May 21, 2007

Maureen Bomboldt
MMS Alternative Energy & Alternate Use Programmatic EIS
Argonne National Laboratory EYS/900
9700 S. Cass Ave.
Argonne IL 60439

RE: Comments on Draft Programmatic Environmental Impact Statement (PEIS) for Alternative Energy Development and Production and Alternative Use of Facilities on the Outer Continental Shelf

VIA E-MAIL AND FACSIMILE

Dear Ms. Bomboldt:

Thank you for the opportunity to comment on the above referenced Draft PEIS. The issues described in the document are of great interest to California, as we have some areas with high potential for offshore alternative energy potential for re-use of existing structures, and a commitment to support the use of environmentally appropriate renewable resources in the state. However, we have a number of concerns about the PEIS as currently presented, as explained in the comments below.

We previously provided comments in a February 27, 2006, letter on the MMS Advanced Notice of Proposed Rulemaking on Alternative Energy-Related Uses on the Outer Continental Shelf. That letter recognized the potential benefits of offshore alternative energy facilities, but also identified a number of concerns about the potentially extensive impacts associated with such facilities. It expressed the Coastal Commission's concerns about the potential conversion of offshore oil and gas platforms to other uses and noted that the Commission has routinely required that oil and gas infrastructure be removed from the ocean at the end of its operating life. The letter also noted our concerns about "rigs-to-reefs" proposals, based on inconclusive science about the role of such structures as habitat. We recommended that "rigs-to-reefs" conversions not be allowed, based on the fact that such conversions are permitted, they be allowed only after a case-by-case review, and be placed in fully protected areas (i.e., no fishing zones) until more conclusive science is available regarding passive habitat use. Similarly, the letter expressed our serious concerns about converting these platforms into aquaculture facilities. This type of conversion would likely result in significant adverse effects due to biological and chemical pollution, toxics and environmental conflicts with other uses. It also mentioned the introduction of non-native species and their accompanying problems into coastal waters. We continue to be concerned about these issues as well as several others, and, as noted below, the current PEIS does not provide adequate information to address these concerns.

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We have provided two sets of comments below—first, several general concern about the document, followed by comments on several specific issue areas. Briefly, our main concerns about the document are:

1. The PEIS does not provide adequate information to serve as the basis for the proposed permitting and regulatory program that would be developed to authorize these OCS activities. We recommend that decisions regarding proposed alternative uses of the OCS continue to be made on a case-by-case basis until additional information can be developed to support such a program. Alternatively, we recommend that any program stem from the PEIS be used only to permit and regulate pilot-scale proposals.

2. The PEIS's definition of impact levels (i.e., "negligible," "minor," "moderate," or "major") do not match many of the impacts described in the document—that is, a number of impacts described in the document that should be considered "moderate" are described only as being "negligible" to "moderate."

3. The PEIS identifies project-related impacts and describes mitigation measures that should be required to avoid or reduce those impacts. However, unless the measures are required, their effectiveness in avoiding or reducing project-related impacts is questionable. The PEIS also needs to evaluate more extensively possible mitigation measures such as avoiding putting facilities in certain habitats (e.g., avoid all hard bottom habitats, kelp beds, etc.) and selecting sites that minimize impacts due to their having few or less severe impacts than other designs.

These concerns are described in more detail below. We have also provided comments on several specific issue areas, including proposed re-use, noise in the marine environment, aquaculture, effects on birds, and others.

General Comments on PEIS

Proposed Action and Alternatives: Section 2 of the document briefly describes the three possible alternative actions that would result from this PEIS review: (1) develop a permitting and regulatory program for demonstration and full-scale alternative energy facilities and alternative OCS platform uses; (2) conduct case-by-case review for such proposals; and (3) take no actions to develop regulations or to allow such activities in the OCS. We recognize that this document represents a programmatic environmental review and is therefore subject to provide a more general evaluation of potential impacts, not the more detailed evaluation that would be expected during environmental review of a particular project. Still, the level of information provided in the document is too general to serve as the basis for creating a permitting and regulatory program meant to guide development of these nascent technologies. Because most of the technologies are relatively new and untested, there are few studies available that adequately describe their likely effects on marine resources or the measures that may be feasible and necessary to mitigate potential impacts.
Given that the PEIS is meant to cover only a short time period (from 2007 to 2014) and that most of the technologies described are either in their early development stages or will need substantial additional testing and time to determine their feasibility, effectiveness, and impacts, it appears premature to establish a programmatic approach or regulations at this time. We recommend that instead of developing a new program and regulations based on the PEIS, that alternative energy and alternative use proposals be evaluated on a case-by-case basis during the next several years. The experience gained through reviewing proposed applications of these technologies would then be used to develop an appropriate program and regulations applicable to larger-scale proposals. Even though technologies that the PEIS describes as being further developed—i.e., wind energy—will need substantial additional research before they are constructed and operated in offshore waters. We also recommend that the MMS use this time to conduct some of the resource-specific studies needed to further develop and support a regulatory program—e.g., studies to identify which areas may be not be suitable for offshore energy due to their high habitat value, the effects of noise from these facilities on marine mammals, the effects on electromagnetic frequencies from facility-to-shore cables, the fate and transport of hazardous materials associated with “shell mounds” at the base of existing offshore oil and gas structures, etc.

Postponing the development of a regulatory program is particularly important with regards to the proposed re-use of offshore structures. California is in the midst of scientific studies, data collection, and debate about the role of such structures in the marine environment, and developing a program at this point for re-use of these structures would be premature. We believe postponement of no more than a few years would be overall beneficial in that it would allow the MMS and the public to use the experience gained from case-by-case review and the knowledge gained from various studies to be used to develop a more rigorous and supportable program. If this short-term case-by-case approach is for some reason not acceptable, we alternatively recommend any permit or regulatory actions established using this PEIS be applicable to demonstration projects only, rather than full-scale proposals.

**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 federally 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.

- **Mitigation measures:** Related to the issue above, the document in many instances justifies assigning a lower impact level to an activity by citing mitigation measures that could be required. The document should be revisited throughout to instead describe what mitigation measures will be required. Without certainty that mitigation measures will apply to various activities, the document should state that project impacts would be more severe than currently described. For example, the PEIS in a number of sections describes potential effects on hard bottom habitat that would be caused by construction, cable laying, anchoring, and other activities. It further states that these effects could be avoided or reduced by using pre-project surveys, proper site planning, or other means. However, until these measures are required as part of the proposed program or regulations, they should not be characterized as providing effective mitigation. We therefore recommend that the document be revised to either identify how anticipated impacts would be avoided or reduced by using required mitigation measures or that it identify the level of impacts that would occur when mitigation measures remain only optional.

As part of its evaluation of mitigation measures, the document should also describe how to avoid or reduce impacts by avoiding placing facilities at certain locations. The PEIS discusses the locations in which offshore alternative energy facilities or platforms re-use may be most productive; however, it also needs to describe and evaluate which locations may be unsuitable due to their sensitive resource values. These areas should include breeding or feeding grounds, migration routes, areas of hard bottom habitat, and other locations that provide significant habitat values or high potential for adverse impacts. In California, these areas would also include nearshore areas such as critical areas, seagrass beds, and kelp beds that might be affected by cable crossings or other project-related activities. The revised PEIS should describe the reduced levels of adverse effects that would occur if facilities were to be avoided in such areas.

