed or eligible for listing on the National Register). Possible architectural impacts must nonetheless be considered in completing section 106 and NEPA analyses.

(c) Historic Properties and Public Participation. - Historic properties are important components of the Commonwealth's coastal communities and play a significant role in those communities' abilities to attract residents and visitors. Accordingly, the views and comments of the public must be solicited and taken into account during every phase of the review process. This is also required by section 106 whenever a federally funded, permitted, or licensed undertaking has the potential to affect historic resources. Organizations or individuals with a demonstrated interest in the undertaking must also be identified and invited to participate. Among the organizations that may be interested in the Alternative OCS Energy Program are Native American tribes with ancestral ties to the Tidewater region of Virginia. MMS must make an effort to involve any such tribes, regardless of federal recognition and whether they currently reside in the Commonwealth or not.

Response: The MMS meets its responsibilities under the NHPA for projects over which it has permitting authority on the OCS through the following procedures:

- The MMS begins the Section 106 process by initiating consultation with the appropriate States, affected tribes, and other interested parties. Consultation begins with the MMS informing the parties of the project's details and the steps the MMS undertakes to identify and consider cultural resources in the project area. Consultation is ongoing throughout the project.
- The MMS policy requires marine remote sensing surveys within all areas where MMS archaeological baseline studies indicate there is potential for cultural resources (historic and prehistoric) to exist.
- If the results of these surveys indicate the presence of a potential cultural resource within the project area, the MMS requires that the project either be modified to avoid the location of the potential cultural resource, or that further investigations be conducted to conclusively determine the identity of the potential resource.
- If further investigations indicate that a significant cultural resource exists and cannot be avoided by the proposed project, the MMS would continue Section 106 consultation with the State, affected tribes, and other interested parties to determine the appropriate mitigation.
- The MMS also requires through regulation and/or lease stipulation that if any unanticipated cultural resource is encountered during project-related activities, all activities within the area of the discovery be immediately halted and the MMS contacted.
- For onshore cultural resources including historic architectural resources, districts, and landscapes that may be subject to adverse visual effects from an OCS project, the

MMS will develop appropriate mitigation through consultation with the States, affected tribes, and other interested parties in accordance with the procedures outlined in the ACHP regulations at 36 CFR 800.

The text in Sections 4.2.19, 4.3.19, and 4.4.19 has been changed to more fully discuss how the MMS satisfies its responsibilities under the NHPA.

The MMS has no authority to permit or regulate project-related construction activities in State waters or onshore.

Comment: OCS83-049

Comment: We strongly recommend that the Minerals Management Service take into account the potential for these actions to adversely affect (directly or indirectly) historic, architectural and archaeological properties listed on or eligible for listing on the National Register of Historic Places. Depending upon their location, wind turbines, wave energy collectors, etc. have the potential to impact a variety of cultural resource types including significant historic, prehistoric, and underwater archaeological sites; historic and/or cultural landscapes; important architectural buildings or structures; and historic districts. As discussed in the DPEIS, archaeological properties may be found both onshore and in submerged contexts, and any project planning should include provisions for identification and evaluation of these resources as required by Section 106 of the National Historic Preservation Act (36 CFR 800). We ask that the MMS keep in mind that preservation in place is always the preferred option, and it is the federal agency's responsibility to consider alternatives to disturbing or destroying archaeological properties that are listed or eligible for listing on the National Register of Historic Places. If avoidance of such properties is not feasible, the agency must consult with the Advisory Council on Historic Preservation, the Department of Historic Resources, and other interested parties to develop mitigation for the adverse effect to the property.

We note, however, that the DPEIS mentions only the potential for impacts to archaeological sites. Please note that we expect the federal agency to evaluate the full range of effects on historic properties, not just direct physical impacts. These will include visual, auditory, and cumulative effects, as well as those effects that are reasonably foreseeable in the future. The DPEIS in its current form does not mention or evaluate potential effects to historic architectural resources, districts, or landscapes. Evaluation of the potential for construction and use of alternative energy generators to adversely affect 11 historic properties is essential to completing both the Section 106 and NEPA processes. Siting of facilities at considerable distance from the shore may render them invisible from any coastal historic property, while siting onshore facilities in existing industrial complexes may also reduce potential for secondary effects (as long as the complexes themselves are not listed or eligible for listing on the National Register). However, it is the responsibility of the federal agency to consider these possibilities when making its determination.

Historic properties are important components of the Commonwealth's coastal communities, and play a significant role in that area's ability to attract both residents and visitors. As such, it is important that the views and comments of the public are solicited and taken into account during every phase of the process. This is also required by Section 106 of the National Historic Preservation Act whenever a federally funded, permitted or licensed undertaking has the potential to affect historic resources. In addition, organizations or individuals with a demonstrated interest in the undertaking must be identified and invited to participate. Among the organizations that may be interested in this project are Native American tribes with ancestral ties to the Tidewater region of Virginia. An effort must be made to involve any such tribes whether they currently reside in the Commonwealth or not, and regardless of Federal recognition.

Response: The MMS meets its responsibilities under the NHPA for projects over which it has permitting authority on the OCS through the following procedures:

- MMS begins the Section 106 process by initiating consultation with the appropriate States, affected tribes, and other interested parties. Consultation begins with the MMS informing the parties of the project's details and the steps the MMS undertakes to identify and consider cultural resources in the project area. Consultation is ongoing throughout the project.
- The MMS policy requires marine remote sensing surveys within all areas where MMS archaeological baseline studies indicate there is potential for cultural resources (historic and prehistoric) to exist.
- If the results of these surveys indicate the presence of a potential cultural resource within the project area, the MMS requires that the project either be modified to avoid the location of the potential cultural resource, or that further investigations be conducted to conclusively determine the identity of the potential resource.
- If further investigations indicate that a significant cultural resource exists and cannot be avoided by the proposed project, the MMS would continue Section 106 consultation with the State, affected tribes, and other interested parties to determine the appropriate mitigation.
- The MMS also requires through regulation and/or lease stipulation that if any unanticipated cultural resource is encountered during project-related activities, all activities within the area of the discovery be immediately halted and the MMS contacted.
- For onshore cultural resources including historic architectural resources, districts, and landscapes that may be subject to adverse visual effects from an OCS project, the MMS will develop appropriate mitigation through consultation with the States, affected tribes, and other interested parties in accordance with the procedures outlined in the ACHP regulations at 36 CFR 800.

The text in Sections 4.2.19, 4.3.19, and 4.4.19 has been changed to more fully discuss how the MMS satisfies its responsibilities under the NHPA.

The MMS has no authority to permit or regulate project-related construction activities in State waters or onshore.

Comment: OCS91-003

Comment: The Draft EIS (pp. 4-105 to 4-109) concisely summarizes generally the likely presence of significant historic and archaeological resources in these areas of potential effect. Reference to more current published research summaries should be included in the Final EIS. Important advances are being made in studies of submerged and emergent lands containing maritime-related cultural resources in North America (particularly in the Gulf of Maine and the Canadian Maritimes regions) and important comparatively in Europe (particularly in the North Atlantic) (see <http://www.science.ulster.ac.uk/cma/slanl>).

A major, and broadly applicable research statement was recently published as the lead article in the new *Journal of Island and Coastal Archaeology* (I.M. Erlandson and S.M. Fitzpatrick 2006 *Oceans, islands, and coasts: Current perspectives on the role of the sea in human prehistory*. *JICA* 1(1): 5-32). Advances in management and public interpretation of underwater cultural resources are also considered in recent literature. MMS staff have made notable contributions to public interpretation of shipwreck sites, especially using internet-base formats (see J.H. Jameson, Jr., and D.A. Scott-Ireton (Eds.) 2007 *Out of the Blue: Public Interpretation of Maritime Cultural Resources*. Springer, New York.).

Response: The Erland and Fitzpatrick article was obtained, and information from the article was added as necessary. The book *Out of the Blue* is focused on interpreting archaeological remains. It did not provide new information that fundamentally changed the discussion in the programmatic EIS.

Comment: 80046-001

Comment: Our office is concerned about the grouping of all historic properties, including historic structures, districts, etc. under the heading of “archaeological resources”. We feel this heading should be changed to “historic properties” as defined under Section 106 of the National Historic Preservation Act, which is inclusive of all cultural resources evaluated under the Act. Additionally, under the heading of “historic properties”, archaeological resources should be addressed under a separate subheading from above ground resources, as identification efforts and potential effects for the respective resources can differ significantly.

Response: The text has been changed to address this comment.

Comment: 80070-011

Comment: Concerns regarding the socio-economic conditions include potential impacts on the State's historical and cultural resources, as well as on present-day industries and initiatives. Georgia's coastal region is rich in cultural resources that represent a long history of habitation by man. Reflecting a rich maritime tradition, several known historical shipwrecks occur on the adjacent continental shelf, although it is likely that many more wrecks remain undocumented. These resources are largely protected through Georgia's Submerged Cultural Resources Act (O.C.G.A. § 12-3-90 et seq.).

Response: The MMS has jurisdiction only on the OCS. It has no authority in State waters, therefore, any cultural resources located in Georgia waters are outside the MMS's jurisdiction. The MMS requires that research be conducted on portions of the OCS that could be affected by an MMS permitted action to identify the location of potential shipwrecks and other cultural resources, both historic and prehistoric. A lessee will be required to avoid these potential locations to prevent damaging the resource.

Comment: 80098-008

Comment: 4. The risk of significant impacts to cultural resources can be avoided by preinstallation seafloor surveys and minor route adjustments if necessary.

Response: The MMS meets its responsibilities under the NHPA for projects over which it has permitting authority on the OCS through the following procedures:

- MMS begins the Section 106 process by initiating consultation with the appropriate States, affected tribes, and other interested parties. Consultation begins with the MMS informing the parties of the project's details and the steps the MMS undertakes to identify and consider cultural resources in the project area. Consultation is ongoing throughout the project.
- The MMS policy requires marine remote sensing surveys within all areas where MMS archaeological baseline studies indicate there is potential for cultural resources (historic and prehistoric) to exist.
- If the results of these surveys indicate the presence of a potential cultural resource within the project area, the MMS requires that the project either be modified to avoid the location of the potential cultural resource, or that further investigations be conducted to conclusively determine the identity of the potential resource.
- If further investigations indicate that a significant cultural resource exists and cannot be avoided by the proposed project, the MMS would continue Section 106 consultation with the State, affected tribes, and other interested parties to determine the appropriate mitigation.

- The MMS also requires through regulation and/or lease stipulation that if any unanticipated cultural resource is encountered during project-related activities, all activities within the area of the discovery be immediately halted and the MMS contacted.
- For onshore cultural resources including historic architectural resources, districts and landscapes that may be subject to adverse visual effects from an OCS project, the MMS will develop appropriate mitigation through consultation with the States, affected tribes, and other interested parties in accordance with the procedures outlined in the ACHP regulations at 36 CFR 800.

The text in Sections 4.2.19, 4.3.19, and 4.4.19 has been changed to more fully discuss how the MMS satisfies its responsibilities under the NHPA.

The MMS has no authority to permit or regulate project-related construction activities in State waters or onshore.

Comment: 80099-002

Comment: 2. Inadequate Analysis of Impacts to Historic and Archaeological Resources and Measures to Mitigate the Potential Impacts:

In our view, the analysis of potential impacts to historic and archaeological resources in the Draft PEIS is insufficient. Under NEPA and Section 106 of the NHPA, prior to approving projects proposed under the contemplated OCS Alternative Energy Development program, MMS must closely consider the adverse effects on resources eligible for or listed on the National Register of Historic Places. Such consideration will rely upon the information or lack of information outlined in this PEIS. Therefore, an adequate discussion of potential impacts in the PEIS is critical to the ability of MMS to understand the consequences of future actions prior to making irretrievable decisions affecting resources.

In the Draft PEIS, substantive discussion of potential impacts on historic resources and relevant mitigation is divided between Section 5.2.19 (Archaeological Resources) and Section 5.2.21 (Visual Resources) of the draft. The analysis for archaeological resources subsumes the overall analysis for historic resources, resulting in an incomplete analysis of potential impacts and mitigation measures for historic resources. This structure does not allow for adequate analysis of non-visual impacts to non-archaeological historic resources. The Final PEIS should address potential adverse effects to historic resources from the introduction of audible elements related to the program, an analysis not included in the draft.

3. The Draft PEIS acknowledges MMS's obligation to include "heretofore unidentified" historic and archaeological resources in the assessment of adverse effects. At Section 5.2.19.2, it provides guidance on the necessary depth and manner for archaeological survey to identify significant resources. The only mention of the parallel

need for historic resources survey is included parenthetically in that section. A more thorough discussion dedicated to this vital element of the historic resources review, including the need for coordination with the appropriate State Historic Preservation Officer and/or Tribal Historic Preservation Officer, should be included in the Final PEIS.

Response: Text has been added in Sections 4.2.19, 4.3.19, and 4.4.19 to provide a wider discussion of the types of cultural resources that could be present. The programmatic EIS does not discuss specific resources nor is it necessary to identify all specific resources at the programmatic level. Project-specific implications for cultural resources will be analyzed before enactment of any projects. A new section has been added to Chapter 8 of the programmatic EIS that discusses the process for consultation on historic properties issues.

Comment: 80099-003

Comment: The characterization of visual impact levels on historic properties in the Draft PEIS is inconsistent with the standard for assessment of such indirect adverse impacts on historic properties.⁴ At Section 5.2.19.2, the Draft PEIS discusses the potential for wind turbines on the OCS to “result in a visual impact on historic properties.” The Draft PEIS continues “[t]he level of impact could be considered moderate or even major if the setting of the property is considered a principal element of the property’s significance. If the visual setting was not considered as part of the property’s significance, the visual impact would be negligible.” Draft PEIS at 5. The impact level characterization for visual impacts on historic resources should be revised to be consistent with the provisions for assessment of adverse effects in the ACHP regulations implementing Section 106, 36 C.F.R. § 800.5(a).

In addition to specifically listing setting as one of the fundamental qualities of a historic property to be considered in an adverse effect assessment, the regulations state that, in determining adverse effects, “[c]onsideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property’s eligibility for the National Register.” *Id.* Such language defining circumstances in which a visual impact on a historic resource would be found to be negligible is inappropriately ambiguous. It could be read to suggest that a review proceeding under the proposed program could not engage in an evaluation of the contribution the setting makes to a historic property’s significance if the property was once listed or determined eligible for the National Register without clearly establishing the significance of the setting. This interpretation would not allow for adequate review of resources with incomplete past documentation, and would be inconsistent with the regulations governing review of adverse effects on historic resources.

While project-specific evaluations of the degree of visual impact to historic properties will be a necessary part of the program, this evaluation does not appear to align with the impact levels evaluation as it is set forth in 5.1.2. It seems clear that the basic level of avoidability on which the level of impacts distinctions depend, will be similar no matter

the degree of sensitivity of the resource. For this reason, the Final PEIS should clarify the relationship between the impact levels, the evaluation of the degree of impact, and the significance of a resource or resource element to prevent interpretations that would create inappropriately pit the evaluation of the overall significance of a resource against its sensitivity and the separate issue of the ease of mitigation or avoidance.

Response: The assessment of visual impacts to cultural resources would not be constrained by the original factors considered in determining the resource significant. The text has been changed in Section 5.2.19.2 to indicate that impacts could be negligible but can only be determined through project-specific analysis. Visual impacts to significant cultural resources and appropriate mitigation would be determined through the Section 106 review process.

B.2.16.20 Land Use and Existing Infrastructure

Comment: 80052-019

Comment: Section 5.2.20 2. Clarify that the Coastal Zone Management Act requires the federal agency to consult with states regarding consistency with their approved Coastal Zone Management Programs.

Response: The text in Section 5.2.20.2 has been revised to clarify the need for the Federal agency to consult with the State regarding consistency.

B.2.16.21 Visual Resources

Comment: OCS20-001

Comment: First, aesthetically, I am understanding this thing is going to be a certain height that would be very similar to a 60-story building. Now if that were the case I imagine it being similar to your approach to the Midtown Tunnel and looking at Midtown Manhattan and the buildings that are of that height. It's not something that's small. It's something that is dramatic and obvious. I can't imagine whose making us think that something of that size is going to be almost unrecognizable and not noticed.

Response: Section 5.2.21.4 (p. 5-124) of the draft programmatic EIS notes that viewing distance to a proposed wind energy facility is a factor in determining the degree of visual impact for a particular observer. For onshore observers, because wind energy facilities likely to be developed on the OCS would be located at least 5 km (3 mi) offshore, the apparent vertical height of the WTGs would be relatively small; the towers would be visible on or just above or below the horizon, depending on viewer elevation. While the apparent size would be small, in some weather/lighting conditions, WTGs may be plainly visible. Offshore observers, for example, boaters, might view offshore WTGs from relatively short distances. The apparent height would then be greater, and the WTGs more conspicuous. Potential impacts for offshore observers are discussed in Section 5.2.21.4.

Comment: OCS30-001

Comment: It looks like you are well on your way with a well thought out draft EIS. With respect to your discussion on visual impacts in chapters four and five, allow me to comment. I would certainly agree that the number of viewers is important in an assessment, as well as the view sheds from seaside residences. However, the argument regarding any individual's specific opinion of wind turbines is not only subjective but intractable, some consider them ugly, others majestic. Ex-Governor Romney said I have seen wind farms and they are not pretty, another can say wind turbines are exquisite monuments of grace and power.

As such, I feel these arguments should not be considered in assessing visual impacts or play a role in the determination of a permit for an offshore wind farm, your reference page 119, chapter five.

If we all agree that offshore wind power is important to our national interest, then a particular view of a wind farm in the OCS should not be a determining factor in the assessment of a permit. After all, the visual size of turbines at three miles would be less than an inch high when measured with a ruler held at arm's length.

Response: Section 5.2.21 (p. 5-124) of the draft programmatic EIS notes that visual impacts are defined as the creation of visual contrasts that negatively or positively affect the perceived quality of a landscape. An "individual's specific opinion of wind turbines" is not the basis for assessing visual impacts, nor does it determine whether or not a permit will be issued. Visual impact assessment is based on determination of the degree of visual contrast that would be introduced by a proposed development, and the potential effect of these contrasts on scenic quality. Regardless of the potential benefits that might result from wind energy developments, and regardless of whether the visual impacts are perceived as positive or negative, visual impact assessment is required as part of the determination of environmental impacts under NEPA. Because the perceived visual impact depends in part on viewer location and circumstances, as well as the landscape setting of both the viewer and the proposed development, "particular views" of the proposed development must be considered in the visual impact assessment process. These views may be chosen because they represent typical viewing circumstances, but often include specific viewpoints in areas judged to be of high scenic value and/or sensitive to visual intrusions, or locations in proximity to protected cultural resources. The visual impacts are then considered along with other factors in the decision to issue a permit for the development.

Comment: 80058-021

Comment: CESA disagrees with the MMS mitigation recommendation that applicants should "avoid, to the extent practicable, placement of OCS wind energy facilities within visible distance from areas of special concern, especially National Parks and National Seashores." As discussed below under visual impacts, wind energy projects located within sight of areas of high scenic quality are not necessarily in conflict with the public

enjoyment of these areas. When evaluating the visual impacts of wind projects, the essential question is not whether people will see wind turbines, but instead to what degree they may adversely affect important visual resources associated with areas of special concern. Location of wind projects relatively near scenic resources and parks should not be prejudged by MMS as having unacceptable visual impact.

Response: Because of the site-specific nature of potential impacts to visual resources, the mitigation measure that is the subject of the comment has been deleted. Potential impacts to visual resources will be evaluated as part of project-specific NEPA analyses.

Comment: 80058-027

Comment: Visual Resources – Section 5.2.21.6 identifies several recommended mitigation measures for addressing the visual impacts of offshore wind development. MMS should establish most of these measures as standard best management practices.

However, CESA believes that the MMS mitigation recommendation for “Project Siting” is flawed and should be revised. Under Project Siting (p. 5-131), the PEIS states that “consideration should be given to locating developments as far offshore as possible, and as far as possible from sensitive visual resources...” CESA disagrees with this recommendation as arbitrary and contrary to establishing a regulatory review process that addresses aesthetic issues in a rational, methodological manner. Wind energy projects closer to shore are not necessarily in conflict with areas of high scenic quality. When evaluating the visual impacts of wind projects, the essential question is not whether people will see wind turbines or find them beautiful or not, but instead to what degree they may affect important visual resources. Location of wind projects in relatively close proximity to shore and near scenic resources should not be prejudged as having unacceptable visual impact.

Rather than recommending that all wind farms be located as far offshore as possible, MMS should establish a formal visual assessment method or system to analyze the significance of visual resources involved and the effects of a project on the scenic resources and character. The general approach should be similar to the Scenery Management System established by the US Forest Service and the BLM’s Visual Impact Assessment.

Among the factors that such a methodology should evaluate in determining whether the location and design of an offshore wind farm creates an unacceptable visual impact are:

1. Has the applicant provided sufficient information with which to base a decision on unacceptable visual impacts?
2. Are scenic resources of national significance located near the project?
3. Would the scenic resources be significantly degraded by the project?

4. Would the scale of the project interfere with the general enjoyment of scenic features?
5. Has the applicant employed reasonable mitigation measures in the design and layout of the project?

CESA directs MMS to the framework identified in Appendix D to the recent NAS Report, Environmental Impacts of Wind-Energy Projects (May, 2007), as a potential process for evaluating aesthetic impacts of offshore wind projects. While this process addresses land-based wind projects, many of the principles are applicable to offshore wind.