The PEIS should also include the 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 into and out of structures, which could cause significant environmental impacts to planktonic organisms and have a substantial adverse effect on nearby or regional ecosystems dependent on these organisms. Other wave energy devices could completely avoid this type of impact. Similarly, the document should describe standard wind energy devices and evaluate which designs would minimize bird attrition (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.
Comments on Specific Issue Areas

- Re-use of existing structures: The PEIS does not adequately address the issues associated with the substantial change in policy direction that would be represented by the re-use of existing offshore oil and gas structures. Neatly all the structures in California were approved with a requirement that be removed at the end of their operating life. Many agencies, individuals, and interest groups have understood for years or for decades that these structures would be removed, with some due to be removed in the relatively near future. This document does not provide any anywhere near the level of information needed to evaluate such a significant policy shift on the eventual disposition of these structures. The PEIS needs to thoroughly evaluate the issues associated with extending the life of these structures, including structural stability, the fate and transport of toxic or hazardous substances associated with these structures (e.g., shell casings), the level of cleanup needed at the structures, the effects (adverse, beneficial, and cumulative) of these structures on local or regional marine biota, the continuing space conflicts they represent to fishing, public views, navigation, and other interests, and others.

- 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, 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 "takings" under the MPA 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 sound, which should also be categorized as a "major" impact, particularly if their avoidance would affect migration, breeding, or other critical life stages.

- Aquaculture: As described in our February 2006 comment letter, the Commission has a number of concerns about converting offshore platforms to aquaculture facilities. The current PEIS includes a cursory description of some of the potential impacts associated with offshore aquaculture (in Section 6.3.2), but it lacks sufficient detail and analysis to adequately address these impacts and it fails to mention or describe the full range of potential impacts to water quality and marine resources associated with offshore aquaculture. For example, the following potential impacts are of concern to the Commission and should be fully evaluated in this document:

  - Ecosystem concerns: Many industrially cultured marine finfish species are carnivorous and consume large amounts of fishmeal and fish oil. For example, between two and five pounds of wild fish are typically required to produce one pound of farmed marine fish (including seabass, cod, haddock, halibut and flounder). Therefore, the ecological footprint of culturing some commercial fish may be large. Raising these fish may potentially deplete wild stocks of low-trophic level species that are used as food for the cultivated species. Increased fishing pressures may be directed towards these low-trophic level species (such as krill, menhaden, sardines, mackerel, anchovies and herring) which may result in adverse impacts to the wild populations of fish, seabirds and marine mammals that rely on these species for high quality forage. The PEIS should evaluate mitigation measures that would avoid or reduce this concern, such as prohibiting the use of wild fish stocks as feed in aquaculture operations.

  - Another ecosystem-related concern is that the intensive cultivation of filter-feeding shellfish species such as mussels and oysters can extract large amounts of phytoplankton and particulates from local marine waters. This alteration in the availability of these phytoplankton and nutrients for other marine organisms can affect the abundance and diversity of organisms in both the water column and benthos. The PEIS needs to address this issue.

  - Space/Use Conflicts: The physical presence of aquaculture operations can conflict with existing uses, such as commercial and recreational fishing and hunting. Poorly sited aquaculture operations can also interfere with marine life migratory routes and aggregation areas.

  - Exotic invasive species: California law currently prohibits raising non-native finfish species and transgenic freshwater and marine fish, invertebrates, crustaceans or mollusks in State waters (Fish and Game Code 15077) as amended in 2002 by Senate Bill 240). However, this prohibition does not specifically prohibit the cultivation of exotic shellfish or crustacean species. Commercial culture of exotics is a serious concern, because escaped exotics can become invasive species that could potentially out-compete native species for habitat and food resources and irreversibly change local and regional ecosystems.

  - Organic pollution: Discharges of waste and excess feed can cause impacts to the benthic environment undersea and downstream of fish pens and invertibrate grow-out facilities. The amount of waste and unassimilated feed depends not only on the digestibility of the food, but also on a range of other environmental and husbandry factors such as water temperature, current speed, disease status of cultured organisms and feeding frequency, timing and amount.

  - Fish feeds are often fish meal/oil based, but they also contain a wide range of components including wheat, soy meal, crustacean meal, vitamins, amino acids, minerals, pigments and nutrients. Fish and shellfish wastes often contain plant nutrients such as nitrogen and phosphates. The accumulation of these discharges has been known to result in extensive bacterial mats, to cause anearable "dead zones" around fish pens due to the chemical requirements of the decomposition process, and to contribute to planktonic and algal blooms in surrounding waters. Nutrient pollution around aquaculture pens can alter the species composition and density of benthic and planktonic organisms and trigger cascading ecosystem health affects. Species of toxic dinoflagellates and diatoms can increase in abundance due to nutrient pollution and as a result, the health of both benthic and marine life that consume these organisms can be negatively affected.

Additionally, the brief mention of mitigation measures provided in Section 6.3.2.3 raises the same concerns that are described above regarding the general lack of specific and clear-cut mitigation requirements throughout the PEIS. This section is also lacking even the most preliminary discussion of a number of important potential mitigation strategies. These include a pre-operational baseline benthic and water quality characterization studies and ongoing benthic and water quality monitoring during operations to quantify changes to water quality and/or benthic habitat; using preventative measures to reduce the incidence and number of fish escape; siting aquaculture operations sufficient distance from recreational fishing and boating areas and marine mammal and seabird migration routes, breeding sites, aggregation areas and feeding locations; habitat creation, enhancement or conservation requirements to offset the aquaculture operation’s use of low trophic level organisms for feed; and restrictions on the use of anti-fouling chemicals and antibiotics, and monitoring to minimize the potential releases of exotic invasive species in feed stock.

• 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 birds.

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 farms 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 towers and towers. Impacts to these species may be more severe, depending on the species involved and the number of individuals affected.

This statement could be interpreted to suggest that the 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 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 reduce bird strikes, and what mitigation measures are available to reduce impacts. Additionally, 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 post OPERATING 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.

• 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 enormous planktonic organisms. The entrainment effect 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 for its review.

• Space Conflicts: The PEIS Touches on, but does not adequately evaluate, effects on commercial and recreational fishing that may be caused by placement of new structures or by re-use of existing structures. In some areas, this issue could cause significant conflicts between the fishing community and project proponents. This issue is also one for which a revised PEIS should evaluate the mitigation effectiveness of placing certain areas off limits to alternative energy development – that is, not only should some areas be off limits because of their high habitat value, but also because of the level and quality of their use for fishing.

Closing
Thank you again for the opportunity to comment on this PEIS. We look forward to reviewing future revisions of the document and future proposed projects.

Sincerely,

[Signature]

Tom Lester
Staff Environmental Scientist
Energy, Ocean Resources, and Federal Consistency Division

cc: MMS – Maurice Hill
Resources Agency – Chris Potter
Thank you for your comment, Peter Jenny.

The comment tracking number that has been assigned to your comment is 80107. Once the comment response document has been published, please refer to the comment tracking number to locate the response.

Comment Date: May 21, 2007 06:42:33PM CDT
OCS Alternative Energy and Alternate Use Programmatic EIS
Draft Comment: 80107
First Name: Peter
Last Name: Jenny
Organization: The Peregrine Fund
Address: World Center For Birds of Prey
Address 2: 5658 West Flying Hawk Lane
City: Boise
State: ID
Zip: 83709
Country: USA
Email: pjenny@peregrinefund.org
Privacy Preference: Don't withhold name or address from public record

Comment Submitted:
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.

Respectfully Submitted,
J. Peter Jenny

FROM: ocsenergywebmaster@anl.gov
TO: mail_ocsenenergyarchives; ocsenergywebmaster@anl.gov
SUBJECT: OCS Alternative Energy and Alternate Use Programmatic EIS Comment 80107
DATE: Monday, May 21, 2007 8:11:58 PM
ATTACHMENTS: DPEIS_Comment-SuppBellone_Babylon_80108.doc

Thank you for your comment, Steven Bellone.