Response: Siting a project farther from shore or from sensitive visual resources will lessen its visual impact, irrespective of whether the impact is perceived as positive or negative by individuals or even by systematic visual impact analysis, because it will reduce the apparent size of the project, and may also decrease apparent color contrast. The mitigation measure as stated in the draft EIS specifies that placement farther offshore or away from sensitive visual resources is a mitigation measure to be considered, not a requirement, and it might not be necessary or appropriate in every case. The decision about applying this mitigation measure would be made at the site-specific level, and subject to site-specific NEPA analysis. The text in Section 5.2.21.6 has been amended to clarify this point. Establishment of a formal visual impact assessment method or system is beyond the scope of the EIS.

Comment: 80108-006

Comment: MMS-DPEIS: “Aesthetic concerns include the potential loss of “naturalness” of landscape/seascape views, and concern about possible effects on land values and tourism. However, a number of research studies on visual impacts of offshore and onshore wind energy developments have indicated that wind power enjoys strong support among the public (Yale University 2005; Dong Energy et al. 2006; Warren et al. 2005; SEI 2003), and unlike most large-scale energy facilities, wind turbines are in some cases viewed as a positive visual impact by significant portions of the public (Minnesota Project 2005; Warren et al. 2005; SEI 2003).”

Put aside the salient fact that Dong is a Danish Energy company and SEI is a branch of the Irish government whose “mission is to promote and assist the development of sustainable energy.” Then consider that the wide ranging Yale survey which indicated that the 87% who favored “expanding wind farms” was 3% less than those who wanted more solar and 6% more than those who wanted hydrogen-powered cars. Only then should the referenced PDF from the Minnesota Project be pulled up; it speaks for itself:

Visual Impacts - Perhaps the most significant concern or issue associated with wind development is the most subjective issue - visual impacts. The structures are large and located on high ground in open landscapes. Commercial turbines can be seen for miles. Whether people find them objectionable varies dramatically from person to person, place to place and project to project. Some people find a change in the view shed unacceptable

and offensive. Others find wind turbines to be interesting and appealing. Others might find wind development acceptable in one place but not another.

Development in special scenic areas will likely generate more concern and opposition than in other places. For example, bluffs overlooking a river valley may be viewed as relatively unspoiled in an area dominated by intensive agriculture. Also development may be accepted generally in a landscape but not in close proximity to natural or recreational areas such as State Parks or historic sites.

As it turns out, glossy representations of “public” perceptions are not confined to this DPEIS. Bruce Kaplan, Senior Environmental Professional for Mangi Environmental Group, while interviewing the Town of Babylon assessor, contended that many Europeans living near offshore wind farms have grown fond of them. As Mr. Kaplan was conducting a study of the potential impact of 440’ offshore wind turbines on adjacent property values, he was asked if he had looked at conclusions on this issue by the Royal Institution of Chartered Surveyors. He had not and thus was not aware that “60% of the sample suggested that wind farms decrease the value of residential properties where the development is within view and 67% of the sample indicated that the negative impact on property prices starts when a planning application to erect a wind farm is made.” The critical point here is that those tasked by MMS to evaluate issues and projects should seek a balance of anecdotal estimates and not act as advocates.

Response: Section 5.2.21 (p. 5-121) of the draft programmatic EIS notes that potential visual impacts are often a primary reason for opposition to wind energy developments, and that individuals’ perceptions of visual impacts of wind energy development can be positive or negative. The Royal Institution of Chartered Surveyors (RICS) study cited by the commentor states that “Opinion surveys regularly show that just over eight of ten people within the UK are in favor of wind energy.” This statement is in agreement with the Dong Energy report and the other reports cited in the programmatic EIS.

With respect to the effects on property values, the RICS study cited by the commentor involved a survey of real estate agents to determine their opinions about the effect of wind energy developments on nearby property values. As noted by the commentor, 60% of real estate agents surveyed felt that proximate wind energy developments would decrease property values when the turbines are in view. However, the research study followed the survey described by the commentor with a quantitative assessment to determine whether the presence of wind turbines actually did decrease nearby property values. Their examination of 919 transactions showed limited effects for certain types of housing less than 2 km (1 mi) from WTGs and no clear relationship beyond 2 km (1 mi). The authors conclude that factors other than the presence of wind facilities were more significant in impacting housing prices. The RICS study also cited a U.S study of 24,300 property transactions from 10 locations in the United States over a period of 6 years (Sterzinger et al. 2003), which found “no evidence to suggest that wind turbines sited within a 5 mile radius of property had a negative impact on value.” The RICS study states that “the threat of a wind facility may have a more significant impact than the actual presence of one.” This statement is consistent with the study by Warren et al.

(2005) cited in the programmatic EIS that found that positive attitudes toward nearby wind energy developments increased after the developments were constructed.

Comment: 80118-074

Comment: Page 5-1 19 Section 5.2.21 Visual Resources: The Service recommends that wilderness areas be considered in the discussion on visual resources in this subsection, particularly when on a NWR.

Response: Wilderness areas and NWRs are included in the discussion of project siting mitigation measures (5.2.21.6) as “sensitive visual resource areas and/or areas with limited visual absorption capability or high scenic integrity.” This general description includes wilderness areas and NWRs that meet these criteria, as well as national parks, monuments, and other significant scenic resource areas.

B.2.16.22 Tourism and Recreation

Comment: OCS04-003

Comment: Also in the summary section on technology testing states “in the United States developers would likely skip the pilot and demonstration phase and move directly to commercial operation.” I believe this means that it would have been a larger final product rather than a demonstration phase. That’s at least how we interpret that. There is also the little discrepancy here. You mentioned in Section 5.2.11.4 under operations “there is a special” -- I’m sorry. “There is a possibility that major projects that cover large areas, estimated projects areas of 10-60 kilometers square, 4-25 miles square have been reported with multiple platforms disbursed within the project area could result in substantial changes in the abundance and diversity organisms within the area. I’m wondering if -- we’re wondering if this sense of benchmark for the size of the wind farms. And the major portion and this gets, I don’t know if I should just quote the section titles or read the whole quote because this is going to get long here. You are rather contradictory in where and how you are going to police the areas of the wind farms. There is multiple sections that talk of exclusionary zones. One of the least of which says consequently the amount of area that would be lost to fishing activities from a single isolated wind tower would be very small comparative to similar surrounding habitat even if a exclusion area with a radius of 500 meters, over 1,600 feet was designated for safety purposes. And yet there’s also a section in here which as I had said a moment ago, is 4-23 square 19 miles. That’s a little contradictory. You talk about individual turbine with that small an area, fine. Where you are talking wind farm, up to 23 square miles, that could be possibly excluded and in all but two sections that I was able to find, you mentioned total exclusion of both commercial and recreational fishing vessels. And yet in several sections it mentions that, where is it. In fact because the towers associated with the OCS wind energy structures would likely service artificial reefs and attract species of pelagic and demersal fish that are popular with recreational anglers, project areas could become recreation fishing areas. And there is a section that also under your analysis of the proposed action in this alternate table 7.1.1-1, land use and existing infrastructure,

commercial shipping would be excluded within the facilities but other uses e.g., recreational fishing would be possible. I mean, with the exception of the commercial sector, these statements do contradict each other, and that's one of the biggest concerns divers have. If you put these square miles worth of area farms out there and exclude vessels, our sport in that area is going to die. I mean, granted you have mandates in there that say you are not going to be around artificial reefs, you are not going to be around, we don't have any NPAs or very few and most are in-shore areas of protection that you would avoid. Most of our diving is done within three miles and in waters that have no protection. Granted, I'm sure, you are not going to put it out near some of the major wrecks that we dive on, but you could put them in the area and therefore exclude us. And as I said, you are contradicting yourself in the EIS. You are going to allow recreational use.

Response: The decision to allow or exclude particular types of commercial or recreational use within the boundaries of OCS alternative energy projects would be determined individually for each project area and would depend, in part, on the design of the project, the types of resources within the project area, and the traditional use of the area. In some sections of the programmatic EIS, an assumption about particular types of use was made in order to identify the potential range of impacts to specific resources or activities.

Comment: OCS06-001

Comment: But the New Jersey Historical Divers Association takes a different approach to that. We are concerned about the cultural resources that are out there and access to those resources. But, I just want to make a quick little map here. Long Island, the New Jersey Coast. This has, as you all notice, the New York bite. We have three major shipping lanes that converge in a very, very tight area here between Rockaway Point and Sandy Hook. This is, unlike many other areas off the coast of the United States and other areas around the United States, this is a particularly unique area or certainly there are a few areas that are like this. When you look at areas like Florida, which is a big point of land that people navigate, they try to keep clear of it, except for some of the coastal port areas. When you look at areas like Cape Code, when you look at areas like North Carolina, there are points of land that go well out into the ocean that people choose to avoid. What's interesting about our area is that this is like a funnel. This is where everyone wants to get and because of that we have three major shipping lanes converge on this area and there's an enormous amount of traffic coming into this area. Not going by it or not only going by it, but coming in and out of this area. There is a tremendous amount of shipping traffic. When you talk about the wind turbines, in particular, and you talk about putting these things up in water that is about 80 feet deep, you are pretty much covering this entire shipping lane here and most of this shipping lane here. Historically, for the past three hundred years, there's been an enormous amount of shipping coming in and out of the port of New York and Port Elizabeth, Port Newark, and consequently you've had a high number of shipwrecks. People in North Carolina will say, well there's 6,000 shipwrecks off of North Carolina but that covers a very broad area. There are 5,000 documented shipwrecks that have occurred in this area and they are all very close to

shore. They are all in a very tight area, and most of them occurred in these shipping lanes, due to collision, structural fatigues, storms. Most of the wrecks concentrate in this area here between about the 80-90 foot line and the coast. There are a lot of wrecks that are piled up along the shore here, in New Jersey, and along the shore here in Long Island. If these windmill pylons, if these towers are going to occur in 80 feet or less water, they are going to be in an area that has a concentration of shipwrecks. If they are going to occupy, like an area of bottom that's five by five, maybe 25 square miles, there are going to be a - - certainly they are going to begin to affect our access into these areas where there are shipwrecks. Shipwrecks that we visit for recreational purposes. Shipwrecks that we study for historical and archeological purposes. Shipwrecks that we fish because there are fish that live on it, recreational fishermen want to get to these three resources and the fisherman that want to fish between them, the draggers, the clambers, the lobstermen that want to put their rigs off these wrecks or they want to drag their rigs between these wrecks. They don't want to snag the wrecks. They don't want to lose thousands of dollars worth of equipment on these sites. They want to avoid it. So you've got people that want to use the sites and people that want to use the areas around the sites. We consider these resources to be multi user facilities. Everybody wants to use them. And when you quartered off an area and say no, no, no, you cannot get into this area. You can't go slaloming between these things like a skier going down a hill because you are going to collide with our facilities. We say the area is too large. To me, it seems the best thing to do is to not utilize this area because it is such a high traffic area and such a heavily used area that you are only going to be overcrowding. People want to put a natural gas island out here.

People want to put windmills out here. People want to put artificial reefs out here. People want to restrict people from using those artificial reefs by establishing sanctuaries. The area is so heavily burdened, I don't know how much more it could take. Of course I am being a little emotional when I say that, but that's where studies come in to find out exactly how much it can take. So the points that I wanted to raise were that this is a very tight area to be establishing this sort of technology. Perhaps the Gulf might be better. It's broader. It's more open. You have shallower water for much greater distances out at sea. Multi-user resources. You are going to start cutting into the wrecks, the reefs that we have available to us. Overuse as I mentioned, everybody wants to build something out here or establish something out here. Some zone to exclude. Some zone to include. I also might add that although I really am in favor of windmill technology, I think it is fantastic. I'm not necessarily convinced that the ocean in New Jersey is the best place to establish windmill farms. I think that there are plenty of areas within the state that would be ideal for it and readily available. Thank you.

Response: The text in the programmatic EIS has been modified to mention potential impacts to recreational diving. The MMS does not anticipate a large amount of activity in any given area in the foreseeable future. The MMS will be preparing NEPA documents for lease sales and site-specific projects as a follow-on to this programmatic EIS. These documents will focus in more detail on the key issues of a smaller geographic area. Should numerous facilities be proposed in a relatively small geographic location, issues such as multiple-use conflicts with navigation, fisheries, recreation, and military;

interference with migratory pathways; and visual impacts from multiple sites will need to be analyzed carefully.

Comment: OCS07-004

Comment: On some specifics, there was a minimal, I would say probably inaccurate evaluation of the reactions of the visual impacts. There is a unfortunate tendency to dismiss it as being trivial, as being not in my back yard. New Jersey did, as a result of the work that we did a couple of years ago on offshore wind, commissioned a public opinion survey and look at what the impacts would be on tourism, visitation to the beach, which is a tremendous part of New Jersey's economy. And they found that 12 percent of the people that they surveyed would not come back or not visit because of the visual impacts of the turbines sited, I think mostly within three miles and in that level of acceptable rose, the further out they got, the less visual intrusion there was. When Rutgers University then, in a separate study, related that back to what a 10 percent decline in tourism might mean in the four costal counties in New Jersey. It will cost 4,800 jobs, 134 million dollars in review, 6.9 million dollars in local tax revenue. So these are not insignificant numbers. The EIS gives very, very minimal treatment to it and obviously some of that information was readily available. Similar studies have been done that associated with Cape Wind up in Cape Cod.

Response: While there may be impacts to tourism and recreation from the development of offshore energy facilities, without detailed information on the location of these facilities, and the environmental resources on which tourism and recreation are based, the impact of specific developments on employment, property values, and other socioeconomic indicators is difficult to quantify. The types of impacts that might occur are described in Section 5.2.22 of the programmatic EIS.

Comment: OCS15-002

Comment: Tourism & Rec; Alt Energy – Impact Assessment

Tourism, boating and recreation. On the East Coast in the United States, according to your analysis in 2004, 624,602 people were employed according to table M.2.22. You list minor to temporary impact. Is ten percent impact correct? That would mean 62,000 people would be out of work. Would 20 percent be correct? That would mean 124,000 people would be out of work. These are tax paying industries that produce taxes to the United States of America. Property value. An English court of law ruled 20 percent property value lost to a property owner adjacent to one of these wind turbine factories. Now the value of U.S. coastline property is in the billions. MMS study indicates negligible to minor impact on property value due to visual impacts. What is real estate visual impact dollar value. Real estate values view as priceless. MMS must discuss this with real estate professionals with accurate visuals.

Response: While there may be impacts to tourism and recreation from the development of offshore energy facilities, without detailed information on the location of these

facilities, and the environmental resources on which tourism and recreation is based, the impact of specific developments on employment, property values, and other socioeconomic indicators is difficult to quantify. The types of impacts that might occur are described in Section 5.2.22 of the programmatic EIS. Alternative energy developments would have a localized effect that could be both positive and negative. Regional and site-specific analysis will provide a more detailed analysis of impacts.

Comment: OCS68-003

Comment: Impacts on aesthetics and conflicting commercial and recreational uses of the ocean are likely to be greater in Hawaii than in areas with wider continental shelves, since ocean energy devices would be located comparatively close to the shore. Furthermore, any decrease in wave height caused by energy facilities will be a potential concern if surfing beaches are nearby.

Response: The text in the programmatic EIS has been modified to mention the potential impact of offshore energy developments on surfing.

Comment: 80052-018

Comment: Section 4.4.22 Tourism and Recreation. MMS compares tourism and recreation to overall state employment and wages. This masks the importance of these sectors to coastal communities. Tourism and recreation contribute significantly to many coastal communities in terms of wages and employment rates. On Washington's outer coast, tourism provides between 9 and 17 percent of the jobs (Washington State Department of Community, Trade, and Economic Development, Tourism Office October 2005. Washington State County Travel Impacts 1991-2004 Prepared by Dean Runyan Associates.). Visitor-generated sales make up a larger percentage of tax collections in outer coastal counties than the Washington average.

Response: The table and text in Section 4.4.22 have been modified to include a comparison of tourism and recreation employment with employment in the coastal economy.

Comment: 80070-012

Comment: Georgia's coastal zone also supports industries vital to the State's economy, including commercial and recreational fisheries, port traffic, and tourism. In 2006, the Georgia shrimp fishery landed 2.4 million pounds of shrimp (food and bait), worth \$7.5 million. Georgia licensed 280 commercial shrimp trawlers in 2006. In 2006, the commercial finfish catch in Georgia was 223,771 pounds, worth \$511,528. Recreational saltwater fishing was worth \$510 million to the Georgia coastal economy in 1997. Recreational fishing landed more than 1.7 million pounds of marine fish in 2006. Coastal tourism generated \$1.7 billion and 14,953 jobs in 2001. The deepwater ports in Savannah and Brunswick, Georgia handled 3,267 ships in 2006, and more than 20 million tons of cargo. The Georgia Ports Authority (including two inland barge ports) brought in \$56

billion in sales (8% of Georgia's total sales) and provided 286,476 full and part time jobs (7% of Georgia's total employment).

Response: Thank you for the additional information about Georgia's economy. While this information is more detailed than what could be incorporated into this broad analysis of potential impacts, this type of information will be incorporated into future regional and site-specific NEPA analyses where appropriate.

Comment: 80085-020

Comment: AWEA would suggest one correction to the impact conclusions on tourism. As stated at page 5- 133, "While some visitors might be distracted by industrial views, for others, the opportunity to view OCS alternative energy facilities might be attractive." AWEA recommends that MMS amend the concluding statement to say, "Routine activities associated with OCS developments might result in visual and auditory impacts on tourism and recreation. Except in extreme circumstances, however, impacts are expected to be minor or temporary, and could be anticipated to be positive." There is no evidence to support the idea that the existence of wind farms on- or off-shore negatively affects tourism. In fact, evidence from a number of sites in the U.S. and Europe demonstrates that wind energy projects often draw people to a site or at least would not deter most tourists from visiting an area.

We further believe that MMS should avoid using pejorative terms such as "industrial" when referring to aesthetic consideration of wind farms.

Response: The text in the programmatic EIS has been modified to reflect information provided in the comment.

Comment: 80087-040

Comment: Unlike conventional terrestrial power plants, alternative energy facilities on the OCS may involve significant spatial requirements. From the 1-2 square miles detailed in the DPEIS for wave and ocean current projects to over 50 square miles for a wind facility, the project footprints will affect other existing and potential users of the marine environment. The possible socioeconomic effects from the exclusion of commercial and recreational vessels, proposed as a mitigation measure to preserve water quality, are inadequately addressed in subsequent analyses regarding Tourism and Recreation and Fisheries. In addition, even if alternative energy facilities are not completely closed to vessel traffic the spacing of individual units may preclude traditional use of these areas by certain vessel types (e.g., recreational sailboats) or commercial pursuits (e.g., commercial longline or large-scale trawl fishing vessels). NOAA recommends MMS expand the analysis of such impacts and consider approaches to mitigate existing uses, including consideration of potential compensation methods, in the development of the AERU Program.

Response: The text in the programmatic EIS has been modified to incorporate more information on mitigation of impacts to recreation and tourism.

Comment: 80087-041

Comment: NOAA recommends MMS broaden its Tourism and Recreation analysis beyond visual and auditory impacts. As described above, depending on the extent of outright vessel restrictions or operating limitations posed by individual unit spacing within an alternative ocean energy facility, existing activities by these sectors may be adversely affected. In addition, because of the potentially large footprint of these facilities, movement of displaced users to other areas may result in resource conflicts and degraded environmental conditions for increased use concentrations in the new areas. The Tourism and Recreation and Fisheries analyses should be revised to reflect these concerns.

Response: The text in the programmatic EIS has been modified to incorporate more information on mitigation of impacts to recreation and tourism, including facility placement considerations.

Comment: 80087-049

Comment: Siting in Southeast U.S. Waters: These water depths also overlap with depths dived by recreational SCUBA divers. In the Southeast U.S., the recreational diving community represents a significant component of the coastal economy. Alternative energy operators will need to consider this user group and whether or not access would be restricted around alternative energy facilities (see section 5.2.22).

Response: The text in the programmatic EIS has been modified to mention potential impacts to recreational diving.

Comment: 80102-004

Comment: The Draft recognizes that “tourism and recreation are important activities for many communities on the Atlantic Coast”, but then concludes “these activities do not make a significant contribution to overall [state level] employment or wages” (4-110). Our concern with this conclusion is that it understates the significant role that tourism and recreation play where these offshore energy projects may be sited. The Draft concludes that “Routine activities associated with Outer Continental Shelf developments might result in visual and auditory impacts on tourism and recreation.., but “Except in extreme circumstances, however, impacts are expected to be minor or temporary.” (5 -133) It is not evident from the Draft that the basis for this conclusion is sufficient.

Response: The MMS agrees with the commentor that tourism and recreation are important economic activities along the coast. However, alternative energy facilities would be located greater than 3 nautical mi (3.5 mi; 5.6 km) from the coast, and the primary impact would be visual. The European experience indicates that these impacts

would be relatively minor. Nevertheless, the MMS will be conducting regional and site-specific NEPA analyses that will provide an opportunity for a more detailed consideration of the impacts.

Comment: 80114-001

Comment: Industrial development is inconsistent with and will adversely impact areas most valued for their scenic, avian, and aesthetic characteristics, such as Nantucket Sound. Development can substantially interfere with recreational boating, recreational fishing, whale and bird watching, and a host of other activities. While such areas may not cease entirely as recreational sites, their primary characteristics may be significantly eroded by development. When such risk is present, MMS should prohibit development within a reasonable distance from the coast.

MMS should conduct a review of the nation's most popular beach destinations and determine what forms of alternative energy development are consistent with those sites. Where certain types of development present significant conflicts, those areas should be made off-limits to developers. Too much is at stake to allow unfettered industrial development in our nation's most prized coastal areas.

Response: Alternative energy development on the OCS would occur greater than 3 nautical mi (3.5 mi; 5.6 km) from shore. While most areas of the coastal United States host a wide variety of tourist and recreational activities, these uses must be balanced with the need for renewable energy. Each part of the country will have particular needs and priorities, and it is not appropriate to develop a single policy for all regions. The MMS will be conducting regional NEPA analyses, that will take into account the needs and priorities of each locality.

B.2.16.23 Commercial Fishing

Comment: OCS09-001

Comment: My simple comments tonight would be that the commercial fishing industry obviously is very concerned about the impacts of offshore wind on the fishing industry. I have not taken the time yet to look at your total programmatic EIS although I have looked at a redacted version that was given to me tonight and had a few comments. It is interesting that, I think actually on my first blush that there's a good bit of honesty here in terms of the document that I have read so far and that is, is that the document does point out that in probability the construction of the wind parks would require exclusion of commercial fishing vessels. I am looking at your 5.2.4.4 and your 5.2.4.6, which both talk about that in all likelihood commercial fishing vessels would be excluded from the area. And clearly for the commercial fishing industry of New Jersey and probably commercial fishing industry within the country, this would be a consideration. For New Jersey, if you look at the areas which are within the scope of offshore wind, which you have talked about in terms of 80 or a 100, up to 50 fathoms, we are looking at basically the most productive surf claim and ocean habitat within the country, 50 percent to 90 percent of

the surf claims in the country come from that area. So clearly, we are concerned about the impacts to our fisheries. At the same time it is clear that, in your 7.5.2.3, you have actually minimized the impact of the industry by saying that there would be minor to moderate impacts. Well, it's really I do not believe that these impacts will be moderate or minor, at least to our industry. It might relative to someone else's industry but to our industry it could be major.

Response: The text in Section 5.2.23.4 has been modified to identify that exclusion of fishing vessels from project areas may not be necessary in all cases or may be applicable to only certain types of fishing gear (e.g., towed gear). The need for exclusions on certain types of activities would be determined, in part, by the design aspects of particular OCS alternative energy projects. Design and siting aspects that can reduce the potential for space-use conflicts and other environmental impacts would be considered during planning for individual projects, and the potential impacts to regional fisheries activities would be analyzed during site-specific NEPA evaluations.

Comment: OCS09-003

Comment: You can't really determine what the impacts are and you can't really therefore say what the impact will be to individual fishing industries or ports throughout New Jersey or the coast wide. And therefore, the traditional way of looking at this, we believe, is fundamentally impossible to predict and may not be the correct response by both the commercial fishing industry and by people thinking about developing this offshore wind resource because again looking at the comments and predicting where things could go, there may be opportunities to recreationally fish amongst these, maybe not or maybe. Again, your document says there may not be but the probability is there will be. The document -- there will be some impacts upon diving, et cetera. And then at the same time it is clear from, I'm sure your guidelines, that people are not going to be putting towers directly on archeological sites and therefore there will, if you do not exclude people from diving amongst them, which probably around the world has not happened, access would be maintained. But the one user group who will be significantly impacted, will be mobile gear fishermen and we believe that so far, what we've seen, does not adequately address it, both in terms of what you have written but more importantly conceptually because I don't think we can really conceive the future, not knowing the development of technology and not knowing the cumulative impact of cumulative technologies, i.e. buoys, wave attenuators, wind turbines under the water and wind turbines above the water -- I mean wave, tidal turbine or below the water current turbine and wind turbines above the water. Now all of these are basically, you know, fixed gear in another area where other fixed gear fishermen are working and other fisherman are working and they are potentially the only significant impact that I see.

Response: Text has been added to Section 5.2.23.4 to clarify that exclusions of specific fishery activities from project areas may not be necessary in all cases or that such exclusions could be applied to only certain types of gear (e.g., towed fishing gear but not static fishing gear). The MMS recognizes that the need for excluding specific activities is related, in part, to regional use characteristics, facility design, and siting and will need to

be considered in greater detail during planning for individual projects. As a consequence, additional analyses of potential impacts will be conducted during site-specific NEPA evaluations for particular projects. Section 5.2.23.6 includes a mitigation measure that would require lessees to review planned activities with fishing organizations and port authorities to prevent unreasonable fishing gear conflicts.

Comment: OCS15-001

Comment: I would like to discuss tonight some cost benefits in your analysis. You list fisheries. According to the MMS draft, the EIS commercial landings in 2005, U.S. equals 3.7 billion dollars in income to the United States. MMS' study lists moderate impact. Those that equate to 20 percent loss, 30 percent loss, 50 percent loss. How does it effect the cost of fish for taxpayers if you have a 40 percent loss besides the billions of dollars the U.S. doesn't enjoy.

Response: Although it is possible that construction and operation of offshore energy developments would have an impact on fisheries resources, and may consequently impact the retail fish prices in the United States, the uncertainty regarding locations of offshore energy developments and the technologies that might be used, and the wide range of fishery resources potentially affected, means that these impacts could only be assessed qualitatively in the programmatic EIS. Once the specific location and technologies associated with offshore energy developments are known, site-specific environmental analyses would consider in more detail the impact of offshore energy developments on fishery resources and the resulting economic impacts.

Comment: OCS49-002

Comment: We have a \$100 million a year fishing industry based in Lincoln County, and we have a vested interested in seeing that not harmed. We have now reduced the scope of that fishing industry through a series of federal and state actions to the point where we view it as renewable, and it's sustainable, and we don't want to further constrict or restrict that vital industry to our economy, to our welfare, to our way of life.

We, however, have not taken the position that these are bad things. We actually look forward to the development of these exciting new technologies, not only for the world impact and for the impact for us, but we also see economic development here, as well, if it's done in a thoughtful, careful and methodical way.

Response: Thank you for your comment. No changes were made to the document as a consequence of this comment. Note that Sections 5.2.23.6, 5.3.23.6, and 5.4.23.6 include a number of mitigation measures that would reduce the potential for conflicts with fisheries operations.

Comment: OCS82-004

Comment: The identified water-dependent uses of Connecticut's coastal zone may also be affected by OCS development activities. Many of Connecticut's commercial fishermen fish in open ocean waters outside Long Island Sound and could be adversely affected if the construction and placement of alternative energy structures within existing fishing grounds caused space-use conflicts for commercial and recreational fishermen, such as either imposed or de facto area closures or the loss of fishing gear, or if such structures were detrimental to fish populations or to essential fish habitat, including breeding and forage habitat.

Such structures may also indirectly affect other living marine resources including marine mammals and sea turtles that migrate along the U.S. eastern seaboard and may enter Long Island Sound, where they contribute to species diversity within the estuary and the integrity of the Long Island Sound's ecosystem. Among those species that may be affected are loggerhead and Atlantic green turtles, Kemp's (Atlantic) Ridley and leatherback turtles, and/or federally listed as threatened or endangered. Threats to these animals may include entanglement in construction materials and debris, distress caused by noise associated with pile driving, and exposure to toxic drilling fluids.

Response: Thank you for your comments. The potential for the types of impacts identified in the comment are discussed in the programmatic EIS. Site-specific evaluations would be conducted for individual proposed projects during the planning stages. At that time, the potential for impacts to fisheries and ecological resources in the vicinity or region where the project would be placed would be examined in greater detail.

Comment: 80055-005

Comment: 5.2.23.4 Fisheries – Operation p. 5-140 This section states “As described in Sections 5.2.12 and 5.2.15, there is a possibility that projects with multiple platforms dispersed over large areas could act as artificial reefs, thereby resulting in changes in the abundance and diversity of fish and invertebrates within the area.” This creates the possibility that invasive species may be attracted and may flourish. Artificial reefs are known to attract and encourage jellyfish. The jellyfish consume shellfish larvae and could be a disaster to nearby shellfish beds. This is critically apparent for the Cape Wind project in Nantucket Sound because of the shellfish beds in the area of the wind farm and the nearby famous Nantucket scallop habitat. This should be discussed in this section and evaluated for all projects.

Response: Additional text has been added to identify that there is a potential for invasive species to utilize the habitat provided by placement of OCS alternative energy structures. Specifics regarding the probabilities and resulting effects of invasive species colonization are impossible to predict. There is also always a potential for invasive species to utilize existing natural offshore habitat regardless of whether offshore structures are developed or not. A literature search found no references to support the suggestion that artificial reefs attract and encourage jellyfish species.

Comment: 80055-008

Comment: Executive Summary - Summary of Potential Impacts and Mitigation for Alternative Energy Development Wind Energy p. ES-4

This section of the Executive Summary provides an overly simplistic summary of the very complex issues surrounding offshore wind energy. The statements “are expected to be” and “is anticipated to” (e.g. page ES-5) should not be used unless they are followed by “what could happen”. The impacts from some phases of wind farm projects could be moderate to major and irreversible. Some examples are:

- the impacts on fish resources, which are frequently unknown but could be major
- the impacts on the fishing fleet, which could reach the point where vessels are taken out of service, sold or demolished (irreversible).

The very major Electronic Service Platform (ESP) and interconnecting cables should be listed on page ES-4 to provide a complete view of the system.

Response: The scope of the programmatic EIS is limited to projects to be initiated in the 5 to 7 year time frame. Since currently the MMS is not accepting applications for any offshore renewable activities, the number of foreseeable projects within that time frame will not be large. Impact evaluations reflect this anticipated near-term level of development. Additionally, the MMS cannot reasonably anticipate and assess the potential environmental impacts of all of the various technologies and potential OCS locations where these alternative energy projects could someday be proposed. Therefore, statements such as “are expected to be” must be used, because at the programmatic level there are still many unknowns. This notwithstanding, impact evaluations for biota (including that for fish resources) have been revised to clearly state that population-level impacts to some threatened or endangered species or impacts to rare or limited-distribution species may be major.

The Electric Service Platform is described on page ES-6 of the draft EIS and in detail in Chapter 3.

Comment: 80068-028

Comment: Sec. 5.2.1.3. Impacts of construction of offshore wind turbines might include interference with fishing operations (increased vessel traffic, dock operations, fuel dock traffic, etc.).

Response: Text has been added to Section 5.2.23.3 to indicate that increased vessel traffic associated with construction of offshore wind facilities could potentially interfere with some fishery vessel operations by affecting port congestion and traffic at fuel docks. Potential impacts on transportation facilities are addressed in Section 5.2.17.3 of the programmatic EIS.

Comment: 80068-032

Comment: 2. Impacts on fisheries, characterized as negligible to minor. Consider upgrading to minor-moderate, especially when considered within the context of highly regulated fisheries with already complex zoning (no-trawl zones, etc.) that restrict opportunities.

Response: The text in Section 5.2.23.4 has been modified to indicate that, in some cases, the potential impacts from space-use conflicts could be greater in areas where there is already an array of fishery zoning requirements.

Comment: 80085-019

Comment: AWEA believes that the generalizations made regarding fishing impacts are incorrect and MMS should include a more accurate characterization of the limited potential for fishing impacts, as well as acknowledge the potential for offshore wind parks and commercial fishing to coexist. Section 2.3.23 of the DPEIS states, "For safety reasons or to avoid the potential for gear loss, commercial fishing vessels could be excluded from project areas that may have previously been within normal fishing grounds. Such exclusions could remain in effect during the entire life of the project. However, as long as wind energy projects are not sited in areas containing unique and highly productive seafloor habitats, overall effects of such space-use conflicts on commercial fishing would be negligible to minor." AWEA strongly disagrees with these statements for several reasons:

- 1) Concerns about impacts to fisheries based on gear loss would be limited to those distinct fishing methods that involve towing some type of net or rake behind a boat, such as longlining or dragging/trawling (a type of fishing that is most destructive to the habitat and sea bottom).
- 2) Commercial fisheries such as hook and line, and traps and pots, would not be impacted by offshore wind at all and in fact will likely be more productive, due to the turbine bases acting as fish attraction devices.
- 3) Concerns about fisheries where gear is being towed behind the boat should be recognized to be less of an issue with the current shallow water state of offshore wind technology. The larger dragging fishing boats are likely to have significant operation further from shore and away from the shallow protected areas where wind farms would be proposed in the foreseeable future.
- 4) Impacts on commercial dragging fishing methods can also be mitigated or eliminated through greater spacing between turbines (based on longer blade lengths and the need to space turbines farther apart to reduce wind wake and energy losses). This increased spacing allows for movement between the turbines.

5) The depth at which the cabling is buried also affects the availability of commercial fishing in the area. It is anticipated that at a burial depth of at least 2 meters, undersea cables will not impede commercial fishing methods, including dragging. Regular monitoring of offshore cabling should ensure sufficient burial depth throughout the life of the project.

AWEA further recommends that MMS acknowledge that offshore wind farms and commercial fishing are not mutually exclusive, and that there is thus no factual basis for a general presumption (or any related general limitation) that wind farms would necessarily have a serious adverse impact on commercial fishing. In addition, the DPEIS states that, "Wind towers on the OCS would represent additional navigation hazards," to commercial fishing boats. AWEA strongly disagrees with this statement and feels that offshore wind towers would be aids to navigation and in some cases would provide location information to a distressed fishing vessel and something to tie off to while awaiting assistance.

Response: Text has been added to Section 5.2.23.4 to clarify that exclusion of commercial fishing vessels may not be necessary in all cases or could apply to only certain types of fishing gear (e.g., towed gear). The point about conflicts with towed gear being less likely (because towed gear would be primarily used in deeper waters while wind energy projects would likely be sited in shallower areas) was not incorporated into the programmatic EIS since there are towed-gear fisheries that also use shallower areas (e.g., shrimp, clam, and scallop fisheries). The MMS agrees that greater spacing between wind energy structures or deeper burial of transmission cables could reduce the likelihood that some activities would be excluded from the area. However, such design aspects and the impacts of those aspects would be considered during site-specific NEPA evaluations for individual projects.

Comment: 80087-095

Comment: Table 4.2.23-1, Pg 4-111 – This table should be broken out for each region or be added to each region's description in full.

Response: To facilitate comparisons among regions and to allow comparisons of each region to the overall total for the United States, Table 4.2.23-1 was not changed or moved. A callout referencing Table 4.2.23-1 was added to Sections 4.3.23.1 and 4.4.23.1.

Comment: 80088-006

Comment: The greatest potential impact to Washington State resources from energy projects located off the coast would be impacts to fish and shellfish. Many species of fish reside in the area being considered for this PEIS, and many fish species migrate through this area. The fish resources of Washington State are very important economically and culturally. Commercial and recreational fishing are an important economic component of many communities in Washington State. Direct impacts to harvested species and species that are part of the food web that supports these species should be avoided, and unavoidable impacts mitigated. The salmon and steelhead species, as well as other

species, are important to the cultural identity of the region and to the many Native Americans in the region. Impacts to fishing activities, both commercial and recreational will need to be included. Fisheries conducted by Native American Tribes in Washington State are restricted to usual and accustomed fishing areas. Projects located in these areas may have a disproportionate impact on certain tribes. Direct and indirect impacts to wildlife must also be considered. The potential impacts to wildlife could be significant and have economic impacts. Marine mammals and birds could potentially be impacted by ocean energy projects. Some of these species are protected through the Marine Mammal Protection Act, and the Migratory Bird Act.

Response: The MMS agrees that all of the potential impacts identified by the reviewer will be important to consider for individual projects that may be proposed off the coast of the State of Washington. At the time that individual projects are proposed, additional site-specific evaluations would be conducted to look at potential impacts in greater detail than can be done in the programmatic EIS.

Comment: 80098-009

Comment: 5. Impacts on the commercial interests of fishermen could be mitigated so as to be less than significant through measures such as burial and/or route selection or adjustment based on discussions with those affected, and compensation for lost fishing gear.

Response: Mitigation measures identified in the programmatic EIS call for identification and avoidance of sensitive habitats in the siting of alternative energy facilities. It is assumed that cables for transmitting electricity would be buried where feasible in order to reduce the potential for impacts on fisheries and some types of biota. Although programs that can compensate for loss of fishing gear due to oil and gas facilities have been established in some regions, it is currently unknown whether such programs would be established under the OCS alternative energy program.

B.2.17 Other Comments

Comment: OCS18-001

Comment: Unlike the other speakers, I am not particularly speaking for SaveJonesBeach.org, although I support all of their objectives. But I am looking at a wider issue and I'm noticing tonight the paid environmentalists are not here, which probably means the LIPA project is on life support so I am going to address the general study that you did because we have a bigger issue just in Jones Beach. And what I would like to start out -- I came here without any prepared comments and I just looked at what you put up there on the screen and quite frankly I was a little disappointed. First of all, you cannot call them wind farms. They are wind factories. And your study should point this out. They are not a farm. They don't produce a product that we can eat or digest. Okay. It is wind factories and I would request that MMS refer to them in the future as wind factories.

Response: The facilities constructed on the OCS with the intent of harnessing the power of the wind are called wind facilities in the programmatic EIS. Wind farm is the nomenclature generally used for similar facilities constructed on land.

Comment: OCS19-002

Comment: I won't be as generous as my husband. They are not here tonight because they don't think they have to be -- they don't have to look at these standards and be evaluated. And that is why I am glad you are here. I also hope that you have a backup system because the last time you collected all our information and our research and it was lost. Oh no and then they found it. I think they found it. I'm not sure. But anyway, a lot of our comments that were submitted, electronically and through the mail, were somehow mysteriously removed from the record. So I hope that you have a system in place and thank you very much.

Response: The MMS did have a system in place to receive, compile, and address all the comments received during the public review of the draft programmatic EIS. The comments received and the MMS's responses are documented in the final EIS.

Comment: OCS22-003

Comment: Obviously the way you presented it in the beginning is a tremendous bias for wind by corporations and public utilities and federal government. So what I really think you need to do, speaking as a civic association, from our standpoint, that something, when you get a project brought to you, they have to reveal to them, to you, how much money is being put into public relations through their own parties, special consultants are handling in that equal amount so the people in civic associations and fisherman can have a fair shot at fighting back. You have to say, all right you are going to put \$100,000 into PR and then an independent third party has to get a \$100,000 and the fishermen and the civic associations can partition for that money so we can present our case to the public, through the court of public appeal to whatever we have to do to protect our interest and our economy. It's the only fair way. There is no way for a civic association, my group of 1,100 people and Mr. D'Amato for 1,600 people to go raise five hours at a time to try to fight what we think is important to us and our economy and our friends and our families and our neighborhoods and how we feed our families. The community outreach, the community involvement has to be a key component. If you want to, any kind of consensus, any kind of compromise. Without it, you just get everyone mad and then we just go around and around. Thank you for your time.

Response: While the MMS understands your concern about having the resources to raise your issues and questions to the attention of the Federal Government, it is beyond the scope of the Energy Policy Act of 2005 (EPAAct) Section 388 authorities to require the payments you describe. However, there are already many public processes by which you can present your view point. This includes participating in the public scoping meetings and public hearings and comment periods for NEPA documents, such as the EIS, as well as communicating with your public representatives.

Comment: OCS70-002

Comment: Much of the text in Section 5.2 regarding anchors, cabling, and other aspects of transmitting wind-generated electricity to terrestrial substations also applies to WEC devices. While some attempt is made to refer readers of Section 5.3 to this information, MMLC suggests the information should be repeated in Section 5.3 or a stronger reference to those subsections of Section 5.2 applicable to WEC technology should be placed at the beginning of Section 5.3.

Response: Thank you for your comment. The WEC sections were reviewed for proper emphasis of relevant information presented in the wind technology sections.

Comment: 80047-010

Comment: 11. Principles of intergenerational equity require that we hold the earth and its resources in trust. To do otherwise is morally unacceptable. We have both rights and responsibilities that flow from the fact that we hold the Earth in trust for future generations. At the same time, we are beneficiaries entitled to some use and benefit from the earth's resources, but those uses must be appropriate and limited.

Three principles form the basis of intergenerational equity. First, each generation should be required to conserve the diversity of the natural and cultural resource base, so that it does not unduly restrict the options available to future generations in solving their problems and satisfying their own values, and should also be entitled to diversity comparable to that enjoyed by previous generations. This principle is called "conservation of options." Second, each generation should be required to maintain the quality of the planet so that it is passed on in no worse condition than that in which it was received, and should also be entitled to planetary quality comparable to that enjoyed by previous generations. This is the principle of "conservation of quality." Third, each generation should provide its members with equitable rights of access to the legacy of past generations and should conserve this access for future generations. This is the principle of "conservation of access."

Edith Brown Weiss, *Intergenerational equity: a legal framework for global environmental change*. Chapter 12 in Edith Brown Weiss, editor. 1992. *Environmental change and international law: New challenges and dimensions*. United Nations University Press. <http://www.unu.edu/unupress/unupbooks/uu25ee/uu25ee0y.htm>

We must reject formulations of intergeneration equity that fail to recognize the existence of scarcity, technological limits, irreversible environmental change, and the second law of thermodynamics. Examples of these unethical approaches include the "opulence model" in which the present generation consumes all that it wants today and generates as much wealth as it can, either because there is no certainty that future generations will exist or because maximizing consumption today is the best way to maximize wealth for future generations. This model

overlooks the long-term degradations of the planet that may be generated, such as irreversible losses of species diversity. A variant of the opulence model is the technology model, in which we do not need to be concerned about the environment for future generations, because technological innovation will enable us to introduce infinite resource substitution. While technology will undoubtedly enable us to develop some substitutes for certain resources and to use resources more efficiently, it is by no means assured that it will suffice or will make the robustness of the planet irrelevant.