The comment tracking number that has been assigned to your comment is 80108. Once the comment response document has been published, please refer to the comment tracking number to locate the response.

Comment Date: May 21, 2007 08:13:08PM CDT
OCS Alternative Energy and Alternate Use Programmatic EIS
Draft Comment: 80108
First Name: Steven
Last Name: Bellone
Organization: Town of Babylon
Address: 200 E. Sunrise Hwy
City: Lindenhurst
State: NY
Zip: 11757
Country: USA
Email: sbellone@babylon.com
Privacy Preference: Don't withhold name or address from public record
Attachment: \(\(\text{observer2usersupdateWind}\)\)DPEIS_Comment-
SuppBellone_Babylon.doc

Comment Submitted:
In preparing the second Draft Programmatic, MNS might seriously consider tearing several pages from the recently released study on wind power from the National Academy of Sciences

Questions about submitting comments over the Web? Contact us at:
ocsenergywebmaster@anl.gov or call the OCS Alternative Energy and Alternate Use Programmatic EIS Webmaster at (630)252-6162.
Comments from Supervisor Steve Bello - Town of Babylon
On the MMS Draft Programmatic Environmental Impact Statement

At the April 25, 2007 Minerals Management Service public hearing held here on Long Island, I stated that “my concern is that MMS, the agency responsible for oversight here, is acting more as an expediter of those projects rather than as a regulator.”

The Draft Programmatic has revealed the need for MMS to heed two salient points: it is imperative to dispense with industry advocacy and adopt a framework of objectivity. Whether intended or not, many excerpts from the Draft Programmatic, as the following will exemplify, read as if they were written in accordance with principles advocated by FPL in their Rulemaking submission to MMS on February 28, 2006. It would be instructive, therefore, for MMS to study and emulate the tone and tenor of the recently released Environmental Impacts of Wind-Energy Projects from the National Academy of Sciences (http://books.nap.edu/openbook.php?record_id=11955&page=1).

Consider examples that convey the distinct impression MMS is reading from the same page as FPL:

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

>>The DEP/EIS concern: “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 potentially applicant.”

>>FPL Energy does not recommend that MMS launch a comprehensive assessment of the OCS for wind energy potential... The best approach for MMS will be for FPL to pursue 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 DEP/EIS concern: “For the present, the MMS intends to ask industry to identify those areas with the most potential for development.”

>>FPL Energy recommends that MMS step out of the issue of economic viability entirely. The federal government is now going to have the same information or incentives that the private sector developer has to weigh.”

>>“MMS should not,” FPL wrote, “view pilots 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.”

>>In the DEP/EIS, MMS concerns: European pilot and commercial offshore wind projects have provided information to demonstrate the feasibility of offshore wind power generation.

> FPL Energy encourages MMS to consider, seriously, adoption of the system relied upon by FPL Energy (for compliance & monitoring).” p.18 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 DEP/EIS, MMS offers a comparable 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” p.58

> Responding to the Notice of Intent to Prepare an Environmental Impact Statement (EIS) on August 21, 2006, FPL wrote under the heading, “EXPEDITE THE LONG ISLAND OFFSHORE WIND PARK”:

> “FPL Energy is pleased MMS’s efforts to assume responsibility for a new regulatory sector. MMS is unquestionably doing everything it can to assume the regulation of offshore renewable energy in a manner consistent with US policy. However, regarding the LRWRP EIS, FPL Energy is very concerned about requirements calling for years of additional radar or other pre-construction wingspan monitoring. Such requirements could hinder the permitting process, and will not provide the MMS with any incremental increase in outcome-determinative data. We are particularly concerned about this since FPL Energy has gathered a substantial amount of radar information. This considerable investment in data collection has already produced a significant amount of data resources.”

> The year before MMS’s sister service, Fish & Wildlife wrote the following and reiterated at the time of the above submission that FPL had done nothing comply:

> “After initially committing to conducting studies, the applicant decided in early 2005 to cancel radar surveys of the project site. The decision was made after being informed of the much more complete data set being collected by radar equipment on the Cape Wind offshore wind project. It was conveyed to the applicants that the Cape Wind project aerial and boat surveys resulted in the observation of approximately 210 birds flying at turbine height while the radar surveys conducted for the same project resulted in the tabulation of over 127,697 targets within the proposed rotor swept zone. This difference in data reflects the superior utility of radar equipment to determine avian abundance, location (including altitude), and direction of flight within the project airspace and potential impact zone.

In summary, the Service requests that the Corps hold the permit application in abeyance until proper environmental studies can be completed by the applicants.

Likewise, we recommend that the Corps not issue a permit until adequate information is collected on the spatial and temporal use of the project’s airspace by wildlife at all times of the year.”
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 soothing and aesthetically pleasing. 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 national 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 increase 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.

Take another glaring example from the DPEIS that reprinted a passage about the load capacity of offshore wind project in Europe. It was lifted virtually verbatim from a 2005 International Energy Agency gloss which itself did not provide specific references for its data.
complicated, and predicting future displacements is surrounded by uncertainties.

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 these benefits is complicated. The generation of electricity by wind energy can itself have adverse effects, and predicting 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.

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.

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.

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 scenic and regulatory decisions.

**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).

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 SFQRA 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.

- 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 (Santon 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.

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."

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.

Respectfully submitted,

STEVEN HELLOME
Supervisor, Town of Babylon
Thank you for your comment, David Heimann.

The comment tracking number that has been assigned to your comment is 80109. Once the comment response document has been published, please refer to the comment tracking number to locate the response.

Comment Date: May 21, 2007 09:28:00PM CDT
OCS Alternative Energy and Alternate Use Programmatic EIS
Draft Comment: 80109
First Name: David
Last Name: Heimann
Organization: Sierra Club Massachusetts Chapter
Address: 100 Boylston St.
City: Boston
State: MA
Zip: 02116
Country: USA
Email: chapter-chair@sierracublack.org
Privacy Preference: Don’t withhold name or address from public record
Attachment: C:\My Documents\Personal\MMS-pDEIS Comments1.doc

Questions about submitting comments over the Web? Contact us at: ocsenergywebmaster@arl.gov or call the OCS Alternative Energy and Alternate Use Programmatic EIS Webmaster at (630)252-6182.

To Mineral Management Services:

We are greatly pleased to have this opportunity to comment upon the ground-breaking efforts of Mineral Management Service's (MMS) to originate a systematic methodology for the evaluation and promotion of alternative energy sources on the Outer Continental Shelf (OCS). The Sierra Club firmly believes that finding and developing "alternative" (non-fossil fuel) energy, along with efficiency and conservation, are vitally necessary to funding off the worst case scenarios of anthropogenic climate change. We appreciate the MMS’s commitment to alternative energy solutions, and take your involvement as a signal that the federal government is increasingly ready to engage the challenge.

We are in receipt of your "Programmatic Draft Environmental Impact Statement" (pDEIS) of March 2007, and would like to offer our comments therein. We understand fully that the MMS now seeks comment on general procedures and methodologies, not on any particular project proposal. Nonetheless, the Massachusetts Chapter has been intensively engaged in the review process for the Cape Wind turbine array proposed for Nantucket Sound; we think that the five-year-old history of this proposal has much to offer by way of illustration, and our comments will make use of such illustrations from time to time. We would begin by emphasizing that we are in strong agreement with most of what’s presented in the pDEIS, by pointing out areas of similarity between your views and ours:

- We agree with your preliminary finding that both the "no action" and "case-by-case" alternatives are significantly worse than your recommended proposed action of an orderly administration and regulation of off-shore alternative energy production.
- We agree with your emphasis on dealing with sources and technologies likely to arise and be forthcoming; therefore our policy and regulations may need to evolve rapidly to keep up.
- We concur with you that, of all the technological possibilities, wind power and wind farms are, in the near term, the most likely technically viable, financially competitive, and operationally dependable options.

Gifford Pinchot, the first Chief of the US Forest Service (1905-19), chose to define "conservation" as "the greatest good for the greatest number for the longest time." We think this definition illuminates the true mission of the MMS and many other federal agencies. Our comm

MMS Alternative Energy & Alternate Use Programmatic EIS
Aggressive National Laboratory DV3-900
5700 S. Cns Ave.
Arvada CO 80002

MMS Draft Environmental Impact Statement (DEIS) of March 2007

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ments speak to six major policy directions we ask the MMS to consider as it elaborates its proposed action:

(1) HISTORICAL REFERENCE. While the OCS alternative energy picture is complex and multi-dimensional, it is not virgin territory. In the US Northeast, the Cape Wind proposal has already been subject to intense scrutiny of its potential threats to avian species, bat habitat disturbances, degradation of the tourist assets of Cape Cod and Islands, and similar legitimate concerns, as well as its benefits for renewable energy supplies and the economy. Those and other topics have been treated in great detail by the Army Corps of Engineers (ACE) in its own multi-year Environmental Impact Review process. The efforts of ACE provide a wealth of relevant examples (both good and bad) of data collection and analysis, impact prediction and mitigation options, and participatory process engaging the various interest groups. Accordingly, we urge the MMS to thoroughly familiarize itself with the prior work of ACE, and to take advantage of lessons taught or learned by the Cape Wind review process. In a similar vein, Europe is now well ahead of the US in terms of ocean- or water-based alternative energy projects, and the MMS should derive useful conclusions from its experience. Although the MMS is taking on a difficult assignment, it is not writing on a blank slate.

(2) TASK COMPLEXITY. The NEPES speaks to characterization of the ocean environment and possible (negative) impacts of developing alternative energy sources on the OCS. The listing of OCS attributes and potential targets of impact can be broadly characterized as:

- Biophysical: natural phenomena including oceanic and aquatic species, their behaviors and interactions, benthic conditions and topography, weather and climate, including prevailing wind patterns, and water characteristics (temperature, salinity, dissolved oxygen levels). Data about biophysical conditions of the ocean is famously hard to collect, and also hard to maintain, since important variables change over time as well as space.

- Socioeconomic: human activity and use, including commercial fishing and shipping, recreational fishing and boating, tourism, along with economic and cultural appreciation; and resource extraction (offshore minerals, oil and gas). Each such activity tends to have an interest group formed around, and formulating ocean policy (energy or otherwise) necessarily involves dialogues among people who see things differently.

- Administrative (jurisdictional): the overlapping networks of public regulation and administration, usually organized on an economic sector basis, and directed towards managing the range of socioeconomic activities competently for OCS resources. The MMS has already made clear that its own jurisdiction for project approval (but not for impact evaluation) stops short of “building block”-like National Marine Sanctuaries and similar elements of the National Park system.

- Energy yield: amount of energy produced, reliability, variability, costs, impact on fossil fuel-based energy use, impact on pollution, and especially on global warming.

Given this extensive collection of variables, the MMS must choose to develop a system of parameters in narrow rating scales, for any specific project proposal, can be applied to site evaluation, risk and impact assessment, and ultimately to prepare project approval, approval with conditions of mitigation, or as necessary, proposal rejection. We agree that rationalized evaluation systems can help bring clarity, predictability, and timelessness to the otherwise contentious or open-ended process of proposal review and approval. Our concern would be that while the MMS seeks to invent, perfect, and explain such an approach, the energy crisis and global warming will self-resolve — and not resolve in our favor. Accordingly, with respect to the elaboration and implementation of the proposed action, we recommend that the MMS seek to balance the need for scientific validity and widespread public acceptance with the equally vital need for immediate development of alternative energy sources. An adequate system for approving pioneer energy projects is needed; while fudging obvious and substantial negative consequences will do the US more good than an excellent system for approving flawed energy projects in the year 2030. We need to mobilize the thought demonstration projects of relevant scale, and learn from them as we go. This brings us directly to the next point…

(3) RISKS AND COMPREHENSIVE MONITORING. The Cape Wind project has revealed a wide variety of public concern about the possible threats of ocean-based wind farms. Some of these threats seem plausible but undefined in magnitudes, like the potential for bird and bat strikes by the rotating blades, others, like waste degradation leading to disruptions of the Cape Cod tourist industry, appear implausible and not well substantiated. Accordingly, we recommend that the MMS ensure that its early alternative energy project approvals are contingent upon collecting adequate further baseline data of pre-existing conditions, and collect additional data over time to monitor how the project affects those conditions. The goals of such monitoring programs include maximizing controversy-free future reviews, imposing more effective mitigations on marginally acceptable proposals, and establishing a sound scientific and cost-benefit basis for permit approval or denial. The effort and costs of comprehensive monitoring over time could be borne both by the project proponents, and the coordinated involvement of government agencies charged with safeguarding the public interest.

Focused monitoring of the early projects, and of evolving technologies, is sufficiently important that we are sending you a companion letter of comments dealing with this topic in detail.

(4) EQUITY OF REQUIREMENTS VS. THOSE OF FOSSIL-FUEL PROPOSALS. Traditional fossil-fuel-related construction and resource extraction on the OCS have already confronted the MMS with controversies and challenges such as decommissioning and leasing rates. For instance, should abandoned drilling platforms provide diversity-inducing habitat, or are they just sea junk? Is it appropriate to dismantle and dispose of each platform at sea, or to use ocean dumping? Who pays for this? Should future removal costs be bonded off? What sort of insurance do such mishaps or collisions at the oil slicks? Do less hazardous rates and extraction options help the American economy get the resources it needs cheaply — or are these low rates a giveaway enriching private parties at the expense of the public interest or public treasury?

The MMS has come up with answers to such questions with respect to fossil-fuel-based proposals. We recommend that the permitting and leasing requirements for alternative energy projects be comparable to those applicable to conventional energy projects. In other words, we do not set the regulatory bar higher for wind farms than it is for drilling platforms.

We will go further. The Sierra Club is convinced that the public interest is best served by a public support of alternative energy development, and by gradually increasing the cost of fossil fuel usages as one way of (a) representing the true costs of greenhouse gases, and (b) discouraging inefficiency and over-consumption of a finite and increasingly problematic resource. We therefore ask the MMS to explicitly consider the pros and cons of lifting the OCS playing field in favor of alternative energy production, and away from fossil fuel extraction — for instance, low entry and operating charges for wind farms (which after all rely on a daily renewable re
source owned by no one), and gradually increasing charges for extraction of our declining public reserve of fossil fuels.

(5) AFFECTED ENVIRONMENTS AND OCEAN ZONING. Given that “zoning” traditionally means regulation of land-based, privately owned surface topography, there is some debate as to whether “zoning” is a tool readily and usefully transferred to the three-dimensional, publicly-owned water environment of the OCS. Without engaging all the nuances of this debate, we note simply that zoning typically involves: (1) a classification of candidate uses and their attributes (dimension, density, etc); (2) subdivision of a large territory into smaller districts; (3) a set of regulations uniformly applied to each district, and governing the types, intensities and characteristics of uses allowed or prohibited; and finally (4) a public administrative and review process that eventually yields a permit for a specific kind of construction or activity at a defined location. In these terms, many examples of ocean zoning—ranging from Australia’s Great Barrier Reef Marine Park, to Edgartown’s (MA) “Surface Water District”—are already in place.