Id. The technology model might provide a plausible explanation for how some energy might be replaced in the marketplace, because as prices rise, alternative technologies take part of the market share, but for “ecosystem services” that are not traded in the marketplace, the technology model cannot explain how we will replace the ecological services of keystone species.

Response: Thank you for the comment.

Comment: 80087-072

Comment: 4.2.5.1 – The document should not refer to websites for information, as the sites may change after this document is made available in final form, and a reader will not be able to find the information it references. NOAA strongly suggests referring to published scientific literature instead.

Response: The MMS agrees that Web sites may change with time, and information cited may no longer be available. Every effort is made to refer to published scientific literature (information which itself may sometimes be hard to obtain). However, some of the latest relevant information may only be available from a Web site.

Comment: 80108-004

Comment: *“FPL Energy encourages MMS to consider, seriously, adoption of the system relied upon by FPL Energy (for compliance & monitoring).” p18 “FPL Energy recommends that MMS require developers to use internal compliance auditing.... Third party monitoring is unnecessary.... FPL Energy notes that its extensive experience with onshore wind projects has revealed very few issues of environmental concern.” p.21*

“MMS should avoid recommending actions that are reckless, unsafe, and unworkable, such as some suggestions for the currently proposed offshore wind projects to have full time manned barges or jack-up rigs to monitor wildlife.” p.27

In the DPEIS, MMS offers a compatible view: “Wind Energy In general, impacts from all phases of development and production (i.e., technology testing, site characterization, construction, operation, and decommissioning) are expected to be negligible to minor if the proper siting and mitigation measures are followed [p5]

Response: As discussed in the draft programmatic EIS, the MMS conducted analyses to determine the impacts of potential wind, wave, and ocean current technology projects on the OCS. In its analyses, the MMS used the most up-to-date data and tools at the time. After the publication of the draft EIS and before the final EIS was issued, the MMS reviewed, to the extent practicable, any new information that became available after the draft EIS was prepared, including the NAS report entitled *Environmental Impacts of Wind Energy Projects*. The conclusions reached by the MMS in the EIS are based solely on its own evaluations and assessment of the impacts associated with the activities considered under the proposed action and its alternatives.

As much as this and other comments pertain to the rules, the MMS is considering all such comments in the formulation of the rulemaking.

Comment: 80118-082

Comment: Page 7-4: “*Most adverse impacts could be greatly reduced or eliminated by implementation of appropriate mitigation actions. In many cases, the recommended mitigation is to avoid the siting of facilities in areas of special concern or in ecologically sensitive areas.*” The Service recommends the qualifier “In many cases” at the start of the second sentence be eliminated.

Response: The recommended change is not appropriate because not all impacts can be mitigated by alternate facility siting.

Comment: 80118-085

Comment: Pages 7-15 — 7-19. Sections 7.4.1 Coal Fired and 7.4.2 Natural Gas Fired Generation: In addition to discussing cooling water in this section, we suggest providing information on dry cooling alternatives. Dry cooling technology has been used extensively in the northeastern U.S. to achieve siting objectives and eliminate water use impacts due to cooling water use.

Response: Section 7.5 of the Final EIS is not intended to provide a comprehensive discussion of impacts associated with alternative land-based energy generation sources nor of potential mitigating technologies. Rather, the intent is to provide a broad overview of potential environmental impacts typically associated with such energy sources. Potential impacts associated with cooling water, such as impingement, entrainment, and increased water temperatures in receiving water bodies, are briefly mentioned in Sections 7.5.1 and 7.5.2.

It is recognized that mitigating technologies, such as dry cooling technologies, are available for many of the impact areas discussed in Section 7.5 (further examples are advanced scrubber technologies and coal gasification to reduce air emissions). Although such technologies often reduce environmental impacts in certain areas, they often have associated large energy penalties, can have large footprints with corresponding impacts, and can have significant capital cost of construction. Consequently, it was considered

beyond the scope of Section 7.5 to discuss mitigation technologies and process alternatives.

B.3 COMMENTOR AND COMMENT DOCUMENT INDEX

TABLE B.3.1 Index by Commentor/Organization

Last Name	First Name	Organization	ID
Allison	Taber	Massachusetts Audubon	OCS38
Bovett	Rob	Lincoln County	OCS49
Dillingham	Tim	American Littoral Society	OCS07
Albee	Lori		80042
Andre	Susan		80024
Arendt	Michael, D.		80032
Arendt	Michael		OCS62
Arnold	Walter	Save Jones Beach	OCS15
Arthur	Glenn	New Jersey Council of Diving Clubs	OCS04
Asmutis-Silvia	Regina, A.	WDCS	80090
AufderHeide	Jan		80038
Ballard	Dave and Tami		80033
Barclay	David	NE Sustainable Energy Association	OCS33
Barker	John, D.		80012
Beckerle	John, C.	Scientific Applications Research Associates	80030
Beerman	Elizabeth, T.		80020
Bellone	Steven	Town of Babylon	80108
Bellone	Steve	Town of Babylon	OCS13
Benavidez	Paul, M.		80059
Bennett	Michal		80080
Bollag	Sascha		80034
Borchert	Carl, K.	Clean Power Now, Nantucket	OCS72
Borrelli	Peter	Provincetown Center for Coastal Studies	OCS67
Bovett	Rob	Lincoln County, Oregon	80072
Bowles	Ian, A.	Secretary, Executive Office of Energy and Environmental Affairs	80100
Brand	Marina	California State Lands Commission	OCS90
Bressie	Kent	North American Submarine Cable Association	80098
Brooks	John	Save Jones Beach Ad Hoc Committee	OCS16
Burgeson	Marianne		80021
Capachione	Carol Delano		OCS69
Carr	Mary, K.	Southern Alliance for Clean Energy	80089
Carra	Robert	Save Beach Ad Hoc Committee	OCS10
Carrier	Michael	State of Oregon, Office of the Governor	OCS89
Cassarino	Carl		80018
Chamovits	Max	Ocean Renewable Energy Coalition	OCS02
Charter	Richard	Defenders of Wildlife	OCS45
Chrisman	Mike	State of California Resources Agency	OCS87
Church Ciocci	Linda	National Hydropower Association	80092
Clarke	John, J.	mass audubon	80066
Cohen	Daniel	Garden State Seafood Association	OCS09
Collins	Belinda, K.		80005
Cooksey	Sarah, W.	Delaware Dept. of Natural Resources & Environmental Control	80056
Corrigan	Zach, B.	Food & Water Watch, etc.	80071
Corrigan	Zach, B.	Food & Water Watch	80078
Corrigan	Zach	Food and Water Watch	OCS03
Cox	Joseph, S.	Sole Technology Institute	80075
Cozens	Rob	Mendonoma Marine Life Conservancy	OCS70
Crespan	David		80022
D'Amato	Wally	Nassau Shores Civic Association	OCS14
Dale	Dorian	Town of Babylon	OCS27

TABLE B.3.1 (Cont.)

Last Name	First Name	Organization	ID
Davidson	Sarah		80035
Delahunt	William	U.S. House, 10th District Massachusetts	OCS81
Demler	Linda		OCS93
Doenges	Rich	Washington State Department of Natural Resources	OCS85
Dolan Murphy	Maureen	Citizens Campaign for the Environment	80115
Dowds	Phillip	Sierra Club of Massachusetts	OCS42
Driscoll	Frederick, R.	Florida Atlantic University	80096
Durkin	Barbara		OCS32
EdwardG	EdwardG		OCS74
Egeland	Tom	Department of the Navy	OCS95
Eichenberg	Tim	Ocean Conservancy	OCS46
Eichenburg	Tim	Ocean Conservancy	80082
Elefant	Carolyn	Ocean Renewable Energy Coalition	80081
Erlick	Ben		80004
Ernst	Michael	TetraTech	OCS36
Everett	John, T.	Ocean Associates, Inc.	80083
Faraglia	Annette	Pacific Gas and Electric Company	80074
Farber	Laurie		OCS11
Fay	Annette	Blue Planet Run / PWX	OCS73
Fenn	Margo	Cape Cod Commission	80057
Fleischer	Stephen		OCS20
Forgason	Caroline, A.	The Peregrine Fund	80077
Frank	Lee		80040
French	Kristen		OCS56
Fryman	Janet		OCS58
Fujita	Rod	Environmental Defense	80068
Gauger	Briana		80037
Gill	Chip	IAGC	80113
Good	Neil, M.		80114
Graham	Paul		80016
Hager	David		OCS26
Haring	Faye, G.		80003
Harris	Francoise		OCS71
Hassell	Kevin	New Jersey Department of Environmental Management	OCS05
Healey	Philip	Biltmore Shore Civic Association	OCS22
Heidorn	Jean, A.		80011
Heiken	Doug	Oregon Wild, formerly Oregon Natural Resources Council	80047
Heimann	David	Sierra Club Massachusetts Chapter	80109
Heimann	David	Sierra Club Massachusetts Chapter	80111
Heller	Alice, P.	Great South Bay Audubon Society	80086
Hennessey	Jennifer	Washington State Department of Ecology	80052
Hersh	Charles, A.		80014
Hersh	Charles, A.	Save Jones Beach	OCS12
Hill	Barbara, J.	Clean Power Now	80048
Hill	Barbara	Clean Power Now	OCS39
Hoag	Ethan		80015
Holcomb	Noel	Georgia Department of Natural Resources	80070
Hudgins	Mike		OCS60
Hughes	Eileen, M.		80019

TABLE B.3.1 (Cont.)

Last Name	First Name	Organization	ID
Irons	Ellie, L.	Virginia Department of Environmental Quality	OCS83
Jenkins	Steven, O.	Alabama Department of Environmental Management	OCS78
Jenny	Peter	The Peregrine Fund	80107
Jodziewicz	Laurie	American Wind Energy Association	80085
Johnson	Michael, D.	Maine Historic Preservation Commission	80046
Kay	Catherine		OCS55
Kent	Donald, B.	Hubbs-SeaWorld Research Institute	80117
Kispert	Kevin, A.	NYSDEC	80093
Kittelberger	Walt	Lower Laguna Madre Foundation	OCS77
Kleekamp	Charles	Clean Power Now	OCS30
Kolian	Steve	EcoRigs	80013
Kopelman, Ph.D.	Arthur, H.	Coastal Research and Education Society of Long Island	80062
Koschek	Kenneth, C.	New Jersey Dept. of Environmental Protection	OCS94
Kress	Elizabeth, A.	Santee Cooper	80049
Kress	Elizabeth	Santee Cooper	OCS52
Krouse	Wayne	Hydro Green Energy	OCS44
Lebert	Mary		80039
Leblanc	G.		80064
Leyden	Kathleen	Maine Coastal Program	80069
Lieb	Dan	New Jersey Historical Divers Club, New Jersey Historical Divers Association	OCS06
Liebman	Cynthia, E.	Conservation Law Foundation	80094
Liebman	Cynthia	Conservation Law Foundation	OCS40
Liedell	James	Clean Power Now	OCS29
Link	Bob	Winergy Power LLC	OCS24
Liu	Theodore, E.	Hawaii Dept. of Business, Economic Development & Tourism	OCS68
Lopez	Al		OCS61
Lowery	Cameron		OCS64
Lowry	Cindy	OPTI	80084
Luketich	Mary, T.		80051
Luster	Tom	California Coastal Commission	80106
Maas	Catherine	Healthlink	OCS41
Mansfield, III	Charles		OCS65
Mastone	Victor	Massachusetts Board of Underwater Archaeological Resources	OCS88
Mayes	Fred, M.	Energy Information Administration	80116
McCarthy	Gina McCarthy	Connecticut Department of Environmental Protection	OCS82
McClure	Bob	BioSonics, Inc.	80045
McCoy	Patrice, J.		OCS66
Melba	McGee	North Carolina Dept. of Environment and Natural Resources	OCS79
Miller	Anne, N.	U.S. Environmental Protection Agency	80073
Molloy	Kenneth, H.		80055
Mooradian	Janis, A.	coyotescorner.com	80061
Murray	Greg	Oregon Dept. of Land Conservation and Development	OCS50
Nash	Brady, A.		80041
Nelson	Thom	The NelSun Company	80001
Newman	Vivian	Sierra Club	80079
Nickerson	Susan	Save Our Sound	OCS34
Palano	Gerry		OCS43
Papa	Jim		OCS21

TABLE B.3.1 (Cont.)

Last Name	First Name	Organization	ID
Paugh	Robyn, L.		80006
Perkins	Winifred	Florida Power & Light Company	OCS92
Postnicks	Diane		OCS59
Pugliese	Roger	South Atlantic Fishery Management Council	80095
Quaranta	Dennis	Winergy Power LLC	80103
Quaranta	Dennis	Winergy Power LLC	OCS23
Rachlin	Aaron	Borderland Wind	OCS47
Rector	Barry, G.	NP&EDC	80102
Reid	Cristi	NOAA	80087
Reilly	Kathryn		80029
Rigas	Nicholas	Clemson University	80017
Rigas	Nicholas		OCS53
Rogers	John	Union of Concerned Scientists	OCS31
Samson, Ph.D.	Jennifer, C.	Clean Ocean Action	80101
Sandbeck	Peter	North Carolina Department of Cultural Resources	OCS86
Schary	Richard		OCS18
Schary	Lisa		OCS19
Shannon	Diana		80063
Shanske	Donna		OCS76
Shirk	Elizabeth, C.	Historic Preservation Division	80025
Simon	Brona	Massachusetts Historical Commission	OCS91
Sinclair	Mark	Clean Energy States Alliance	80058
Sinclair	Mark	Clean Energy States Alliance	OCS37
Smith	Michael, D.	National Trust for Historic Preservation	80099
Sothoron	Carly		OCS75
Sprague	Gary, R.	Washington Dept. of Fish and Wildlife	80088
Stavrakas	Stephanie	Fish and Wildlife Service	80118
Steinbach	George	California Artificial Reef Enhancement Program	OCS84
Sweeny	Tom		OCS63
Ten Kley	Reid	Iliamna Fish Company LLC	80043
Tucker	Debbie	Florida Dept. of Environmental Protection	OCS51
Tupper	Ted, D.		80067
Ugolini	Nick		OCS54
Valencia	Suzanne, M.		80050
Vanderberg	Thomas, S.	Save Jones Beach Ad Hoc Committee, Inc.	80091
Vanderberg	Thomas	Save Jones Beach Ad Hoc Committee	OCS17
Vinick	Charles	Alliance to Protect Nantucket Sound	OCS35
Walter	Christian, D.		80060
West	Ann		80027
White	Chris		80036
White-Claflin	Kim		80044
Whitehead	Heather	Center for Food Safety	80076
Wing	Kate	NRDC	80104
Wing	Kate	Natural Resources Defense Council	OCS48
Wyatt	Robert John		OCS57
Yapalater	Jeff		OCS25
Young	Sandra	Alliance to Protect Nantucket Sound	80105
Young	Sandra	Alliance to Protect Nantucket Sound	OCS01
Young	Sharon, B.	The Humane Society of the United States	OCS80
Zipf	Carol	Clean Ocean Action	OCS08

TABLE B.3.2 Index by Organization

Organization	Document ID	Last Name	First Name
Alabama Department of Environmental Management	OCS78	Jenkins	Steven, O.
Alliance to Protect Nantucket Sound	OCS01	Young	Sandra
Alliance to Protect Nantucket Sound	OCS35	Vinick	Charles
Alliance to Protect Nantucket Sound	80105	Young	Sandra
American Littoral Society	OCS07	Dillingham	Tim
American Wind Energy Association	80085	Jodziewicz	Laurie
Biltmore Shore Civic Association	OCS22	Healey	Philip
BioSonics, Inc.	80045	McClure	Bob
Blue Planet Run / PWX	OCS73	Fay	Annette
Borderland Wind	OCS47	Rachlin	Aaron
California Artificial Reef Enhancement Program	OCS84	Steinbach	George
California Coastal Commission	80106	Luster	Tom
California State Lands Commission	OCS90	Brand	Marina
Cape Cod Commission	80057	Fenn	Margo
Center for Food Safety	80076	Whitehead	Heather
Citizens Campaign for the Environment	80115	Dolan Murphy	Maureen
Clean Energy States Alliance	OCS37	Sinclair	Mark
Clean Energy States Alliance	80058	Sinclair	Mark
Clean Ocean Action	OCS08	Zipf	Carol
Clean Ocean Action	80101	Samson, Ph.D.	Jennifer, C.
Clean Power Now	80048	Hill	Barbara, J.
Clean Power Now	OCS29	Liedell	James
Clean Power Now	OCS30	Kleekamp	Charles
Clean Power Now	OCS39	Hill	Barbara
Clean Power Now, Nantucket	OCS72	Borchert	Carl, K.
Coastal Research and Education Society of Long Island	80062	Kopelman, Ph.D.	Arthur, H.
Connecticut Department of Environmental Protection	OCS82	McCarthy	Gina McCarthy

TABLE B.3.2 (Cont.)

Organization	Document ID	Last Name	First Name
Conservation Law Foundation	80094	Liebman	Cynthia, E.
Conservation Law Foundation	OCS40	Liebman	Cynthia
coyotescorner.com	80061	Mooradian	Janis, A.
Defenders of Wildlife	OCS45	Charter	Richard
Delaware Dept. of Natural Resources & Environmental Control	80056	Cooksey	Sarah, W.
Department of the Navy	OCS95	Egeland	Tom
EcoRigs	80013	Kolian	Steve
Energy Information Administration	80116	Mayes	Fred, M.
Environmental Defense	80068	Fujita	Rod
Fish and Wildlife Service	80118	Stavrakas	Stephanie
Florida Atlantic University	80096	Driscoll	Frederick, R.
Florida Dept. of Environmental Protection	OCS51	Tucker	Debbie
Florida Power & Light Company	OCS92	Perkins	Winifred
Food & Water Watch	80078	Corrigan	Zach, B.
Food & Water Watch, etc	80071	Corrigan	Zach, B.
Food and Water Watch	OCS03	Corrigan	Zach
Garden State Seafood Association	OCS09	Cohen	Daniel
Georgia Dept. of Natural Resources	80070	Holcomb	Noel
Great South Bay Audubon Society	80086	Heller	Alice, P.
Hawaii Dept. of Business, Economic Development & Tourism	OCS68	Liu	Theodore, E.
Healthlink	OCS41	Maas	Catherine
Historic Preservation Division	80025	Shirk	Elizabeth, C.
Hubbs-SeaWorld Research Institute	80117	Kent	Donald, B.
Hydro Green Energy	OCS44	Krouse	Wayne

TABLE B.3.2 (Cont.)

Organization	Document ID	Last Name	First Name
IAGC	80113	Gill	Chip
Iliamna Fish Company LLC	80043	Ten Kley	Reid
Lincoln County Lincoln County, Oregon	OCS49 80072	Bovett Bovett	Rob Rob
Lower Laguna Madre Foundation	OCS77	Kittelberger	Walt
Maine Coastal Program	80069	Leyden	Kathleen
Maine Historic Preservation Commission	80046	Johnson	Michael, D.
mass audubon	80066	clarke	John, J.
Massachusetts Audubon	OCS38	Allison	Taber
Massachusetts Board of Underwater Archaeological Resources	OCS88	Mastone	Victor
Massachusetts Historical Commission	OCS91	Simon	Brona
Mendonoma Marine Life Conservancy	OCS70	Cozens	Rob
Nassau Shores Civic Association	OCS14	D'Amato	Wally
National Hydropower Association	80092	Church Ciocci	Linda
National Trust for Historic Preservation	80099	Smith	Michael, D.
Natural Resources Defense Council	OCS48	Wing	Kate
NE Sustainable Energy Association	OCS33	Barclay	David
New Jersey Council of Diving Clubs	OCS04	Arthur	Glenn
New Jersey Dept. of Environmental Management	OCS05	Hassell	Kevin
New Jersey Dept. of Environmental Protection	OCS94	Koschek	Kenneth, C.
New Jersey Historical Divers Club, New Jersey Historical Divers Association	OCS06	Lieb	Dan
NOAA	80087	Reid	Cristi
North American Submarine Cable Association	80098	Bressie	Kent

TABLE B.3.2 (Cont.)

Organization	Document ID	Last Name	First Name
North Carolina Dept. of Cultural Resources	OCS86	Sandbeck	Peter
North Carolina Dept. of Environment and Natural Resources	OCS79	Melba	McGee
NP&EDC	80102	Rector	Barry, G.
NRDC	80104	Wing	Kate
NYSDEC	80093	Kispert	Kevin, A.
Ocean Associates, Inc.	80083	Everett	John, T.
Ocean Conservancy	80082	Eichenburg	Tim
Ocean Conservancy	OCS46	Eichenberg	Tim
Ocean Renewable Energy Coalition	80081	Elefant	Carolyn
Ocean Renewable Energy Coalition	OCS02	Chamovits	Max
OPTI	80084	Lowry	Cindy
Oregon Dept. of Land Conservation and Development	OCS50	Murray	Greg
Oregon Wild, formerly Oregon Natural Resources Council	80047	Heiken	Doug
Pacific Gas and Electric Company	80074	Faraglia	Annette
Provincetown Center for Coastal Studies	OCS67	Borrelli	Peter
Santee Cooper	80049	Kress	Elizabeth, A.
Santee Cooper	OCS52	Kress	Elizabeth
Save Beach Ad Hoc Committee	OCS10	Carra	Robert
Save Jones Beach	OCS12	Hersh	Charles, A.
Save Jones Beach	OCS15	Arnold	Walter
Save Jones Beach Ad Hoc Committee	OCS16	Brooks	John
Save Jones Beach Ad Hoc Committee	OCS17	Vanderberg	Thomas
Save Jones Beach Ad Hoc Committee, Inc.	80091	Vanderberg	Thomas, S.
Save Our Sound	OCS34	Nickerson	Susan
Scientific Applications Research Associates	80030	Beckerle	John, C.
Secretary, Executive Office of Energy and Environmental Affairs	80100	Bowles	Ian, A.
Sierra Club	80079	Newman	Vivian

TABLE B.3.2 (Cont.)

Organization	Document ID	Last Name	First Name
Sierra Club Massachusetts Chapter	80109	Heimann	David
Sierra Club Massachusetts Chapter	80111	Heimann	David
Sierra Club of MA	OCS42	Dowds	Phillip
Sole Technology Institute	80075	Cox	Joseph, S.
South Atlantic Fishery Management Council	80095	Pugliese	Roger
Southern Alliance for Clean Energy	80089	Carr	Mary, K.
State of California Resources Agency	OCS87	Chrisman	Mike
State of Oregon, Office of the Governor	OCS89	Carrier	Michael
TetraTech	OCS36	Ernst	Michael
The Humane Society of the United States	OCS80	Young	Sharon, B.
The NelSun Company	80001	Nelson	Thom
The Peregrine Fund	80077	Forgason	Caroline, A.
The Peregrine Fund	80107	Jenny	Peter
Town of Babylon	80108	Bellone	Steven
Town of Babylon	OCS13	Bellone	Steve
Town of Babylon	OCS27	Dale	Dorian
Union of Concerned Scientists	OCS31	Rogers	John
U.S. Environmental Protection Agency	80073	Miller	Anne, N.
U.S. House, 10th District Massachusetts	OCS81	Delahunt	William
Virginia Dept. of Environmental Quality	OCS83	Irons	Ellie, L.
Washington Dept. of Fish and Wildlife	80088	Sprague	Gary, R.
Washington State Department of Ecology	80052	Hennessey	Jennifer
Washington State Department of Natural Resources	OCS85	Doenges	Rich
WDCS	80090	Asmutis-Silvia	Regina, A.
Winergy Power LLC	OCS24	Link	Bob
Winergy Power LLC	80103	Quaranta	Dennis
Winergy Power LLC	OCS23	Quaranta	Dennis

TABLE B.3.3 Index by Comment Number

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
OCS01-001		Young	Sandra	Alliance to Protect Nantucket Sound	B.2.3
OCS01-002		Young	Sandra	Alliance to Protect Nantucket Sound	B.2.2
OCS02-001		Chamovits	Max	Ocean Renewable Energy Coalition	B.2.12
OCS02-002	0A016	Chamovits	Max	Ocean Renewable Energy Coalition	B.2.8
OCS02-003	0A010	Chamovits	Max	Ocean Renewable Energy Coalition	B.2.6
OCS02-004	0A005	Chamovits	Max	Ocean Renewable Energy Coalition	B.2.2
OCS03-001	0A018	Corrigan	Zach	Food and Water Watch	B.2.6
OCS03-002	0A021	Corrigan	Zach	Food and Water Watch	B.2.5
OCS03-003	0A021	Corrigan	Zach	Food and Water Watch	B.2.5
OCS03-004	0A020	Corrigan	Zach	Food and Water Watch	B.2.11
OCS03-005	0A020	Corrigan	Zach	Food and Water Watch	B.2.11
OCS03-006	0A020	Corrigan	Zach	Food and Water Watch	B.2.11
OCS04-001		Arthur	Glenn	New Jersey Council of Diving Clubs	B.2.14
OCS04-002	0A002	Arthur	Glenn	New Jersey Council of Diving Clubs	B.2.7
OCS04-003		Arthur	Glenn	New Jersey Council of Diving Clubs	B.2.16.22
OCS05-001	0A001	Hassell	Kevin	New Jersey Department of Environmental Management	B.2.3
OCS05-002	0A015	Hassell	Kevin	New Jersey Department of Environmental Management	B.2.8
OCS05-003		Hassell	Kevin	New Jersey Department of Environmental Management	B.2.14
OCS05-004	0A012	Hassell	Kevin	New Jersey Department of Environmental Management	B.2.6
OCS06-001		Lieb	Dan	NJ Historical Divers Club, NJ Hist Divers Assoc	B.2.16.22
OCS07-001	0A023	Dillingham	Tim	American Littoral Society	B.2.14
OCS07-002		Dillingham	Tim	American Littoral Society	B.2.4
OCS07-003		Dillingham	Tim	American Littoral Society	B.2.14
OCS07-004		Dillingham	Tim	American Littoral Society	B.2.16.22
OCS07-005	0A013	Dillingham	Tim	American Littoral Society	B.2.10
OCS07-006		Dillingham	Tim	American Littoral Society	B.2.12
OCS07-007	0A015	Dillingham	Tim	American Littoral Society	B.2.8
OCS07-008		Dillingham	Tim	American Littoral Society	B.2.8
OCS08-001	0A015	Zipf	Carol	Clean Ocean Action	B.2.8
OCS08-002		Zipf	Carol	Clean Ocean Action	B.2.13
OCS08-003		Zipf	Carol	Clean Ocean Action	B.2.12
OCS08-004	0A004	Zipf	Carol	Clean Ocean Action	B.2.3

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
OCS08-005	0A023	Zipf	Carol	Clean Ocean Action	B.2.14
OCS08-006	0A015	Zipf	Carol	Clean Ocean Action	B.2.8
OCS09-001		Cohen	Daniel	Garden State Seafood Association	B.2.16.23
OCS09-002	0A023	Cohen	Daniel	Garden State Seafood Association	B.2.14
OCS09-003		Cohen	Daniel	Garden State Seafood Association	B.2.16.23
OCS10-001	0A012	Carra	Robert	Save Beach Ad Hoc Committee	B.2.6
OCS11-001		Farber	Laurie		B.2.13
OCS12-001		Hersh	Charles A.	Save Jones Beach	B.2.4
OCS12-002		Hersh	Charles A.	Save Jones Beach	B.2.4
OCS12-003	0A006	Hersh	Charles A.	Save Jones Beach	B.2.2
OCS13-001		Bellone	Steve	Town of Babylon	B.2.6
OCS13-002	0A006	Bellone	Steve	Town of Babylon	B.2.2
OCS13-003		Bellone	Steve	Town of Babylon	B.2.12
OCS13-004	0A006	Bellone	Steve	Town of Babylon	B.2.2
OCS13-005		Bellone	Steve	Town of Babylon	B.2.4
OCS14-001	0A006	D'Amato	Wally	Nassau Shores Civic Association	B.2.2
OCS14-002		D'Amato	Wally	Nassau Shores Civic Association	B.2.16.1
OCS15-001		Arnold	Walter	Save Jones Beach	B.2.16.23
OCS15-002		Arnold	Walter	Save Jones Beach	B.2.16.22
OCS15-003	0A006	Arnold	Walter	Save Jones Beach	B.2.2
OCS15-004	0A019	Arnold	Walter	Save Jones Beach	B.2.4
OCS15-005		Arnold	Walter	Save Jones Beach	B.2.4
OCS16-001	0A015	Brooks	John	Save Jones Beach Ad Hoc Committee	B.2.8
OCS16-002	0A015	Brooks	John	Save Jones Beach Ad Hoc Committee	B.2.8
OCS16-003	0A022	Brooks	John	Save Jones Beach Ad Hoc Committee	B.2.15
OCS17-001		Vanderberg	Thomas	Save Jones Beach Ad Hoc Committee	B.2.6
OCS17-002	0A013	Vanderberg	Thomas	Save Jones Beach Ad Hoc Committee	B.2.10
OCS17-003	0A012	Vanderberg	Thomas	Save Jones Beach Ad Hoc Committee	B.2.6
OCS18-001		Schary	Richard		B.2.17
OCS18-002		Schary	Richard		B.2.17
OCS18-003	0A011	Schary	Richard		B.2.6
OCS18-004		Schary	Richard		B.2.14

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
OCS18-005	0A006	Schary	Richard		B.2.2
OCS18-006		Schary	Richard		B.2.14
OCS19-001	0A022	Schary	Lisa		B.2.15
OCS19-002		Schary	Lisa		B.2.17
OCS20-001		Fleischer	Stephen		B.2.16.21
OCS20-002		Fleischer	Stephen		B.2.16.1
OCS20-003	0A004	Fleischer	Stephen		B.2.3
OCS20-004		Fleischer	Stephen		B.2.16.18
OCS21-001		Papa	Jim		B.2.16.19
OCS21-002		Papa	Jim		B.2.13
OCS21-003	0A007	Papa	Jim		B.2.2
OCS22-001	0A018	Healey	Philip	Biltmore Shore Civic Association	B.2.6
OCS22-002	0A002	Healey	Philip	Biltmore Shore Civic Association	B.2.7
OCS22-003		Healey	Philip	Biltmore Shore Civic Association	B.2.17
OCS23-001	0A014	Quaranta	Dennis	Winergy Power	B.2.4
OCS23-002	0A007	Quaranta	Dennis	Winergy Power	B.2.2
OCS24-001	0A015	Link	Bob	Winergy Power	B.2.8
OCS24-002		Link	Bob	Winergy Power	B.2.13
OCS24-003		Link	Bob	Winergy Power	B.2.16.9
OCS24-004	0A012	Link	Bob	Winergy Power	B.2.6
OCS25-001		Yapalater	Jeff		B.2.16.11
OCS26-001		Hager	David		B.2.16.16
OCS27-001	0A016	Dale	Dorian	Town of Babylon	B.2.8
OCS27-002		Dale	Dorian	Town of Babylon	B.2.12
OCS29-001	0A002	Liedell	James	Clean Power Now	B.2.7
OCS29-002	0A014	Liedell	James	Clean Power Now	B.2.4
OCS30-001		Kleekamp	Charles	Clean Power Now	B.2.16.21
OCS30-002		Kleekamp	Charles	Clean Power Now	B.2.16.18
OCS30-003	0A014	Kleekamp	Charles	Clean Power Now	B.2.4
OCS31-001	0A002	Rogers	John	Union of Concerned Scientists	B.2.7
OCS31-002		Rogers	John	Union of Concerned Scientists	B.2.6
OCS31-003	0A014	Rogers	John	Union of Concerned Scientists	B.2.4

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
OCS31-004	0A014	Rogers	John	Union of Concerned Scientists	B.2.4
OCS32-001		Durkin	Barbara		B.2.2
OCS32-002	0A013	Durkin	Barbara		B.2.10
OCS32-003		Durkin	Barbara		B.2.10
OCS32-004		Durkin	Barbara		B.2.16.18
OCS33-001	0A014	Barclay	David	NE Sustainable Energy Association	B.2.4
OCS33-002	0A006	Barclay	David	NE Sustainable Energy Association	B.2.2
OCS33-003	0A014	Barclay	David	NE Sustainable Energy Association	B.2.4
OCS34-001	0A013	Nickerson	Susan	Save Our Sound	B.2.10
OCS35-001	0A001	Vinick	Charles	Alliance to Protect Nantucket Sound	B.2.3
OCS35-002		Vinick	Charles	Alliance to Protect Nantucket Sound	B.2.2
OCS35-003		Vinick	Charles	Alliance to Protect Nantucket Sound	B.2.10
OCS35-004		Vinick	Charles	Alliance to Protect Nantucket Sound	B.2.6
OCS36-001	0A014	Ernst	Michael	TetraTech	B.2.4
OCS36-002	0A016	Ernst	Michael	TetraTech	B.2.8
OCS36-003	0A014	Ernst	Michael	TetraTech	B.2.4
OCS37-001	0A018	Sinclair	Mark	Clean Energy States Alliance	B.2.6
OCS37-002	0A015	Sinclair	Mark	Clean Energy States Alliance	B.2.8
OCS37-003	0A015	Sinclair	Mark	Clean Energy States Alliance	B.2.8
OCS37-004	0A017	Sinclair	Mark	Clean Energy States Alliance	B.2.6
OCS38-001	0A018	Allison	Taber	MA Audubon	B.2.6
OCS38-002	0A017	Allison	Taber	MA Audubon	B.2.6
OCS38-003	0A017	Allison	Taber	MA Audubon	B.2.6
OCS38-004	0A018	Allison	Taber	MA Audubon	B.2.6
OCS38-005	0A018	Allison	Taber	MA Audubon	B.2.6
OCS39-001	0A014	Hill	Barbara	Clean Power Now	B.2.4
OCS40-001	0A019	Liebman	Cynthia	Conservation Law Foundation	B.2.4
OCS40-002	0A018	Liebman	Cynthia	Conservation Law Foundation	B.2.6
OCS41-001	0A007	Maas	Catherine	Healthlink	B.2.2
OCS41-002	0A006	Maas	Catherine	Healthlink	B.2.2
OCS41-003	0A019	Maas	Catherine	Healthlink	B.2.4
OCS41-004	0A006	Maas	Catherine	Healthlink	B.2.2

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
OCS42-001	0A014	Dowds	Phillip	Sierra Club of MA	B.2.4
OCS43-001	0A014	Palano	Gerry		B.2.4
OCS43-002		Palano	Gerry		B.2.4
OCS43-003	0A002	Palano	Gerry		B.2.7
OCS44-001	0A010	Krouse	Wayne	Hydro Green Energy	B.2.6
OCS44-002	0A001	Krouse	Wayne	Hydro Green Energy	B.2.3
OCS44-003	0A015	Krouse	Wayne	Hydro Green Energy	B.2.8
OCS45-001	0A021	Charter	Richard	Defenders of Wildlife	B.2.5
OCS45-002		Charter	Richard	Defenders of Wildlife	B.2.6
OCS45-003	0A016	Charter	Richard	Defenders of Wildlife	B.2.8
OCS45-004	0A012	Charter	Richard	Defenders of Wildlife	B.2.6
OCS45-005		Charter	Richard	Defenders of Wildlife	B.2.6
OCS45-006		Charter	Richard	Defenders of Wildlife	B.2.6
OCS46-001	0A021	Eichenberg	Tim	Ocean Conservancy	B.2.5
OCS46-002	0A021	Eichenberg	Tim	Ocean Conservancy	B.2.5
OCS46-003	0A021	Eichenberg	Tim	Ocean Conservancy	B.2.5
OCS47-001	0A002	Rachlin	Aaron	Borderland Wind	B.2.7
OCS48-001	0A023	Wing	Kate	Natural Resources Defense Council	B.2.14
OCS48-002	0A012	Wing	Kate	Natural Resources Defense Council	B.2.6
OCS49-001	0A015	Bovett	Rob	Lincoln County	B.2.8
OCS49-002		Bovett	Rob	Lincoln County	B.2.16.23
OCS49-003	0A012	Bovett	Rob	Lincoln County	B.2.6
OCS49-004	0A010	Bovett	Rob	Lincoln County	B.2.6
OCS50-001	0A010	Murray	Greg	Oregon Dept of Land Conservation and Development	B.2.6
OCS50-002	0A012	Murray	Greg	Oregon Dept of Land Conservation and Development	B.2.6
OCS50-003	0A002	Murray	Greg	Oregon Dept of Land Conservation and Development	B.2.7
OCS50-004	0A015	Murray	Greg	Oregon Dept of Land Conservation and Development	B.2.8
OCS51-001		Tucker	Debbie	Florida Dept of Environmental Protection	B.2.6
OCS52-001		Kress	Elizabeth	Santee Cooper	B.2.6
OCS53-001	0A001	Rigas	Nicholas		B.2.3
OCS53-002	0A016	Rigas	Nicholas		B.2.8
OCS53-003	0A011	Rigas	Nicholas		B.2.6

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
OCS53-004		Rigas	Nicholas		B.2.6
OCS53-005		Rigas	Nicholas		B.2.6
OCS53-006	0A018	Rigas	Nicholas		B.2.6
OCS54-001	0A002	Ugolini	Nick		B.2.7
OCS54-002	0A016	Ugolini	Nick		B.2.8
OCS54-003	0A002	Ugolini	Nick		B.2.7
OCS54-004		Ugolini	Nick		B.2.16.14
OCS55-001	0A016	Kay	Catherine		B.2.8
OCS55-002	0A007	Kay	Catherine		B.2.2
OCS56-001	0A018	French	Kristen		B.2.6
OCS56-002		French	Kristen		B.2.16.8
OCS56-003		French	Kristen		B.2.6
OCS56-004		French	Kristen		B.2.16.12
OCS56-005		French	Kristen		B.2.16.13
OCS57-001		Wyatt	Robert John		B.2.12
OCS57-002		Wyatt	Robert John		B.2.3
OCS57-003		Wyatt	Robert John		B.2.6
OCS57-004		Wyatt	Robert John		B.2.2
OCS57-005		Wyatt	Robert John		B.2.6
OCS58-001	0A002	Fryman	Janet		B.2.7
OCS59-001	0A007	Postnicks	Diane		B.2.2
OCS59-002		Postnicks	Diane		B.2.10
OCS60-001	0A014	Hudgins	Mike		B.2.4
OCS61-001	0A014	Lopez	Al		B.2.4
OCS61-002		Lopez	Al		B.2.6
OCS61-003	0A018	Lopez	Al		B.2.6
OCS62-001	0A015	Arendt	Michael		B.2.8
OCS63-001		Sweeny	Tom		B.2.16.16
OCS63-002		Sweeny	Tom		B.2.6
OCS63-003		Sweeny	Tom		B.2.6
OCS64-001		Lowery	Cameron		B.2.6
OCS65-001	0A006	Mansfield, III	Charles		B.2.2

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
OCS66-001		McCoy	Patrice J		B.2.16.9
OCS66-002		McCoy	Patrice J		B.2.13
OCS66-003	0A022	McCoy	Patrice J		B.2.15
OCS67-001		Borrelli	Peter	Provincetown Center for Coastal Studies	B.2.3
OCS67-002	0A001	Borrelli	Peter	Provincetown Center for Coastal Studies	B.2.3
OCS67-003		Borrelli	Peter	Provincetown Center for Coastal Studies	B.2.6
OCS67-004	0A013	Borrelli	Peter	Provincetown Center for Coastal Studies	B.2.10
OCS67-005	0A013	Borrelli	Peter	Provincetown Center for Coastal Studies	B.2.10
OCS68-001	0A001	Liu	Theodore E.	Hawaii Dept of Business, Economic Dev & Tourism	B.2.3
OCS68-002		Liu	Theodore E.	Hawaii Dept of Business, Economic Dev & Tourism	B.2.16.1
OCS68-003		Liu	Theodore E.	Hawaii Dept of Business, Economic Dev & Tourism	B.2.16.22
OCS68-004		Liu	Theodore E.	Hawaii Dept of Business, Economic Dev & Tourism	B.2.16.8
OCS69-001	0A006	Capachione	Carol Delano		B.2.2
OCS70-001	0A002	Cozens	Rob	Mendonoma Marine Life Conservancy	B.2.7
OCS70-002		Cozens	Rob	Mendonoma Marine Life Conservancy	B.2.17
OCS70-003		Cozens	Rob	Mendonoma Marine Life Conservancy	B.2.16.4
OCS70-004		Cozens	Rob	Mendonoma Marine Life Conservancy	B.2.16.11
OCS70-005		Cozens	Rob	Mendonoma Marine Life Conservancy	B.2.14
OCS70-006	0A021	Cozens	Rob	Mendonoma Marine Life Conservancy	B.2.5
OCS70-007	0A021	Cozens	Rob	Mendonoma Marine Life Conservancy	B.2.5
OCS70-008	0A021	Cozens	Rob	Mendonoma Marine Life Conservancy	B.2.5
OCS71-001	0A021	Harris	Francoise		B.2.5
OCS71-002	0A021	Harris	Francoise		B.2.5
OCS71-003	0A022	Harris	Francoise		B.2.15
OCS71-004	0A020	Harris	Francoise		B.2.11
OCS72-001	0A014	Borchert	Carl, K.	Clean Power Now, Nantucket	B.2.4
OCS73-001	0A020	Fay	Annette	Blue Planet Run / PWX	B.2.11
OCS73-002	0A021	Fay	Annette	Blue Planet Run / PWX	B.2.5
OCS74-001	0A011		EdwardG		B.2.6
OCS74-002			EdwardG		B.2.16.9
OCS75-001	0A009	Sothoron	Carly		B.2.6
OCS76-001	0A002	Shanske	Donna		B.2.7