One stated goal of the MMS’s recommended program alternative is that of streamlining the review process and expediting permit delivery for appropriate alternative energy projects. We believe that this goal can be facilitated in part by an ocean zoning map that enhances predictability of the review and approval process. In its most simplified form, alternative energy zoning would have two districts describing two essential types of “core areas”:

- Districts classified as GOOD for alternative energy development. “GOOD” districts are ones where the potential gain for non-fossil-fuel energy generation is major and the potential impacts on the biophysical and socioeconomic characteristics of the environment are minor or easily mitigated. “GOOD” districts could receive benefits such as expedited permitting or public incentives, encouraging private parties to step forward with compliant projects.

- Districts classified as POOR for alternative energy development, i.e., those where the potential energy gains are minor or the potential adverse biophysical and socioeconomic characteristics are major. In “POOR” districts, alternative energy projects would be prohibited altogether, or perhaps allowed only after offering extraordinary mitigations. Private parties would understand in advance that POOR districts are a poor choice for project proposals, and would re-direct their investment planning to more promising areas.

In the early stages of zoning for alternative energy, sense making, or maybe even most of the OCS could be left un-zoned, waiting for additional data collection and analysis. In these un-zoned, “intermediate” areas, projects could be considered, but would likely be subject to more extensive review, more mitigation requirements, and higher development costs. Clearly, different alternative energy technologies, having different potential impacts, would have varying appropriateness for districts—wave energy recovery, for instance, might be appropriate in districts where wind farming is not. Such technical complexities notwithstanding, we strongly urge the MMS to consider, as part of its long range management strategy, the devising and implementation of ocean zoning as a means of encouraging project development and simplifying the public review process.

(6) EXPEDITIOUS PROGRESS. Too often missing from discussions of energy reform is any sense of magnitude or urgency. We find it useful to synopsize the challenge ahead:

The United States currently uses about 100 quads (quadrillion BTUs) of energy each year. Of that, about 85 quads come from fossil fuel combustion, and the CO2 released from this is the primary cause of the increasing greenhouse effect. The accumulating scientific consensus provides that we should be looking to eliminate about 80% of this release by mid-century, i.e., 68 quads. Some of this reduction will come from efficiency and conservation reforms, while the rest will come from renewable energy sources, like the ones the MMS seeks to promote. If one sets a goal of, say, one-third of our reduction as coming from alternative energy, that’s 23 quads of new, alternative energy output required.

Can we get this from wind? 23 quadrillion BTUs of wind energy is the output of about 8,500 wind farms the size of that proposed for Nantucket Sound — the equivalent of four major wind farms a year for each of the next 40 years, for every State of the Union. Needless to say, progress to date has not been commensurate with achieving this goal. Accordingly, we urge the MMS to move forward swiftly to demonstrate that OCS alternative energy projects can be approved in a timely manner, completed promptly, and brought on line without undue delay or significant delay.

Another five years of delay before the first approvals of large-scale OCS wind farming would, in our view, contribute to a failure of catastrophic proportions.

In this commentary, we’ve made no mention of the other mandate assigned to the MMS by the Energy Policy Act of 2005—that of finding alternative uses for the pre-existing infrastructure of fossil fuel extraction. We have two remarks on this topic. First, as America moves to trade reliance on fossil fuels for reliance on substitute supplies, the accelerating elimination of ocean-based extraction structures will bestow greater importance on an intelligent recycling program of such facilities. Second, as the need for new oil and gas supplies is displaced by efficiency, conservation, and substitution, the MMS stalling and funding dedicated to the review, approval and management of new fossil fuel leases will decline substantially. We would urge that this staff and funding be usefully redirected to the successful and expedient promotion of alternative energy projects on the Outer Continental Shelf.

Please feel free to contact us if you have questions or requests regarding our comments.

Sincerely,

THE MASSACHUSETTS CHAPTER OF THE SIERRA CLUB

David Heimann
Chapter Executive Committee Chair

Philip Dowds AIA
Chapter Energy Committee Chair

October 2007
Thank you for your comment, David Heimann.

The comment tracking number that has been assigned to your comment is 80111. Once the comment response document has been published, please refer to the comment tracking number to locate the response.

Comment Date: May 21, 2007 09:30:02PM CDT
OCS Alternative Energy and Alternate Use Programmatic EIS
Draft Comment: 80111
First Name: David
Last Name: Heimann
Organization: Sierra Club Massachusetts Chapter
Address: 100 Boylston St.
City: Boston
State: MA
Zip: 02116
Country: USA
Email: chapter-chair@sierraclubmass.org
Privacy Preference: Don't withhold name or address from public record

Questions about submitting comments over the Web? Contact us at: ocsenergywebmaster@anl.gov or call the OCS Alternative Energy and Alternate Use Programmatic EIS Webmaster at (630)252-6182.
of existing monitoring endeavors by other agencies (NOAA Fisheries, EPA, etc.) and produce a product analogous to the Environmental Protection Agency's National Coastal Condition report. Presumably this monitoring effort would combine satellite-altimeters, remote-sensing data with data gathered from research vessels, gliders, autonomous undersea vehicles (AUVs), remotely operated vehicles (ROVs), ships of opportunity (SOOP), etc. Since the EEZ includes the continental shelf/shelf edge boundary with submarine canyons, and continental rise/seamounts, the regional monitoring program should focus on the areas in which alternative energy projects are most likely to be deployed (based on constraints to locate facilities in areas in which connections can be made to the regional electric grid or land). It is certainly possible in the future that these technological constraints will be reduced or eliminated.

The following provide a broad overview of potential variable categories to be addressed in the monitoring program and some examples of potential approaches for measurements, as mentioned earlier the appropriate temporal/spatial scales for the monitoring program and specific variables to be collected depend on the management information needs and ecological indicators/reference points defined in the MSER management regime for alternative energy projects within the EEZ:

- **Meteorological:** wind direction and speed (average and variability); atmospheric pressure (average and variability); sunlight energy (average and variability); cloud cover, air temperature and humidity, etc. This is carried out by moored buoys at strategic locations supplemented by Ocean Observing Systems (OOS)/NOAA data buoys, and by use of satellites for sea surface temperature, wind speed/direction, sea surface height, etc.

- **Ocean Water Column Physical Dynamics: temperature and conductivity with depth (CTD), use of acoustic doppler current profilers (ADCP) for current speed direction and magnitude (average and variability); tidal amplitude and speed; wave height and direction, etc. This is carried out by moored buoys (see above) supplemented by ROVs, AUVs or gliders for wider spatial coverage.

- **Ocean Water Column Chemistry:** pH and salinity; nutrients (nitrogen, phosphorus, silicon, iron); contaminants (heavy metals and POPs which can bioaccumulate through the food chain); chlorophyll A (to use true satellite ocean color estimates); suspended sediments; etc. This is carried out by a combination of moored buoys and research vessels/gliders.

- **Ocean Water Column Biology:** ocean color for phytoplankton abundance: hydroacoustic sampling methods for zooplankton, macrozooplankton, and pelagic forage fish (with periodic sea trolling with multiple trawl surveys); bottom trawl surveys for diamond fish and mobile invertebrates; line transect surveys for marine mammals and seabirds; catch and release surveys for Age 0 predators (tuna, sharks, billfish, etc.); etc. This will provide information on the distribution/abundance of key components in the ocean's food web. This will depend upon research vessels supplemented by gliders/AUVs/ROVs and SOOP tracking undulating oceanographic recorders.