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
OCS76-002	0A002	Shanske	Donna		B.2.7
OCS77-001		Kittelberger	Walt	Lower Laguna Madre Foundation	B.2.16.9
OCS78-001	0A009	Jenkins	Steven O.	Alabama Department of Environmental Management	B.2.6
OCS78-002	0A012	Jenkins	Steven O.	Alabama Department of Environmental Management	B.2.6
OCS78-003	0A009	Jenkins	Steven O.	Alabama Department of Environmental Management	B.2.6
OCS78-004	0A021	Jenkins	Steven O.	Alabama Department of Environmental Management	B.2.5
OCS79-001	0A008	Melba	McGee	NC Dept of Environment and Natural Resources	B.2.9
OCS80-001		Young	Sharon B.	The Humane Society of the United States	B.2.2
OCS80-002		Young	Sharon B.	The Humane Society of the United States	B.2.16.9
OCS80-003	0A013	Young	Sharon B.	The Humane Society of the United States	B.2.10
OCS80-004		Young	Sharon B.	The Humane Society of the United States	B.2.16.9
OCS80-005		Young	Sharon B.	The Humane Society of the United States	B.2.2
OCS80-006		Young	Sharon B.	The Humane Society of the United States	B.2.16
OCS80-007		Young	Sharon B.	The Humane Society of the United States	B.2.16.8
OCS80-008		Young	Sharon B.	The Humane Society of the United States	B.2.16.8
OCS80-009		Young	Sharon B.	The Humane Society of the United States	B.2.16.8
OCS80-010		Young	Sharon B.	The Humane Society of the United States	B.2.16.8
OCS80-011		Young	Sharon B.	The Humane Society of the United States	B.2.16.8
OCS80-012	0A016	Young	Sharon B.	The Humane Society of the United States	B.2.8
OCS80-013		Young	Sharon B.	The Humane Society of the United States	B.2.16.8
OCS80-014		Young	Sharon B.	The Humane Society of the United States	B.2.16.8
OCS80-015		Young	Sharon B.	The Humane Society of the United States	B.2.16.9
OCS80-016		Young	Sharon B.	The Humane Society of the United States	B.2.16.8
OCS80-017		Young	Sharon B.	The Humane Society of the United States	B.2.16.9
OCS80-018		Young	Sharon B.	The Humane Society of the United States	B.2.2
OCS80-019		Young	Sharon B.	The Humane Society of the United States	B.2.16.8
OCS80-020		Young	Sharon B.	The Humane Society of the United States	B.2.16.9
OCS80-021	0A021	Young	Sharon B.	The Humane Society of the United States	B.2.5
OCS80-022		Young	Sharon B.	The Humane Society of the United States	B.2.14
OCS80-023		Young	Sharon B.	The Humane Society of the United States	B.2.16.8
OCS80-024		Young	Sharon B.	The Humane Society of the United States	B.2.16.8
OCS80-025		Young	Sharon B.	The Humane Society of the United States	B.2.14

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
OCS80-026	0A015	Young	Sharon B.	The Humane Society of the United States	B.2.8
OCS81-001		Delahunt	William	US. House, 10th District Massachusetts	B.2.6
OCS81-002	0A013	Delahunt	William	US. House, 10th District Massachusetts	B.2.10
OCS81-003	0A011	Delahunt	William	US. House, 10th District Massachusetts	B.2.6
OCS81-004		Delahunt	William	US. House, 10th District Massachusetts	B.2.2
OCS81-005	0A013	Delahunt	William	US. House, 10th District Massachusetts	B.2.10
OCS82-001	0A012	McCarthy	Gina	Connecticut Department of Environmental Protection	B.2.6
OCS82-002	0A002	McCarthy	Gina	Connecticut Department of Environmental Protection	B.2.7
OCS82-003	0A009	McCarthy	Gina	Connecticut Department of Environmental Protection	B.2.6
OCS82-004		McCarthy	Gina	Connecticut Department of Environmental Protection	B.2.16.23
OCS82-005	0A002	McCarthy	Gina	Connecticut Department of Environmental Protection	B.2.7
OCS82-006	0A001	McCarthy	Gina	Connecticut Department of Environmental Protection	B.2.3
OCS82-007	0A012	McCarthy	Gina	Connecticut Department of Environmental Protection	B.2.6
OCS83-001	0A008	Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.9
OCS83-002	0A018	Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.6
OCS83-003	0A002	Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.7
OCS83-004	0A003	Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.3
OCS83-005		Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.16.9
OCS83-006	0A007	Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.2
OCS83-007		Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.16.9
OCS83-008		Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.16.9
OCS83-009		Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.16.8
OCS83-010	0A007	Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.2
OCS83-011	0A018	Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.6
OCS83-012		Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.16.9
OCS83-013		Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.13
OCS83-014	0A012	Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.6
OCS83-015		Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.16.2
OCS83-016		Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.16.4
OCS83-017		Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.16.19
OCS83-018	0A012	Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.6
OCS83-019	0A002	Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.7

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
OCS83-020	0A012	Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.6
OCS83-021	0A002	Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.7
OCS83-022		Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.6
OCS83-023	0A018	Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.6
OCS83-024	0A012	Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.6
OCS83-025	0A012	Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.6
OCS83-026		Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.16.6
OCS83-027	0A012	Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.6
OCS83-028		Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.16.2
OCS83-029		Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.16.4
OCS83-030		Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.16.6
OCS83-031		Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.16.17
OCS83-032	0A012	Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.6
OCS83-033	0A003	Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.3
OCS83-034		Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.16.9
OCS83-035	0A007	Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.2
OCS83-036		Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.16.9
OCS83-037		Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.16.9
OCS83-038		Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.13
OCS83-039	0A007	Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.2
OCS83-040		Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.13
OCS83-041		Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.13
OCS83-042		Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.16.10
OCS83-043	0A008	Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.9
OCS83-044	0A012	Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.6
OCS83-045	0A012	Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.6
OCS83-046		Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.16.17
OCS83-047	0A012	Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.6
OCS83-048		Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.6
OCS83-049		Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.16.19
OCS83-050	0A012	Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.6
OCS83-051	0A002	Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.7

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
OCS83-052	0A012	Irons	Ellie L.	Virginia Department of Environmental Quality	B.2.6
OCS84-001	0A002	Steinbach	George	California Artificial Reef Enhancement Program	B.2.7
OCS84-002		Steinbach	George	California Artificial Reef Enhancement Program	B.2.5
OCS85-001		Doenges	Rich	Washington State Department of Natural Resources	B.2.6
OCS85-002	0A007	Doenges	Rich	Washington State Department of Natural Resources	B.2.10
OCS85-003		Doenges	Rich	Washington State Department of Natural Resources	B.2.6
OCS85-004	0A016	Doenges	Rich	Washington State Department of Natural Resources	B.2.8
OCS85-005	0A012	Doenges	Rich	Washington State Department of Natural Resources	B.2.6
OCS85-006	0A018	Doenges	Rich	Washington State Department of Natural Resources	B.2.6
OCS85-007	0A012	Doenges	Rich	Washington State Department of Natural Resources	B.2.6
OCS85-008		Doenges	Rich	Washington State Department of Natural Resources	B.2.16.1
OCS85-009		Doenges	Rich	Washington State Department of Natural Resources	B.2.16.3
OCS85-010		Doenges	Rich	Washington State Department of Natural Resources	B.2.16.13
OCS85-011		Doenges	Rich	Washington State Department of Natural Resources	B.2.12
OCS85-012		Doenges	Rich	Washington State Department of Natural Resources	B.2.16.6
OCS86-001	0A002	Sandbeck	Peter	North Carolina Department of Cultural Resources	B.2.7
OCS87-001	0A002	Chrisman	Mike	State of California Resources Agency	B.2.7
OCS87-002		Chrisman	Mike	State of California Resources Agency	B.2.2
OCS87-003	0A020	Chrisman	Mike	State of California Resources Agency	B.2.11
OCS87-004	0A010	Chrisman	Mike	State of California Resources Agency	B.2.6
OCS87-005	0A015	Chrisman	Mike	State of California Resources Agency	B.2.8
OCS87-006	0A023	Chrisman	Mike	State of California Resources Agency	B.2.14
OCS88-001	0A012	Mastone	Victor	MA Board of Underwater Archaeological Resources	B.2.6
OCS88-002	0A015	Mastone	Victor	MA Board of Underwater Archaeological Resources	B.2.8
OCS88-003		Mastone	Victor	MA Board of Underwater Archaeological Resources	B.2.2
OCS89-001	0A002	Carrier	Michael	State of Oregon, Office of the Governor	B.2.7
OCS89-002	0A017	Carrier	Michael	State of Oregon, Office of the Governor	B.2.6
OCS89-003	0A002	Carrier	Michael	State of Oregon, Office of the Governor	B.2.7
OCS89-004	0A002	Carrier	Michael	State of Oregon, Office of the Governor	B.2.7
OCS89-005	0A018	Carrier	Michael	State of Oregon, Office of the Governor	B.2.6
OCS89-006	0A010	Carrier	Michael	State of Oregon, Office of the Governor	B.2.6
OCS90-001	0A012	Brand	Marina	California State Lands Commission	B.2.6

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
OCS91-001	0A012	Simon	Brona	Massachusetts Historical Commission	B.2.6
OCS91-002	0A018	Simon	Brona	Massachusetts Historical Commission	B.2.6
OCS91-003		Simon	Brona	Massachusetts Historical Commission	B.2.16.19
OCS91-004		Simon	Brona	Massachusetts Historical Commission	B.2.6
OCS91-005	0A018	Simon	Brona	Massachusetts Historical Commission	B.2.6
OCS92-001	0A002	Perkins	Winifred	Florida Power & Light Company	B.2.7
OCS92-002	0A014	Perkins	Winifred	Florida Power & Light Company	B.2.4
OCS92-003		Perkins	Winifred	Florida Power & Light Company	B.2.2
OCS92-004	0A016	Perkins	Winifred	Florida Power & Light Company	B.2.8
OCS93-001	0A020	Demler	Linda		B.2.11
OCS93-002	0A021	Demler	Linda		B.2.5
OCS94-001	0A013	Koschek	Kenneth C.	NJ Dept of Environmental Protection	B.2.10
OCS94-002	0A012	Koschek	Kenneth C.	NJ Dept of Environmental Protection	B.2.6
OCS94-003	0A023	Koschek	Kenneth C.	NJ Dept of Environmental Protection	B.2.14
OCS94-004		Koschek	Kenneth C.	NJ Dept of Environmental Protection	B.2.3
OCS94-005	0A004	Koschek	Kenneth C.	NJ Dept of Environmental Protection	B.2.3
OCS95-001		Egeland	Tom	Department of the Navy	B.2.16.16
OCS95-002	0A012	Egeland	Tom	Department of the Navy	B.2.6
OCS95-003		Egeland	Tom	Department of the Navy	B.2.16.16
OCS95-004		Egeland	Tom	Department of the Navy	B.2.16.16
OCS95-005		Egeland	Tom	Department of the Navy	B.2.16.16
OCS95-006		Egeland	Tom	Department of the Navy	B.2.16.16
OCS95-007		Egeland	Tom	Department of the Navy	B.2.16.16
OCS95-008		Egeland	Tom	Department of the Navy	B.2.16.16
OCS95-009		Egeland	Tom	Department of the Navy	B.2.16.16
OCS95-010		Egeland	Tom	Department of the Navy	B.2.16.16
OCS95-011		Egeland	Tom	Department of the Navy	B.2.16.16
OCS95-012		Egeland	Tom	Department of the Navy	B.2.16.16
OCS95-013		Egeland	Tom	Department of the Navy	B.2.16.16
OCS95-014		Egeland	Tom	Department of the Navy	B.2.16.16
OCS95-015		Egeland	Tom	Department of the Navy	B.2.16.16
OCS95-016		Egeland	Tom	Department of the Navy	B.2.16.16

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
OCS95-017		Egeland	Tom	Department of the Navy	B.2.16.16
OCS95-018		Egeland	Tom	Department of the Navy	B.2.16.16
OCS95-019		Egeland	Tom	Department of the Navy	B.2.16.16
OCS95-020		Egeland	Tom	Department of the Navy	B.2.16.16
OCS95-021		Egeland	Tom	Department of the Navy	B.2.16.16
80001-001	0A007	Nelson	Thom	The NelSun Company	B.2.2
80003-001	0A002	Haring	Faye G.		B.2.7
80004-001	0A008	Erlick	Ben		B.2.9
80004-002	0A017	Erlick	Ben		B.2.6
80004-003	0A018	Erlick	Ben		B.2.6
80005-001		Collins	Belinda K.		B.2.3
80006-001	0A002	Paugh	Robyn L.		B.2.7
80011-001	0A002	Heidorn	Jean A.		B.2.7
80011-002	0A002	Heidorn	Jean A.		B.2.7
80012-001	0A001	Barker	John, D.		B.2.3
80013-001	0A021	Kolian	Steve	EcoRigs	B.2.5
80013-002	0A021	Kolian	Steve	EcoRigs	B.2.5
80014-001	0A006	Hersh	Charles A.		B.2.2
80014-002	0A006	Hersh	Charles A.		B.2.2
80015-001	0A002	Hoag	Ethan		B.2.7
80016-001	0A002	Graham	Paul		B.2.7
80017-001	0A001	Rigas	Nicholas C.		B.2.3
80017-002		Rigas	Nicholas C.		B.2.6
80017-003	0A016	Rigas	Nicholas C.		B.2.8
80017-004		Rigas	Nicholas C.		B.2.6
80018-001	0A007	Cassarino	Carl		B.2.2
80019-001	0A006	Hughes	Eileen M.		B.2.2
80020-001	0A002	Beerman	Elizabeth T.		B.2.7
80021-001	0A002	Burgeson	Marianne		B.2.7
80022-001	0A002	Crespan	David		B.2.7
80024-001	0A002	Andre	Susan		B.2.7
80025-001	0A002	Shirk	Elizabeth C.	Historic Preservation Division	B.2.7

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
80027-001	0A002	West	Ann		B.2.7
80029-001	0A002	Reilly	Kathryn		B.2.7
80030-001	0A006	Beckerle	John, C.	Scientific Applications Research Associates	B.2.2
80032-001	0A002	Arendt	Michael D		B.2.7
80032-002	0A011	Arendt	Michael D		B.2.6
80032-003	0A015	Arendt	Michael D		B.2.8
80032-004	0A007	Arendt	Michael D		B.2.2
80032-005	0A007	Arendt	Michael D		B.2.2
80033-001	0A021	Ballard	Dave and Tami		B.2.5
80034-001	0A020	Bollag	Sascha		B.2.11
80034-002	0A021	Bollag	Sascha		B.2.5
80035-001	0A020	Davidson	Sarah		B.2.11
80035-002	0A021	Davidson	Sarah		B.2.5
80036-001	0A021	White	Chris		B.2.5
80037-001	0A020	Gauger	Briana		B.2.11
80037-002	0A021	Gauger	Briana		B.2.5
80038-001	0A020	AufderHeide	Jan R.		B.2.11
80038-002	0A021	AufderHeide	Jan R.		B.2.5
80039-001	0A020	Lebert	Mary		B.2.11
80039-002	0A021	Lebert	Mary		B.2.5
80040-001	0A020	Frank	Lee		B.2.11
80040-002	0A021	Frank	Lee		B.2.5
80041-001	0A020	Nash	Brady A.		B.2.11
80041-002	0A021	Nash	Brady A.		B.2.5
80042-001	0A020	Albee	Lori		B.2.11
80042-002	0A021	Albee	Lori		B.2.5
80043-001	0A020	Ten Kley	Reid	Iliamna Fish Company LLC	B.2.11
80043-002	0A021	Ten Kley	Reid	Iliamna Fish Company LLC	B.2.5
80044-001	0A020	White-Claflin	Kim		B.2.11
80044-002	0A021	White-Claflin	Kim		B.2.5
80045-001	0A011	McClure	Bob	BioSonics, Inc.	B.2.6
80046-001		Johnson	Michael D.	Maine Historic Preservation Commission	B.2.16.19

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
80047-001	0A021	Heiken	Doug	Oregon Wild, formerly Oregon Natural Resources Council	B.2.5
80047-002	0A019	Heiken	Doug	Oregon Wild, formerly Oregon Natural Resources Council	B.2.4
80047-003	0A013	Heiken	Doug	Oregon Wild, formerly Oregon Natural Resources Council	B.2.10
80047-004		Heiken	Doug	Oregon Wild, formerly Oregon Natural Resources Council	B.2.16.8
80047-005		Heiken	Doug	Oregon Wild, formerly Oregon Natural Resources Council	B.2.2
80047-006	0A023	Heiken	Doug	Oregon Wild, formerly Oregon Natural Resources Council	B.2.14
80047-007		Heiken	Doug	Oregon Wild, formerly Oregon Natural Resources Council	B.2.10
80047-008	0A009	Heiken	Doug	Oregon Wild, formerly Oregon Natural Resources Council	B.2.6
80047-009	0A009	Heiken	Doug	Oregon Wild, formerly Oregon Natural Resources Council	B.2.6
80047-010		Heiken	Doug	Oregon Wild, formerly Oregon Natural Resources Council	B.2.17
80047-011	0A007	Heiken	Doug	Oregon Wild, formerly Oregon Natural Resources Council	B.2.2
80047-012	0A007	Heiken	Doug	Oregon Wild, formerly Oregon Natural Resources Council	B.2.2
80047-013		Heiken	Doug	Oregon Wild, formerly Oregon Natural Resources Council	B.2.6
80047-014		Heiken	Doug	Oregon Wild, formerly Oregon Natural Resources Council	B.2.13
80047-015		Heiken	Doug	Oregon Wild, formerly Oregon Natural Resources Council	B.2.13
80047-016	0A017	Heiken	Doug	Oregon Wild, formerly Oregon Natural Resources Council	B.2.6
80047-017		Heiken	Doug	Oregon Wild, formerly Oregon Natural Resources Council	B.2.2
80047-018		Heiken	Doug	Oregon Wild, formerly Oregon Natural Resources Council	B.2.14
80047-019		Heiken	Doug	Oregon Wild, formerly Oregon Natural Resources Council	B.2.10
80047-020		Heiken	Doug	Oregon Wild, formerly Oregon Natural Resources Council	B.2.16.1
80048-001	0A014	Hill	Barbara J.	Clean Power Now	B.2.4
80049-001		Kress	Elizabeth A.	Santee Cooper	B.2.2
80050-001	0A020	Valencia	Suzanne M.		B.2.11
80050-002	0A021	Valencia	Suzanne M.		B.2.5
80051-001	0A020	Luketich	Mary T.		B.2.11
80051-002	0A021	Luketich	Mary T.		B.2.5
80052-001		Hennessey	Jennifer	Washington State Department of Ecology	B.2.2
80052-002		Hennessey	Jennifer	Washington State Department of Ecology	B.2.16.5
80052-003	0A012	Hennessey	Jennifer	Washington State Department of Ecology	B.2.6
80052-004	0A015	Hennessey	Jennifer	Washington State Department of Ecology	B.2.8
80052-005	0A010	Hennessey	Jennifer	Washington State Department of Ecology	B.2.6
80052-006	0A017	Hennessey	Jennifer	Washington State Department of Ecology	B.2.6

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
80052-007	0A018	Hennessey	Jennifer	Washington State Department of Ecology	B.2.6
80052-008	0A018	Hennessey	Jennifer	Washington State Department of Ecology	B.2.6
80052-009	0A008	Hennessey	Jennifer	Washington State Department of Ecology	B.2.9
80052-010		Hennessey	Jennifer	Washington State Department of Ecology	B.2.16.7
80052-011		Hennessey	Jennifer	Washington State Department of Ecology	B.2.16.1
80052-012	0A018	Hennessey	Jennifer	Washington State Department of Ecology	B.2.6
80052-013		Hennessey	Jennifer	Washington State Department of Ecology	B.2.12
80052-014		Hennessey	Jennifer	Washington State Department of Ecology	B.2.16.8
80052-015		Hennessey	Jennifer	Washington State Department of Ecology	B.2.16.8
80052-016		Hennessey	Jennifer	Washington State Department of Ecology	B.2.16.11
80052-017		Hennessey	Jennifer	Washington State Department of Ecology	B.2.16.18
80052-018		Hennessey	Jennifer	Washington State Department of Ecology	B.2.16.22
80052-019		Hennessey	Jennifer	Washington State Department of Ecology	B.2.16.20
80052-020		Hennessey	Jennifer	Washington State Department of Ecology	B.2.16.9
80055-001	0A001	Molloy	Kenneth H.		B.2.3
80055-002		Molloy	Kenneth H.		B.2.12
80055-003		Molloy	Kenneth H.		B.2.16.11
80055-004		Molloy	Kenneth H.		B.2.16.14
80055-005		Molloy	Kenneth H.		B.2.16.23
80055-006		Molloy	Kenneth H.		B.2.12
80055-007	0A018	Molloy	Kenneth H.		B.2.6
80055-008		Molloy	Kenneth H.		B.2.16.23
80055-009		Molloy	Kenneth H.		B.2.12
80055-010	0A022	Molloy	Kenneth H.		B.2.15
80055-011	0A006	Molloy	Kenneth H.		B.2.2
80056-001	0A001	Cooksey	Sarah W.	Delaware Dept. of Natural Resources & Environmental Control	B.2.3
80056-002	0A013	Cooksey	Sarah W.	Delaware Dept. of Natural Resources & Environmental Control	B.2.10
80056-003	0A007	Cooksey	Sarah W.	Delaware Dept. of Natural Resources & Environmental Control	B.2.2
80056-004		Cooksey	Sarah W.	Delaware Dept. of Natural Resources & Environmental Control	B.2.6
80057-001	0A013	Fenn	Margo	Cape Cod Commission	B.2.10
80058-001		Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80058-002	0A013	Sinclair	Mark A.	Clean Energy States Alliance	B.2.10

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
80058-003	0A018	Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80058-004	0A012	Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80058-005	0A012	Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80058-006	0A012	Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80058-007	0A012	Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80058-008	0A008	Sinclair	Mark A.	Clean Energy States Alliance	B.2.9
80058-009	0A018	Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80058-010	0A018	Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80058-011	0A018	Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80058-012	0A017	Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80058-013	0A018	Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80058-014	0A018	Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80058-015	0A018	Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80058-016	0A018	Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80058-017	0A018	Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80058-018	0A018	Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80058-019		Sinclair	Mark A.	Clean Energy States Alliance	B.2.16.9
80058-020	0A018	Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80058-021		Sinclair	Mark A.	Clean Energy States Alliance	B.2.16.21
80058-022	0A018	Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80058-023	0A018	Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80058-024	0A018	Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80058-025	0A018	Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80058-026	0A018	Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80058-027	0A018	Sinclair	Mark A.	Clean Energy States Alliance	B.2.16.21
80058-028	0A018	Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80058-029	0A017	Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80058-030	0A015	Sinclair	Mark A.	Clean Energy States Alliance	B.2.8
80058-031	0A012	Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80058-032	0A019	Sinclair	Mark A.	Clean Energy States Alliance	B.2.4
80058-033		Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80058-034		Sinclair	Mark A.	Clean Energy States Alliance	B.2.3

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
80058-035	0A012	Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80058-036	0A017	Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80058-037	0A016	Sinclair	Mark A.	Clean Energy States Alliance	B.2.8
80058-038	0A012	Sinclair	Mark A.	Clean Energy States Alliance	B.2.6
80059-001	0A002	Benavidez	Paul M.		B.2.7
80060-001	0A007	Walter	Christian D.		B.2.2
80061-001	0A007	Mooradian	Janis A.	coyotescorner.com	B.2.2
80062-001	0A004	Kopelman, Ph.D.	Arthur H.	Coastal Research and Education Society of Long Island	B.2.3
80062-002	0A009	Kopelman, Ph.D.	Arthur H.	Coastal Research and Education Society of Long Island	B.2.6
80063-001	0A020	Shannon	Diana		B.2.11
80063-002	0A021	Shannon	Diana		B.2.5
80064-001	0A002	Leblanc	G L		B.2.7
80066-001	0A001	Clarke	John J.	Mass Audubon	B.2.3
80066-002	0A018	Clarke	John J.	Mass Audubon	B.2.6
80066-003	0A013	Clarke	John J.	Mass Audubon	B.2.10
80066-004	0A017	Clarke	John J.	Mass Audubon	B.2.6
80067-001	0A019	Tupper	Ted D.		B.2.4
80067-002	0A019	Tupper	Ted D.		B.2.4
80067-003	0A019	Tupper	Ted D.		B.2.4
80067-004		Tupper	Ted D.		B.2.16.3
80068-001		Fujita	Rod	Environmental Defense	B.2.16.9
80068-002		Fujita	Rod	Environmental Defense	B.2.5
80068-003	0A023	Fujita	Rod	Environmental Defense	B.2.14
80068-004		Fujita	Rod	Environmental Defense	B.2.5
80068-005	0A020	Fujita	Rod	Environmental Defense	B.2.11
80068-006		Fujita	Rod	Environmental Defense	B.2.5
80068-007	0A021	Fujita	Rod	Environmental Defense	B.2.5
80068-008		Fujita	Rod	Environmental Defense	B.2.6
80068-009		Fujita	Rod	Environmental Defense	B.2.5
80068-010		Fujita	Rod	Environmental Defense	B.2.6
80068-011		Fujita	Rod	Environmental Defense	B.2.14
80068-012	0A023	Fujita	Rod	Environmental Defense	B.2.14

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
80068-013		Fujita	Rod	Environmental Defense	B.2.8
80068-014	0A022	Fujita	Rod	Environmental Defense	B.2.15
80068-015	0A023	Fujita	Rod	Environmental Defense	B.2.14
80068-016		Fujita	Rod	Environmental Defense	B.2.14
80068-017		Fujita	Rod	Environmental Defense	B.2.16.3
80068-018		Fujita	Rod	Environmental Defense	B.2.5
80068-019	0A021	Fujita	Rod	Environmental Defense	B.2.5
80068-020	0A020	Fujita	Rod	Environmental Defense	B.2.14
80068-021	0A013	Fujita	Rod	Environmental Defense	B.2.10
80068-022		Fujita	Rod	Environmental Defense	B.2.16.13
80068-023		Fujita	Rod	Environmental Defense	B.2.16.18
80068-024		Fujita	Rod	Environmental Defense	B.2.16.8
80068-025		Fujita	Rod	Environmental Defense	B.2.16.5
80068-026		Fujita	Rod	Environmental Defense	B.2.16.18
80068-027		Fujita	Rod	Environmental Defense	B.2.16.8
80068-028		Fujita	Rod	Environmental Defense	B.2.16.23
80068-029		Fujita	Rod	Environmental Defense	B.2.16.11
80068-030	0A012	Fujita	Rod	Environmental Defense	B.2.6
80068-031		Fujita	Rod	Environmental Defense	B.2.16.9
80068-032		Fujita	Rod	Environmental Defense	B.2.16.23
80068-033	0A020	Fujita	Rod	Environmental Defense	B.2.11
80068-034	0A023	Fujita	Rod	Environmental Defense	B.2.14
80068-035		Fujita	Rod	Environmental Defense	B.2.16.14
80069-001	0A009	Leyden	Kathleen	Maine Coastal Program	B.2.6
80069-002	0A018	Leyden	Kathleen	Maine Coastal Program	B.2.6
80069-003		Leyden	Kathleen	Maine Coastal Program	B.2.12
80069-004	0A012	Leyden	Kathleen	Maine Coastal Program	B.2.6
80069-005	0A012	Leyden	Kathleen	Maine Coastal Program	B.2.6
80070-001	0A008	Holcomb	Noel	Georgia Department of Natural Resources	B.2.9
80070-002		Holcomb	Noel	Georgia Department of Natural Resources	B.2.2
80070-003		Holcomb	Noel	Georgia Department of Natural Resources	B.2.16.2
80070-004		Holcomb	Noel	Georgia Department of Natural Resources	B.2.16.13

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
80070-005	0A012	Holcomb	Noel	Georgia Department of Natural Resources	B.2.6
80070-006	0A018	Holcomb	Noel	Georgia Department of Natural Resources	B.2.6
80070-007	0A018	Holcomb	Noel	Georgia Department of Natural Resources	B.2.6
80070-008		Holcomb	Noel	Georgia Department of Natural Resources	B.2.16.8
80070-009		Holcomb	Noel	Georgia Department of Natural Resources	B.2.16.12
80070-010		Holcomb	Noel	Georgia Department of Natural Resources	B.2.16.9
80070-011		Holcomb	Noel	Georgia Department of Natural Resources	B.2.16.19
80070-012		Holcomb	Noel	Georgia Department of Natural Resources	B.2.16.22
80071-001	0A021	Corrigan	Zach B.	Food & Water Watch, etc	B.2.5
80071-002	0A020	Corrigan	Zach B.	Food & Water Watch, etc	B.2.11
80072-001	0A015	Bovett	Rob	Lincoln County, Oregon	B.2.8
80072-002	0A010	Bovett	Rob	Lincoln County, Oregon	B.2.6
80072-003	0A012	Bovett	Rob	Lincoln County, Oregon	B.2.6
80072-004	0A020	Bovett	Rob	Lincoln County, Oregon	B.2.11
80073-001	0A015	Miller	Anne N.	US Environmental Protection Agency	B.2.8
80073-002	0A015	Miller	Anne N.	US Environmental Protection Agency	B.2.8
80073-003		Miller	Anne N.	US Environmental Protection Agency	B.2.16.6
80073-004		Miller	Anne N.	US Environmental Protection Agency	B.2.14
80073-005		Miller	Anne N.	US Environmental Protection Agency	B.2.16.6
80074-001	0A001	Faraglia	Annette	Pacific Gas and Electric Company	B.2.3
80074-002	0A002	Faraglia	Annette	Pacific Gas and Electric Company	B.2.7
80074-003		Faraglia	Annette	Pacific Gas and Electric Company	B.2.12
80074-004		Faraglia	Annette	Pacific Gas and Electric Company	B.2.6
80074-005	0A010	Faraglia	Annette	Pacific Gas and Electric Company	B.2.6
80075-001	0A020	Cox	Joseph S.	Sole Technology Institute	B.2.11
80076-001	0A021	Whitehead	Heather	Center for Food Safety	B.2.5
80077-001		Forgason	Caroline A.	the Peregrine Fund	B.2.16.9
80078-001	0A021	Corrigan	Zach B.	Food & Water Watch	B.2.5
80078-002	0A020	Corrigan	Zach B.	Food & Water Watch	B.2.11
80078-003	0A018	Corrigan	Zach B.	Food & Water Watch	B.2.6
80078-004	0A021	Corrigan	Zach B.	Food & Water Watch	B.2.5
80078-005	0A021	Corrigan	Zach B.	Food & Water Watch	B.2.5

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
80078-006	0A021	Corrigan	Zach B.	Food & Water Watch	B.2.5
80078-007	0A021	Corrigan	Zach B.	Food & Water Watch	B.2.5
80079-001		Newman	Vivian	Sierra Club	B.2.2
80079-002	0A005	Newman	Vivian	Sierra Club	B.2.2
80079-003		Newman	Vivian	Sierra Club	B.2.5
80079-004	0A012	Newman	Vivian	Sierra Club	B.2.6
80079-005	0A013	Newman	Vivian	Sierra Club	B.2.10
80079-006	0A018	Newman	Vivian	Sierra Club	B.2.6
80079-007	0A015	Newman	Vivian	Sierra Club	B.2.8
80079-008	0A015	Newman	Vivian	Sierra Club	B.2.8
80079-009	0A018	Newman	Vivian	Sierra Club	B.2.6
80079-010		Newman	Vivian	Sierra Club	B.2.6
80079-011	0A023	Newman	Vivian	Sierra Club	B.2.14
80079-012	0A021	Newman	Vivian	Sierra Club	B.2.5
80079-013	0A021	Newman	Vivian	Sierra Club	B.2.5
80079-014	0A020	Newman	Vivian	Sierra Club	B.2.11
80079-015		Newman	Vivian	Sierra Club	B.2.16.11
80080-001	0A021	Bennett	Michal		B.2.5
80081-001	0A016	Elefant	Carolyn	Ocean Renewable Energy Coalition	B.2.8
80081-002	0A017	Elefant	Carolyn	Ocean Renewable Energy Coalition	B.2.6
80081-003		Elefant	Carolyn	Ocean Renewable Energy Coalition	B.2.2
80081-004		Elefant	Carolyn	Ocean Renewable Energy Coalition	B.2.6
80081-005	0A019	Elefant	Carolyn	Ocean Renewable Energy Coalition	B.2.4
80081-006	0A005	Elefant	Carolyn	Ocean Renewable Energy Coalition	B.2.2
80081-007	0A005	Elefant	Carolyn	Ocean Renewable Energy Coalition	B.2.2
80081-008	0A010	Elefant	Carolyn	Ocean Renewable Energy Coalition	B.2.6
80081-009	0A014	Elefant	Carolyn	Ocean Renewable Energy Coalition	B.2.4
80082-001	0A021	Eichenburg	Tim	Ocean Conservancy	B.2.5
80083-001	0A019	Everett	John T.	Ocean Associates, Inc.	B.2.4
80083-002		Everett	John T.	Ocean Associates, Inc.	B.2.16.9
80084-001	0A002	Lowry	Cindy	OPTI	B.2.7
80084-002	0A013	Lowry	Cindy	OPTI	B.2.10

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
80084-003	0A015	Lowry	Cindy	OPTI	B.2.8
80085-001	0A014	Jodziewicz	Laurie	American Wind Energy Association	B.2.4
80085-002	0A013	Jodziewicz	Laurie	American Wind Energy Association	B.2.10
80085-003		Jodziewicz	Laurie	American Wind Energy Association	B.2.6
80085-004	0A011	Jodziewicz	Laurie	American Wind Energy Association	B.2.6
80085-005		Jodziewicz	Laurie	American Wind Energy Association	B.2.2
80085-006	0A005	Jodziewicz	Laurie	American Wind Energy Association	B.2.2
80085-007	0A005	Jodziewicz	Laurie	American Wind Energy Association	B.2.2
80085-008		Jodziewicz	Laurie	American Wind Energy Association	B.2.12
80085-009		Jodziewicz	Laurie	American Wind Energy Association	B.2.12
80085-010		Jodziewicz	Laurie	American Wind Energy Association	B.2.12
80085-011		Jodziewicz	Laurie	American Wind Energy Association	B.2.12
80085-012	0A020	Jodziewicz	Laurie	American Wind Energy Association	B.2.11
80085-013		Jodziewicz	Laurie	American Wind Energy Association	B.2.16.9
80085-014	0A017	Jodziewicz	Laurie	American Wind Energy Association	B.2.6
80085-015		Jodziewicz	Laurie	American Wind Energy Association	B.2.16.9
80085-016		Jodziewicz	Laurie	American Wind Energy Association	B.2.16.9
80085-017		Jodziewicz	Laurie	American Wind Energy Association	B.2.16.16
80085-018		Jodziewicz	Laurie	American Wind Energy Association	B.2.16.18
80085-019		Jodziewicz	Laurie	American Wind Energy Association	B.2.16.23
80085-020		Jodziewicz	Laurie	American Wind Energy Association	B.2.16.22
80085-021		Jodziewicz	Laurie	American Wind Energy Association	B.2.16.17
80086-001	0A002	Heller	Alice P.	Great South Bay Audubon Society	B.2.7
80086-002	0A009	Heller	Alice P.	Great South Bay Audubon Society	B.2.6
80087-001	0A012	Reid	Cristi	NOAA	B.2.6
80087-002		Reid	Cristi	NOAA	B.2.2
80087-003	0A001	Reid	Cristi	NOAA	B.2.3
80087-004	0A015	Reid	Cristi	NOAA	B.2.8
80087-005	0A012	Reid	Cristi	NOAA	B.2.6
80087-006	0A023	Reid	Cristi	NOAA	B.2.14
80087-007	0A018	Reid	Cristi	NOAA	B.2.6
80087-008	0A013	Reid	Cristi	NOAA	B.2.10

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
80087-009	0A012	Reid	Cristi	NOAA	B.2.6
80087-010	0A018	Reid	Cristi	NOAA	B.2.6
80087-011	0A018	Reid	Cristi	NOAA	B.2.6
80087-012	0A015	Reid	Cristi	NOAA	B.2.8
80087-013	0A012	Reid	Cristi	NOAA	B.2.6
80087-014		Reid	Cristi	NOAA	B.2.2
80087-015		Reid	Cristi	NOAA	B.2.4
80087-016		Reid	Cristi	NOAA	B.2.6
80087-017		Reid	Cristi	NOAA	B.2.16.9
80087-018		Reid	Cristi	NOAA	B.2.16.8
80087-019		Reid	Cristi	NOAA	B.2.16.5
80087-020	0A018	Reid	Cristi	NOAA	B.2.6
80087-021		Reid	Cristi	NOAA	B.2.16.8
80087-022		Reid	Cristi	NOAA	B.2.16.8
80087-023		Reid	Cristi	NOAA	B.2.16.8
80087-024		Reid	Cristi	NOAA	B.2.16.12
80087-025		Reid	Cristi	NOAA	B.2.6
80087-026	0A013	Reid	Cristi	NOAA	B.2.10
80087-027	0A008	Reid	Cristi	NOAA	B.2.9
80087-028		Reid	Cristi	NOAA	B.2.13
80087-029		Reid	Cristi	NOAA	B.2.16.5
80087-030		Reid	Cristi	NOAA	B.2.13
80087-031		Reid	Cristi	NOAA	B.2.16.11
80087-032		Reid	Cristi	NOAA	B.2.13
80087-033		Reid	Cristi	NOAA	B.2.16.8
80087-034		Reid	Cristi	NOAA	B.2.16.11
80087-035	0A018	Reid	Cristi	NOAA	B.2.6
80087-036	0A015	Reid	Cristi	NOAA	B.2.8
80087-037	0A018	Reid	Cristi	NOAA	B.2.6
80087-038	0A018	Reid	Cristi	NOAA	B.2.6
80087-039	0A013	Reid	Cristi	NOAA	B.2.10
80087-040		Reid	Cristi	NOAA	B.2.16.22

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
80087-041		Reid	Cristi	NOAA	B.2.16.22
80087-042		Reid	Cristi	NOAA	B.2.16.11
80087-043	0A012	Reid	Cristi	NOAA	B.2.6
80087-044	0A018	Reid	Cristi	NOAA	B.2.6
80087-045		Reid	Cristi	NOAA	B.2.6
80087-046		Reid	Cristi	NOAA	B.2.10
80087-047		Reid	Cristi	NOAA	B.2.13
80087-048	0A012	Reid	Cristi	NOAA	B.2.6
80087-049		Reid	Cristi	NOAA	B.2.16.4
80087-050		Reid	Cristi	NOAA	B.2.16.14
80087-051		Reid	Cristi	NOAA	B.2.13
80087-052		Reid	Cristi	NOAA	B.2.16.14
80087-053		Reid	Cristi	NOAA	B.2.6
80087-054	0A018	Reid	Cristi	NOAA	B.2.6
80087-055		Reid	Cristi	NOAA	B.2.6
80087-056		Reid	Cristi	NOAA	B.2.12
80087-057		Reid	Cristi	NOAA	B.2.6
80087-058		Reid	Cristi	NOAA	B.2.6
80087-059		Reid	Cristi	NOAA	B.2.6
80087-060		Reid	Cristi	NOAA	B.2.3
80087-061	0A013	Reid	Cristi	NOAA	B.2.10
80087-062	0A018	Reid	Cristi	NOAA	B.2.6
80087-063		Reid	Cristi	NOAA	B.2.12
80087-064		Reid	Cristi	NOAA	B.2.12
80087-065		Reid	Cristi	NOAA	B.2.12
80087-066		Reid	Cristi	NOAA	B.2.13
80087-067		Reid	Cristi	NOAA	B.2.16.8
80087-068		Reid	Cristi	NOAA	B.2.16.8
80087-069		Reid	Cristi	NOAA	B.2.16.8
80087-070		Reid	Cristi	NOAA	B.2.16.8
80087-071		Reid	Cristi	NOAA	B.2.16.8
80087-072		Reid	Cristi	NOAA	B.2.17

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
80087-073		Reid	Cristi	NOAA	B.2.16.5
80087-074		Reid	Cristi	NOAA	B.2.16.5
80087-075	0A015	Reid	Cristi	NOAA	B.2.8
80087-076		Reid	Cristi	NOAA	B.2.16.8
80087-077		Reid	Cristi	NOAA	B.2.16.8
80087-078		Reid	Cristi	NOAA	B.2.16.8
80087-079		Reid	Cristi	NOAA	B.2.16.8
80087-080		Reid	Cristi	NOAA	B.2.16.8
80087-081		Reid	Cristi	NOAA	B.2.16.8
80087-082		Reid	Cristi	NOAA	B.2.16.8
80087-083		Reid	Cristi	NOAA	B.2.16.8
80087-084		Reid	Cristi	NOAA	B.2.16.8
80087-085		Reid	Cristi	NOAA	B.2.16.8
80087-086		Reid	Cristi	NOAA	B.2.16.15
80087-087		Reid	Cristi	NOAA	B.2.16.11
80087-088		Reid	Cristi	NOAA	B.2.16.11
80087-089		Reid	Cristi	NOAA	B.2.16.14
80087-090		Reid	Cristi	NOAA	B.2.16.14
80087-091		Reid	Cristi	NOAA	B.2.16.14
80087-092		Reid	Cristi	NOAA	B.2.16.14
80087-093		Reid	Cristi	NOAA	B.2.16.14
80087-094		Reid	Cristi	NOAA	B.2.16.15
80087-095		Reid	Cristi	NOAA	B.2.16.23
80087-096		Reid	Cristi	NOAA	B.2.16.15
80087-097		Reid	Cristi	NOAA	B.2.16.11
80087-098		Reid	Cristi	NOAA	B.2.16.11
80087-099		Reid	Cristi	NOAA	B.2.16.11
80087-100		Reid	Cristi	NOAA	B.2.16.11
80087-101	0A018	Reid	Cristi	NOAA	B.2.6
80087-102	0A015	Reid	Cristi	NOAA	B.2.8
80087-103		Reid	Cristi	NOAA	B.2.16.14
80087-104		Reid	Cristi	NOAA	B.2.16.11

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
80087-105		Reid	Cristi	NOAA	B.2.16.8
80087-106		Reid	Cristi	NOAA	B.2.2
80087-107		Reid	Cristi	NOAA	B.2.16.5
80087-108		Reid	Cristi	NOAA	B.2.16.5
80087-109		Reid	Cristi	NOAA	B.2.16.5
80087-110		Reid	Cristi	NOAA	B.2.16.5
80087-111		Reid	Cristi	NOAA	B.2.16.5
80087-112		Reid	Cristi	NOAA	B.2.16.5
80087-113		Reid	Cristi	NOAA	B.2.16.8
80087-114		Reid	Cristi	NOAA	B.2.16.8
80087-115		Reid	Cristi	NOAA	B.2.16.8
80087-116		Reid	Cristi	NOAA	B.2.16.8
80087-117		Reid	Cristi	NOAA	B.2.16.8
80087-118		Reid	Cristi	NOAA	B.2.16.8
80087-119		Reid	Cristi	NOAA	B.2.16.8
80087-120		Reid	Cristi	NOAA	B.2.16.8
80087-121		Reid	Cristi	NOAA	B.2.16.8
80087-122		Reid	Cristi	NOAA	B.2.16.8
80087-123		Reid	Cristi	NOAA	B.2.16.8
80087-124		Reid	Cristi	NOAA	B.2.16.8
80087-125		Reid	Cristi	NOAA	B.2.16.11
80087-126		Reid	Cristi	NOAA	B.2.16.11
80087-127		Reid	Cristi	NOAA	B.2.16.11
80087-128		Reid	Cristi	NOAA	B.2.16.11
80087-129		Reid	Cristi	NOAA	B.2.16.12
80087-130		Reid	Cristi	NOAA	B.2.16.12
80087-131		Reid	Cristi	NOAA	B.2.16.12
80087-132		Reid	Cristi	NOAA	B.2.16.12
80087-133		Reid	Cristi	NOAA	B.2.16.12
80087-134		Reid	Cristi	NOAA	B.2.16.12
80087-135		Reid	Cristi	NOAA	B.2.16.12
80087-136		Reid	Cristi	NOAA	B.2.16.12