- **Benthic Sediment and Habitat Mapping:** use multibeam mapping techniques supplemented by tower video cameras for bottom trawling. May need to conduct decadal benthic epifauna/infauna surveys using grabs and dredges to link maps with organisms on the bottom that are key prey species or provide essential fish habitat. The benthic settlement distribution patterns will need to be bottom trawled with cores. It might be worthwhile gathering data on benthic physical disturbance processes, since many of the alter-native energy sites may be at depths subject to storm waves, tidal action, bottom currents and debris flows. The geological sedimentary mapping will need to be augmented by sediment grain size analysis and composition; shear strength; bioturbation estimation; sediment mobility estimates; etc. This endeavor combines benthic biology, geology and physical dynamics in an integrated program conducted from research vessels.

- **Benthic Chemistry:** redox potential (Eh)/pH; sediment contaminant levels (heavy metals and POPs); concentration levels in sediments (phosphate invertebrates (heavy metals and POPs); particulate and dissolved organic carbon and nitrogen concentrations; sulfide levels, etc. This is carried out using research vessels to gather samples with grabs/cores with later laboratory analysis. This might be combined with the periodic surveys of benthic epifauna/infrafauna or bottom trawling of sediment/habitat mapping.

- **Miscellaneous Measurements:** sound and vibration levels (natural versus anthropogenic); bottom response behavior; water transparency; biodiversity of living, protected and natural trust resources; influence of bathymetry on hydrography, etc. Presumably the monitoring program would be part of an adaptive management approach which links models and analytical approaches to ecological indicators/reference points to data collection and synthesis in order to meet the management information needs. The ESR and EAP should provide the conceptual basis for this adaptive management approach. It may be necessary to conduct some process orientated research to fill gaps in our understanding on how the data collected or proxy indicators are linked to the model analytical approaches required to provide the needed information. This will be an iterative process in which learning from our experience and updating the conceptual models will be important. MSER will have to work with its Federal state partners and key constituent groups to develop the management framework and to define the information needs for the monitoring program.

It would be wise from a political perspective to have an independent third party conduct the monitoring and develop the products relating the monitoring program results to the ecosystem status (ESR) and cumulative impacts (EAP) from diverse human activities being carried out within the EEE. Models for such an approach can be found in the Australian ecosystem approach to management (EEA) that utilizes the CSIRO (Commonwealth Scientific and Industrial Research Organization) and the Canadian Integrated Ocean Management Plans developed by the Department of Fisheries and Oceans under the Oceans Act. Even though the US has a different regulatory approach for the EEE than either Australia or Canada, there are lessons to be learned from the experiences gained elsewhere. When Congress enacts legislation based on the recommendations of the S. Oceans Commission, it should make it easier to manage diverse human activities within the EEE in a more holistic fashion.

Please feel free to contact us if you have questions or requests regarding our comments.

Sincerely,

**THE MASSACHUSETTS CHAPTER OF THE SIERRA CLUB**

David Heimann  
Chapter Executive Committee Chair  
Cape Cod and Islands Group

David Dow  
October 2007
Thank you for your comment, Chip Gill.

The comment tracking number that has been assigned to your comment is 80113. Once the comment response document has been published, please refer to the comment tracking number to locate the response.

Comment Date: May 21, 2007 10:54:49PM CDT

OCS Alternative Energy and Alternate Use Programmatic EIS
Draft Comment: 80113

First Name: Chip
Last Name: Gill
Organization: IAGC
Address: 2550 North Loop West
Address 2: Suite 104
City: Houston
State: TX
Zip: 77092
Country: USA
Email: iagc@iagc.org
Privacy Preference: Don't withhold name or address from public record

Comment Submitted:
Please see IAGC's comments, which are attached.

Questions about submitting comments over the Web? Contact us at:
ocsenergywebmaster@anl.gov or call the OCS Alternative Energy and Alternate Use Programmatic EIS Webmaster at (630)252-6182.
use / activity within the OCS offer years of having oil and gas exploration and development as the primary, if not sole activity, will require thoughtful consideration by all parties. The contribution that alternative energy sources such as offshore wind farms and wave generation can make to meet the ever growing energy demands of our nation is important. However, the significance and need for continued exploration and development of the offshore resources should be recognized and it should remain a high priority.

With the MMS' indulgence, the IAGC again provides the following general comments regarding the leasing 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 a critical resource. If blocks are removed or impaired by alternate 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 implications).

- Today, seismic data acquisition (exclusive and non-exclusive) is an integral and important step in the exploration and development of hydrocarbon resources, and also to the calculation of hydrocarbon reserves. New seismic surveys are acquired with better technologies and produce higher resolution images of the subsurface, thereby allowing greater precision in these endeavors. Data from these programs are widely utilized by, and are critical to MMS in the management of natural gas and oil in the OCS, and ultimately become available to the public.

Following the laws of physics, a "rule of thumb" can be assembled to create the 3-D subsurface images of one outcrop OCS block, it requires input of nine OCS blocks to obtain post-stack time migrated data and input of up to forty OCS blocks to obtain pre-stacked depth migrated data. If an OCS block has been relegated to alternative uses such that a large surface area is obstructed, impaired or considered an exclusion zone, it will hinder the ability to acquire seismic data over the necessary surface area. It therefore follows that the inability to obtain seismic coverage over a particular area will affect the ability to properly image adjacent areas.

However it will also hinder the ability to acquire it by the efficient, cost effective towed streamer method (no room for the towed streamer to spread). In relegateating acquisition options to the more costly seabed based options, it follows that the more costly a survey, the higher the economic hurdles are for a project and therefore the less likely it will be funded.

In conclusion, the MMS must 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.

- 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 last opportunity of the investment) as well as project revenues.

IAGC appreciates the opportunity to provide comments on the MMS Alternative Energy and Alternate Use Programmatic EIS. If you have any questions or need additional information, please do not hesitate to contact me.

 Regards,
Chip Gill
President
Thank you for your comment, Neil Good.

The comment tracking number that has been assigned to your comment is 80114. Once the comment response document has been published, please refer to the comment tracking number to locate the response.

Comment Date: May 21, 2007 10:56:29PM CDT

OCS Alternative Energy and Alternate Use Programmatic EIS
Draft Comment: 80114

First Name: Neil
Middle Initial: M
Last Name: Good
Address: 56 Saltuate Road
City: Mashpee
State: MA
Zip: 02649
Country: USA
Email: neilgood@juno.com
Privacy Preference: Don't withhold name or address from public record
Attachment: C:\Documents and Settings\User\Desktop\Recreational Uses.DOC

Comment Submitted:
Please see attachment

Questions about submitting comments over the Web? Contact us at:
ocsenergywebmaster@arl.gov or call the OCS Alternative Energy and Alternate Use Programmatic EIS Webmaster at (630)252-6182.

Neil Good
56 Saltuate Road
Mashpee, MA 02649
neilgood@juno.com

MMS FEIS Testimony
Duxbury, MA. May 25th, 2006

Recreational Uses

I thank you for the opportunity to testify as a concerned citizen regarding how MMS should consider the issue of recreation in its Programmatic Environmental Impact Statement.

In a 1998 report, the National Oceanic and Atmospheric Administration estimated that in 1995 travel and tourism provided $746 billion to the U.S. gross domestic product, which amounts to about 10% of U.S. output. Beaches are the leading tourist destination while national parks and historic sites are the second most popular destination. Approximately 180 million people visit the coast for recreational purposes, with 85 percent of tourist-related revenues generated by coastal states.

According to an EPA study, cited in this same report, over 77 million Americans participated in recreational boating as of 1996. In 1996 alone, Americans spent approximately $17.7 billion on boats and directly-related
items. For non-boaters, beach-going was nonetheless a favorite activity. In seven states, beachgoers spent $74 billion with the most popular recreational activities being swimming, sunbathing, and walking in coastal areas.

In short, coastal recreation is immensely important to the nation. The consideration of recreational impacts must factor heavily in MMS's new regulatory program.

As an example, offshore wind has the potential to significantly impact a major recreational area. The effects of offshore wind energy on tourism have received mixed reviews. It appears that in some areas, the presence of an offshore wind energy facility may benefit a recreational area. But whether tourism is adversely affected by offshore alternative energy development depends on the reasons one visits a particular area. In other words, it depends on the type of recreation for which an area is popular.

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.

Thank you for the opportunity to provide comments on this important issue.
Thank you for your comment, Maureen Dolan Murphy.

The comment tracking number that has been assigned to your comment is 80115. Once the comment response document has been published, please refer to the comment tracking number to locate the response.

Comment Date: May 22, 2007 09:13:23AM CDT

OCS Alternative Energy and Alternate Use Programmatic EIS
Draft Comment: 80115

First Name: Maureen
Last Name: Dolan Murphy
Organization: Citizens Campaign for the Environment
Address: 225a Main St
City: Farmingdale
State: NY
Zip: 11735
Country: USA
Email: modolan@citizenscampaign.org
Privacy Preference: Don't withhold name or address from public record
Attachment: C:\Documents and Settings\MAUREEN\My Documents\Renewable Energy\Draft comments for programmatic DEIS.doc

Questions about submitting comments over the Web? Contact us at:
ocenergywebmaster@lanl.gov or call the OCS Alternative Energy and Alternate Use Programmatic EIS Webmaster at (630)252-6162.

May 21, 2007

MMS Renewable Energy and Alternate Use Programmatic Draft EIS
Argonne National Laboratory
9700 S. Cass Ave.
Argonne IL 60439

To whom it may concern:

Citizens Campaign for the Environment (CCE) is an 80,000-member, non-profit, non-partisan, advocacy organization working to protect public health and the natural environment in New York State and Connecticut. CCE works to build widespread citizen understanding and advocacy for policies and actions designed to manage and protect land and water resources, wildlife and public health.

CCE is very active in promoting policies and actions at the local, state, and federal level that support the development and use of renewable energy, which is derived from sources that are not depleted when used at sustainable levels. Today we face dwindling supplies of traditional energy sources, substantial increases in oil and gas prices, and significant pollutants that have an adverse impact on human health and the environment. Our nation must look towards alternative energy sources to meet our rising energy demand.

CCE, since its inception in 1985, has also been extremely active in working to protect water quality across New York State, Connecticut and throughout the Nation. Currently, CCE actively works on protecting many of New York’s largest and most impacted waterways including the Hudson River, the Long Island South Shore Estuary Reserve, the Great Lakes, the Finger Lakes, the Porcupine River, and Long Island Sound. Additionally, CCE is an active member of the Long Island Sound Study Citizens Advisory Committee and the South Shore Estuary Reserve Citizens Advisory Committee.

CCE believes the development of all offshore renewable energy, including but not limited to offshore wind technology, wave technology, and under water current technology, can be an important energy source for America.
The programmatic DEIS offers a reasonable initial analysis of these emerging technologies and can be used as a valuable tool for their development. However, CCE also believes that for each project a site-specific EIS must be conducted. The process for developing a site-specific EIS must be comprehensive and include adequate public participation. The programmatic DEIS is not a substitute for a site-specific analysis.

CCE offers the following specific comments:

1. CCE generally supports the development of the programmatic EIS, which can help to streamline the process of renewable energy off the outer continental shelf. However, CCE fully supports that each project undergo a site specific analysis, which includes characterization of bottomlands, bird monitoring, wave characterization, threatened and endangered species analysis, and migration patterns of wildlife in the surrounding area.

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.

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.

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.

CCE understands both the importance of reducing our dependence on fossil fuels and the significance of protecting our marine environment. Fossil fuel production releases devastating carbon dioxide emissions, which are a major contributor to global climate change. Global climate change is one of the greatest threats to our world’s oceans.

Currently, clear indicators of climate change are negatively impacting our oceans. Documented sea level rise, the bleaching of coral reefs, greater intensity of hurricanes, high mercury levels in fish and a dramatic increase in the acidity level of our ocean waters are some of the negative impacts directly associated with CO2 emissions. We must find a balance in which our marine environment is protected and our dependence on fossil fuels is reduced. Offshore renewable technologies have the promise to accomplish both of these critical needs.

CCE urges MMS to accept the Draft programmatic EIS and proceed with site-specific analyses for each individual projects. Each project should follow an open process and include public participation.

Thank you for this opportunity to comment.

Sincerely,

Maureen Dolan Murphy
Program Coordinator
Thank you for your comment, Fred Mayes.

The comment tracking number that has been assigned to your comment is 80116. Once the comment response document has been published, please refer to the comment tracking number to locate the response.

Comment Date: May 22, 2007 01:53:02 PM CDT

OCS Alternative Energy and Alternate Use Programmatic EIS
Draft Comment: 80116

First Name: Fred
Middle Initial: M
Last Name: Mayes
Organization: Energy Information Administration
Address: 1000 Independence Ave., SW
City: Washington
State: DC
Zip: 20585
Country: USA
Email: fred.mayes@eia.doe.gov
Privacy Preferences: Don't withhold name or address from public record

Comment Submitted:

The Energy Information Administration (EIA), under P.L. 93-275 and P.L. 95-91, has the authority to collect a comprehensive set of energy information to inform policymakers and the public on the Nation's energy status and future. To this end, EIA fields a wide variety of surveys.

One of EIA's major challenges in the electricity area is to develop a comprehensive list of survey respondents. For fossil fuel plants, this is relatively easy, because they are required to obtain an operating permit from the Environmental Protection Agency. Renewable energy electricity plants, however, are under no such requirement.

In order to serve the public interest, it would be helpful if, as a condition of obtaining an operating license on Federal lands, all renewable energy plants were required to file not later than 90 days prior to commercial operation the EIA Form EIA-660M or its equivalent.

Questions about submitting comments over the Web? Contact us at: ocsenergywebmaster@anl.gov or call the OCS Alternative Energy and Alternate Use Programmatic EIS Webmaster at (630)252-6182.
Thank you for your comment, Donald Kent.

The comment tracking number that has been assigned to your comment is 80117. Once the comment response document has been published, please refer to the comment tracking number to locate the response.

Comment Date: May 22, 2007 04:22:30PM CDT

OCS Alternative Energy and Alternate Use Programmatic EIS
Draft Comment: 80117

First Name: Donald
Middle Initial: B
Last Name: Kent
Organization: Hubbs-SeaWorld Research Institute
Address: 2995 Ingraham Street
City: San Diego
State: CA
Zip: 92109
Country: USA
Email: dkent@hswr.org

Privacy Preference: Don't withhold name or address from public record

Questions about submitting comments over the Web? Contact us at: ocsenergywebmaster@arl.gov or call the OCS Alternative Energy and Alternate Use Programmatic EIS Webmaster at (630)252-6182.
Thank you for your comment, Stephanie Stavvakas.

The comment tracking number that has been assigned to your comment is 80118. Once the comment response document has been published, please refer to the comment tracking number to locate the response.

Comment Date: May 23, 2007 11:32:21AM CDT

OCS Alternative Energy and Alternate Use Programmatic EIS
Draft Comment: 80118

First Name: Stephanie
Last Name: Stavvakas
Organization: Fish and Wildlife Service
Address: 1849 C Street NW
City: Washington
State: DC
Zip: 20240
Country: USA
Privacy Preference: Don't withhold name or address from public record
Attachment: 80118-001.pdf

Questions about submitting comments over the Web? Contact us at: ocsenergywebmaster@anl.gov or call the OCS Alternative Energy and Alternate Use Programmatic EIS Webmaster at (630)252-6182.