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
80087-137		Reid	Cristi	NOAA	B.2.16.14
80087-138		Reid	Cristi	NOAA	B.2.16.14
80087-139		Reid	Cristi	NOAA	B.2.16.14
80087-140		Reid	Cristi	NOAA	B.2.16.15
80087-141	0A018	Reid	Cristi	NOAA	B.2.6
80087-142		Reid	Cristi	NOAA	B.2.16.15
80087-143		Reid	Cristi	NOAA	B.2.16.15
80087-144		Reid	Cristi	NOAA	B.2.16.11
80087-145		Reid	Cristi	NOAA	B.2.16.1
80087-146		Reid	Cristi	NOAA	B.2.16.1
80087-147		Reid	Cristi	NOAA	B.2.16.1
80087-148		Reid	Cristi	NOAA	B.2.16.2
80087-149		Reid	Cristi	NOAA	B.2.16.6
80087-150		Reid	Cristi	NOAA	B.2.2
80087-151		Reid	Cristi	NOAA	B.2.16.8
80087-152		Reid	Cristi	NOAA	B.2.16.8
80087-153		Reid	Cristi	NOAA	B.2.16.8
80087-154		Reid	Cristi	NOAA	B.2.16.11
80087-155		Reid	Cristi	NOAA	B.2.16.11
80087-156		Reid	Cristi	NOAA	B.2.16.11
80087-157		Reid	Cristi	NOAA	B.2.16.5
80087-158		Reid	Cristi	NOAA	B.2.16.5
80087-159		Reid	Cristi	NOAA	B.2.16.8
80087-160		Reid	Cristi	NOAA	B.2.16.12
80087-161		Reid	Cristi	NOAA	B.2.16.12
80087-162	0A021	Reid	Cristi	NOAA	B.2.5
80087-163	0A002	Reid	Cristi	NOAA	B.2.7
80087-164	0A018	Reid	Cristi	NOAA	B.2.6
80087-165	0A021	Reid	Cristi	NOAA	B.2.5
80087-166	0A021	Reid	Cristi	NOAA	B.2.5
80087-167		Reid	Cristi	NOAA	B.2.5
80087-168		Reid	Cristi	NOAA	B.2.5

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
80087-169		Reid	Cristi	NOAA	B.2.16.8
80087-170		Reid	Cristi	NOAA	B.2.16.8
80087-171	0A023	Reid	Cristi	NOAA	B.2.14
80087-172		Reid	Cristi	NOAA	B.2.14
80087-173		Reid	Cristi	NOAA	B.2.14
80087-174		Reid	Cristi	NOAA	B.2.14
80087-175		Reid	Cristi	NOAA	B.2.14
80087-176		Reid	Cristi	NOAA	B.2.16.14
80088-001		Sprague	Gary R.	WA Dept. of Fish and Wildlife	B.2.3
80088-002	0A018	Sprague	Gary R.	WA Dept. of Fish and Wildlife	B.2.6
80088-003	0A018	Sprague	Gary R.	WA Dept. of Fish and Wildlife	B.2.6
80088-004	0A018	Sprague	Gary R.	WA Dept. of Fish and Wildlife	B.2.6
80088-005	0A018	Sprague	Gary R.	WA Dept. of Fish and Wildlife	B.2.6
80088-006		Sprague	Gary R.	WA Dept. of Fish and Wildlife	B.2.16.23
80088-007	0A018	Sprague	Gary R.	WA Dept. of Fish and Wildlife	B.2.6
80088-008	0A015	Sprague	Gary R.	WA Dept. of Fish and Wildlife	B.2.8
80089-001	0A014	Carr	Mary K.	Southern Alliance for Clean Energy	B.2.4
80089-002	0A001	Carr	Mary K.	Southern Alliance for Clean Energy	B.2.3
80089-003	0A016	Carr	Mary K.	Southern Alliance for Clean Energy	B.2.8
80089-004		Carr	Mary K.	Southern Alliance for Clean Energy	B.2.6
80090-001	0A003	Asmutis-Silvia	Regina A.	WDCS	B.2.3
80090-002		Asmutis-Silvia	Regina A.	WDCS	B.2.16.8
80090-003		Asmutis-Silvia	Regina A.	WDCS	B.2.16.8
80090-004		Asmutis-Silvia	Regina A.	WDCS	B.2.16.8
80090-005		Asmutis-Silvia	Regina A.	WDCS	B.2.16.8
80090-006	0A021	Asmutis-Silvia	Regina A.	WDCS	B.2.5
80090-007		Asmutis-Silvia	Regina A.	WDCS	B.2.14
80091-001		Vanderberg	Thomas S.	Save Jones Beach Ad Hoc Committee, Inc.	B.2.2
80091-002		Vanderberg	Thomas S.	Save Jones Beach Ad Hoc Committee, Inc.	B.2.16.15
80092-001	0A002	Church Ciocci	Linda	National Hydropower Association	B.2.7
80092-002	0A015	Church Ciocci	Linda	National Hydropower Association	B.2.8
80092-003		Church Ciocci	Linda	National Hydropower Association	B.2.12

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
80092-004		Church Ciocci	Linda	National Hydropower Association	B.2.6
80092-005	0A010	Church Ciocci	Linda	National Hydropower Association	B.2.6
80092-006	0A019	Church Ciocci	Linda	National Hydropower Association	B.2.4
80093-001	0A001	Kispert	Kevin A.	NYSDEC	B.2.3
80093-002	0A013	Kispert	Kevin A.	NYSDEC	B.2.10
80093-003	0A013	Kispert	Kevin A.	NYSDEC	B.2.10
80093-004	0A020	Kispert	Kevin A.	NYSDEC	B.2.11
80094-001	0A009	Liebman	Cynthia E.	Conservation Law Foundation	B.2.6
80094-002	0A008	Liebman	Cynthia E.	Conservation Law Foundation	B.2.9
80094-003	0A018	Liebman	Cynthia E.	Conservation Law Foundation	B.2.6
80094-004	0A015	Liebman	Cynthia E.	Conservation Law Foundation	B.2.8
80094-005	0A015	Liebman	Cynthia E.	Conservation Law Foundation	B.2.8
80094-006	0A018	Liebman	Cynthia E.	Conservation Law Foundation	B.2.6
80094-007	0A017	Liebman	Cynthia E.	Conservation Law Foundation	B.2.6
80094-008	0A019	Liebman	Cynthia E.	Conservation Law Foundation	B.2.4
80094-009	0A023	Liebman	Cynthia E.	Conservation Law Foundation	B.2.14
80094-010	0A021	Liebman	Cynthia E.	Conservation Law Foundation	B.2.5
80095-001		Pugliese	Roger	South Atlantic Fishery Management Council	B.2.16.11
80096-001	0A001	Driscoll	Frederick R.	Florida Atlantic University	B.2.3
80096-002		Driscoll	Frederick R.	Florida Atlantic University	B.2.2
80096-003		Driscoll	Frederick R.	Florida Atlantic University	B.2.10
80096-004		Driscoll	Frederick R.	Florida Atlantic University	B.2.16.3
80096-005		Driscoll	Frederick R.	Florida Atlantic University	B.2.16.3
80096-006		Driscoll	Frederick R.	Florida Atlantic University	B.2.2
80096-007		Driscoll	Frederick R.	Florida Atlantic University	B.2.12
80096-008		Driscoll	Frederick R.	Florida Atlantic University	B.2.2
80096-009		Driscoll	Frederick R.	Florida Atlantic University	B.2.16.1
80096-010		Driscoll	Frederick R.	Florida Atlantic University	B.2.12
80096-011		Driscoll	Frederick R.	Florida Atlantic University	B.2.16.3
80096-012		Driscoll	Frederick R.	Florida Atlantic University	B.2.12
80096-013		Driscoll	Frederick R.	Florida Atlantic University	B.2.16.3
80096-014	0A015	Driscoll	Frederick R.	Florida Atlantic University	B.2.8

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
80096-015		Driscoll	Frederick R.	Florida Atlantic University	B.2.16.11
80096-016		Driscoll	Frederick R.	Florida Atlantic University	B.2.16.11
80096-017		Driscoll	Frederick R.	Florida Atlantic University	B.2.16.8
80096-018		Driscoll	Frederick R.	Florida Atlantic University	B.2.16.14
80098-001		Bressie	Kent	North American Submarine Cable Association	B.2.6
80098-002		Bressie	Kent	North American Submarine Cable Association	B.2.14
80098-003		Bressie	Kent	North American Submarine Cable Association	B.2.6
80098-004		Bressie	Kent	North American Submarine Cable Association	B.2.14
80098-005		Bressie	Kent	North American Submarine Cable Association	B.2.13
80098-006		Bressie	Kent	North American Submarine Cable Association	B.2.16.2
80098-007		Bressie	Kent	North American Submarine Cable Association	B.2.16.4
80098-008		Bressie	Kent	North American Submarine Cable Association	B.2.16.19
80098-009		Bressie	Kent	North American Submarine Cable Association	B.2.16.23
80099-001		Smith	Michael D.	National Trust for Historic Preservation	B.2.6
80099-002		Smith	Michael D.	National Trust for Historic Preservation	B.2.16.19
80099-003		Smith	Michael D.	National Trust for Historic Preservation	B.2.16.19
80099-004	0A012	Smith	Michael	National Trust for Historic Preservation	B.2.6
80100-001	0A001	Bowles	Ian A.	Secretary, Executive Office of Energy and Environmental Affairs	B.2.3
80101-001		Samson, Ph.D.	Jennifer C.	Clean Ocean Action	B.2.6
80101-002	0A008	Samson, Ph.D.	Jennifer C.	Clean Ocean Action	B.2.9
80101-003	0A015	Samson, Ph.D.	Jennifer C.	Clean Ocean Action	B.2.8
80101-004		Samson, Ph.D.	Jennifer C.	Clean Ocean Action	B.2.16.17
80101-005	0A004	Samson, Ph.D.	Jennifer C.	Clean Ocean Action	B.2.3
80101-006	0A023	Samson, Ph.D.	Jennifer C.	Clean Ocean Action	B.2.14
80101-007		Samson, Ph.D.	Jennifer C.	Clean Ocean Action	B.2.2
80101-008	0A015	Samson, Ph.D.	Jennifer C.	Clean Ocean Action	B.2.8
80102-001		Rector	Barry G.	NP&EDC	B.2.3
80102-002	0A016	Rector	Barry G.	NP&EDC	B.2.8
80102-003	0A013	Rector	Barry G.	NP&EDC	B.2.10
80102-004		Rector	Barry G.	NP&EDC	B.2.16.22
80102-005		Rector	Barry G.	NP&EDC	B.2.13
80102-006		Rector	Barry G.	NP&EDC	B.2.6

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
80102-007		Rector	Barry G.	NP&EDC	B.2.2
80103-001	0A003	Quaranta	Dennis J.	Winergy Power LLC	B.2.3
80103-002		Quaranta	Dennis J.	Winergy Power LLC	B.2.14
80103-003		Quaranta	Dennis J.	Winergy Power LLC	B.2.6
80103-004		Quaranta	Dennis J.	Winergy Power LLC	B.2.14
80103-005	0A018	Quaranta	Dennis J.	Winergy Power LLC	B.2.6
80103-006	0A018	Quaranta	Dennis J.	Winergy Power LLC	B.2.6
80103-007	0A019	Quaranta	Dennis J.	Winergy Power LLC	B.2.4
80103-008	0A016	Quaranta	Dennis J.	Winergy Power LLC	B.2.8
80103-009		Quaranta	Dennis J.	Winergy Power LLC	B.2.6
80103-010	0A012	Quaranta	Dennis J.	Winergy Power LLC	B.2.6
80104-001		Wing	Kate	NRDC	B.2.6
80104-002	0A008	Wing	Kate	NRDC	B.2.9
80104-003	0A008	Wing	Kate	NRDC	B.2.9
80104-004		Wing	Kate	NRDC	B.2.6
80104-005		Wing	Kate	NRDC	B.2.6
80104-006		Wing	Kate	NRDC	B.2.13
80104-007	0A017	Wing	Kate	NRDC	B.2.6
80104-008	0A012	Wing	Kate	NRDC	B.2.6
80104-009	0A018	Wing	Kate	NRDC	B.2.6
80104-010	0A013	Wing	Kate	NRDC	B.2.10
80104-011	0A020	Wing	Kate	NRDC	B.2.11
80104-012		Wing	Kate	NRDC	B.2.2
80104-013		Wing	Kate	NRDC	B.2.14
80104-014		Wing	Kate	NRDC	B.2.3
80104-015		Wing	Kate	NRDC	B.2.13
80104-016		Wing	Kate	NRDC	B.2.13
80104-017	0A013	Wing	Kate	NRDC	B.2.10
80104-018	0A021	Wing	Kate	NRDC	B.2.5
80104-019	0A020	Wing	Kate	NRDC	B.2.11
80104-020		Wing	Kate	NRDC	B.2.16.5
80104-021		Wing	Kate	NRDC	B.2.6

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
80104-022	0A019	Wing	Kate	NRDC	B.2.4
80105-001		Young	Sandra	Alliance to Protect Nantucket Sound	B.2.3
80105-002	0A013	Young	Sandra	Alliance to Protect Nantucket Sound	B.2.10
80105-003	0A015	Young	Sandra	Alliance to Protect Nantucket Sound	B.2.8
80105-004		Young	Sandra	Alliance to Protect Nantucket Sound	B.2.2
80105-005	0A023	Young	Sandra	Alliance to Protect Nantucket Sound	B.2.14
80105-006		Young	Sandra	Alliance to Protect Nantucket Sound	B.2.2
80105-007		Young	Sandra	Alliance to Protect Nantucket Sound	B.2.16.18
80105-008		Young	Sandra	Alliance to Protect Nantucket Sound	B.2.16.17
80105-009	0A018	Young	Sandra	Alliance to Protect Nantucket Sound	B.2.6
80105-010	0A015	Young	Sandra	Alliance to Protect Nantucket Sound	B.2.8
80105-011	0A006	Young	Sandra	Alliance to Protect Nantucket Sound	B.2.2
80106-001	0A003	Luster	Tom	California Coastal Commission	B.2.3
80106-002		Luster	Tom	California Coastal Commission	B.2.16.8
80106-003	0A018	Luster	Tom	California Coastal Commission	B.2.6
80106-004	0A013	Luster	Tom	California Coastal Commission	B.2.10
80106-005		Luster	Tom	California Coastal Commission	B.2.12
80106-006	0A020	Luster	Tom	California Coastal Commission	B.2.11
80106-007		Luster	Tom	California Coastal Commission	B.2.16.8
80106-008	0A021	Luster	Tom	California Coastal Commission	B.2.5
80106-009		Luster	Tom	California Coastal Commission	B.2.16.9
80106-010		Luster	Tom	California Coastal Commission	B.2.13
80106-011	0A013	Luster	Tom	California Coastal Commission	B.2.10
80107-001		Jenny	Peter	The Peregrine Fund	B.2.16.9
80108-001		Bellone	Steven	Town of Babylon	B.2.10
80108-002		Bellone	Steven	Town of Babylon	B.2.6
80108-003		Bellone	Steven	Town of Babylon	B.2.12
80108-004		Bellone	Steven	Town of Babylon	B.2.17
80108-005	0A006	Bellone	Steven	Town of Babylon	B.2.2
80108-006		Bellone	Steven	Town of Babylon	B.2.16.21
80108-007		Bellone	Steven	Town of Babylon	B.2.12
80108-008		Bellone	Steven	Town of Babylon	B.2.2

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
80109-001	0A001	Heimann	David	Sierra Club Massachusetts Chapter	B.2.3
80109-002	0A017	Heimann	David	Sierra Club Massachusetts Chapter	B.2.6
80109-003	0A011	Heimann	David	Sierra Club Massachusetts Chapter	B.2.6
80109-004	0A018	Heimann	David	Sierra Club Massachusetts Chapter	B.2.6
80109-005	0A015	Heimann	David	Sierra Club Massachusetts Chapter	B.2.8
80109-006	0A011	Heimann	David	Sierra Club Massachusetts Chapter	B.2.6
80109-007	0A013	Heimann	David	Sierra Club Massachusetts Chapter	B.2.10
80109-008	0A014	Heimann	David	Sierra Club Massachusetts Chapter	B.2.4
80111-001	0A015	Heimann	David	Sierra Club Massachusetts Chapter	B.2.8
80113-001		Gill	Chip	IAGC	B.2.6
80113-002		Gill	Chip	IAGC	B.2.6
80114-001		Good	Neil M.		B.2.16.22
80115-001	0A008	Dolan Murphy	Maureen	Citizens Campaign for the Environment	B.2.9
80115-002		Dolan Murphy	Maureen	Citizens Campaign for the Environment	B.2.3
80115-003		Dolan Murphy	Maureen	Citizens Campaign for the Environment	B.2.12
80115-004		Dolan Murphy	Maureen	Citizens Campaign for the Environment	B.2.6
80116-001	0A018	Mayes	Fred, M.	Energy Information Administration	B.2.6
80117-001	0A021	Kent	Donald B.	Hubbs-SeaWorld Research Institute	B.2.5
80118-001	0A001	Stavrakas	Stephanie	Fish and Wildlife Service	B.2.3
80118-002	0A012	Stavrakas	Stephanie	Fish and Wildlife Service	B.2.6
80118-003	0A017	Stavrakas	Stephanie	Fish and Wildlife Service	B.2.6
80118-004		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.6
80118-005	0A013	Stavrakas	Stephanie	Fish and Wildlife Service	B.2.10
80118-006		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.6
80118-007		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.2
80118-008	0A015	Stavrakas	Stephanie	Fish and Wildlife Service	B.2.8
80118-009		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.6
80118-010		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-011		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-012		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.12
80118-013		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.10
80118-014		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.13

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
80118-015		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-016		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.12
80118-017	0A022	Stavrakas	Stephanie	Fish and Wildlife Service	B.2.15
80118-018	0A021	Stavrakas	Stephanie	Fish and Wildlife Service	B.2.5
80118-019		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.13
80118-020		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.2
80118-021	0A012	Stavrakas	Stephanie	Fish and Wildlife Service	B.2.6
80118-022		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.4
80118-023		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.2
80118-024		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-025		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.15
80118-026		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.13
80118-027	0A021	Stavrakas	Stephanie	Fish and Wildlife Service	B.2.5
80118-028		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.14
80118-029	0A018	Stavrakas	Stephanie	Fish and Wildlife Service	B.2.6
80118-030	0A020	Stavrakas	Stephanie	Fish and Wildlife Service	B.2.11
80118-031		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-032		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.6
80118-033		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-034		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.6
80118-035	0A013	Stavrakas	Stephanie	Fish and Wildlife Service	B.2.10
80118-036	0A018	Stavrakas	Stephanie	Fish and Wildlife Service	B.2.6
80118-037		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.12
80118-038	0A018	Stavrakas	Stephanie	Fish and Wildlife Service	B.2.6
80118-039	0A018	Stavrakas	Stephanie	Fish and Wildlife Service	B.2.6
80118-040		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.12
80118-041		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.12
80118-042	0A012	Stavrakas	Stephanie	Fish and Wildlife Service	B.2.6
80118-043		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-044		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-045		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-046		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
80118-047		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.11
80118-048		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.11
80118-049		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.15
80118-050		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-051		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-052		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-053		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-054		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.5
80118-055		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.8
80118-056		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-057		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-058		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-059		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-060		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-061		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-062		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-063		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-064		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-065		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-066	0A018	Stavrakas	Stephanie	Fish and Wildlife Service	B.2.6
80118-067		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.10
80118-068		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.10
80118-069		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.12
80118-070		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.15
80118-071		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.15
80118-072		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.15
80118-073		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.15
80118-074		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.21
80118-075		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-076		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-077		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-078		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.14

TABLE B.3.3 (Cont.)

Comment ID	Group Comment ID	Commentor Last Name	Commentor First Name	Organization	Comment Response Section
80118-079		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-080	0A021	Stavrakas	Stephanie	Fish and Wildlife Service	B.2.5
80118-081		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-082		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.17
80118-083		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.12
80118-084		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.4
80118-085		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.17
80118-086	0A021	Stavrakas	Stephanie	Fish and Wildlife Service	B.2.5
80118-087		Stavrakas	Stephanie	Fish and Wildlife Service	B.2.16.9
80118-088	0A012	Stavrakas	Stephanie	Fish and Wildlife Service	B.2.6

**The contents of Section B.4, Public Comment Transcripts and Submissions,
can be found on the accompanying CD.**