Memorandum

To: Director, Minerals Management Service
Attention: Maureen Bornholdt

From: Director


The Fish and Wildlife Service (Service) has reviewed the Minerals Management Service (MMS) Draft Preliminary Environmental Impact Statement (DPEIS) for Alternative Energy Development and Production and Alternate Use of Facilities on the Outer Continental Shelf (OCS). The MMS has prepared the DPEIS to support the establishment of a program that provides for development of alternative energy projects on the Federal OCS, primarily for evaluating energy-harnessing methods such as wind, wave, and ocean current technologies, as well as the alternate use of offshore facilities for other energy and marine-related activities.

The Service supports the objective of the DPEIS for the promulgation of regulations and the establishment of consistent OCS development rather than conducting case-by-case analyses. As stated in the DPEIS, the regulations that would be required under the proposed action will include consistent stipulations for data collection, facility siting, mitigation, and ongoing impact evaluation. We recommend the MMS employ a collaborative approach for development of the leasing process. We also encourage the inclusion of adaptive management principles in the development of the MMS leasing rules for the new technologies evaluated. Given the uncertainty of environmental impacts associated with the development of renewable energy on the OCS, and potential for cumulative impacts from multiple projects, it will be important to build adaptive management measures into lease agreements that reflect knowledge gained from monitoring and other studies.

We appreciate the opportunity to provide these comments. If you have specific questions concerning these comments, please contact Dr. Valerie A. Parker, Assistant Director, Fisheries and Habitat Conservation at (202) 208-6394.

Attachments

General Comments:

The Draft Programmatic Environmental Impact Statement (DPEIS) notes that the Energy Policy Act of 2005 (EPAct) amended section 8 of the Outer Continental Shelf Lands Act (OCSLA) (43 USC 1337) to give the Secretary of the Interior authority to issue a lease, easement, or right-of-way on the Outer Continental Shelf (OCS) for activities that are not otherwise authorized by the OCSLA, or other applicable law, if those activities:

1) Produce or support production, transportation, or transmission of energy from sources other than oil and gas; or
2) Use, for energy-related purposes or other authorized marine-related purposes, facilities currently or previously used for activities authorized under the OCSLA, except that any oil and gas-related uses shall not be authorized in areas in which oil and gas-related activities are prohibited by a memorandum.

This authority does not apply to any area on the OCS within the exterior boundaries of any unit of the National Wildlife Refuge System, National Park Service, National Marine Sanctuary System, or any National Monument.

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 by the Secretary 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.

Because both the OCS renewable energy program and the subject technologies are new, the Service suggests that MMS be cautious in the development of the program and regulations and provide safeguards to protect and conserve affected wildlife and their habitats. For example:

- Identify and favor "green" areas for each of the renewable energy types under MMS jurisdiction; i.e., economic energy resource areas with little or no wildlife use or value.
- Identify and hold in reserve "amber" areas for each of the renewable energy types under MMS jurisdiction; i.e., economic energy resource areas with moderate wildlife use or value.
- Identify and restrict the "red" areas for each of the renewable energy types under MMS jurisdiction; i.e., economic energy resource areas with high wildlife use or value, including coastal National Wildlife Refuges (NWR).
- Request the assistance of the Service in identifying the green, amber, and red areas, above.
- Review and consider adapting applicable portions of the United Kingdom (Crown) procedures for leasing offshore wind energy facilities.

The Crown[1] program has been successfully administered for a number of years by the Crown's Department of Environment, Food and Rural Affairs (DEFRA). Program guidance for offshore wildlife studies are presented in two dated documents:

a) Best Practice Guidance for the Use of Remote Techniques for Observing Bird Behavior in Relation to Offshore Wind Farms, (Remote-5-2004) prepared for COWREE (Collaborative Offshore Wind Research Into the Environment) by Desholm, Fox, and Bensley; and,

b) Nature Conservation Guidance on Offshore Windfarm Development, prepared in 2005 by DEFRA.

The Service encourages MMS to develop consistent and rigorous stipulations for data collection, facility siting, mitigation, and ongoing impact evaluation. The DPEIS states that it does not extend beyond the next 5 to 7 years, nor identify favorable areas (zones) for leasing or an energy target in that period. Additionally, the DPEIS does not adequately address the cumulative impacts of the OCS program, particularly for wind energy, during that period. MMS is encouraged to include clear and enforceable rules on materials, activities, and operations of facilities on- and off-shore associated with alternative energy projects on the OCS to protect and conserve wildlife resources, including their habitat on the OCS and affected coastal areas.

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 4-43) 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

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[1] The Crown program has been implementing its renewable energy goals for wind energy while administering wildlife studies deemed necessary by the Crown for wind energy projects. Specifically, the Crown determines the scope of the issues, the information and study needs for the project, interprets the data, and evaluates risks to wildlife, mitigation to avoid or minimize risk of harm to wildlife, and the conditions under which a project can be authorized. The Crown conducts the studies at its expense and partially reimburses the Crown for its expenses. The Crown study duration is usually 2 to 8 years. 2 years of initial study, during construction, and 3-5 years post construction. Bird movements, day and night, are often surveyed, including during inclement weather. Multiple techniques often used together including: small radar systems utilizing detection software, plate surveys (offshore), boat surveys (off-shore), and human observation.
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 containment issues.

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).

Fishery Impacts

The Department shares the responsibility for interjurisdictional fishes with the Department of Commerce. As such, we are concerned about potential impacts to diadromous species. We recommend tracking studies be conducted for diadromous species when existing information regarding ocean movement is inadequate or lacking. This will assist in the proper siting and timing of operations of future projects. Additionally, because there is a paucity of information regarding the impacts of ocean current turbines to fishes, we recommend site-specific studies be conducted to assess fishery impacts of ocean current turbines.

Underwater structures may have similar impacts to turbines in river dams. Ocean turbines should incorporate screening or directional vanes to keep aquatic animals and drifting plants out of structures which might harm the animals or damage the turbine.

Avian Impacts

In general, the DPEIS provides an adequate description of potential impacts to birds in the Gulf of Mexico. However, the DPEIS primarily focuses only on federally threatened and endangered birds. No bird management plans are referenced or considered in the DPEIS. There is no mention of Birds of Conservation Concern. In order to promote the conservation of migratory bird populations and their habitats, we recommend MMS implement those strategies outlined in Executive Order 13186, where possible. We encourage the use of Avian Protection Plans (APP) as described in Avian Protection Plan Guidelines, A Joint Document prepared by The Edison Electric Institute’s Avian Protection Interaction Committee (APIC) and U.S. Fish and Wildlife Service. The APP Guidelines presented in that document are intended to serve as a “tool box” from which a utility can select and tailor components applicable to its specific needs. Those guidelines are intended to be used in conjunction with APIC’s Suggested Practices for Repowering on Power Lines: The State of the Art in 1996 and Migrating Bird Collisions with Power Lines, The State of the Art in 1994, or the most current editions of these documents, which contain more detail on construction design standards and line siting recommendations. These APPs should be developed with our field offices to ensure the most up-to-date information is used for each State.

Additionally, we recommend further description of the potential impacts to birds of the Atlantic coast. The Atlantic coast, especially along the Gulf Stream off of Cape Hatteras, North Carolina is known to be very important habitat for non-breeding pelagic seabirds, as well as for foraging breeding birds. The coastal habitats on the Atlantic are well-developed and provide important foraging and nesting habitat for beach-nesting birds such as Sandwich Tern, American Oystercatcher, Piping Plover, Wilson’s Plover, Black Skimmer, Brown Pelican and others. These beaches and barrier islands support wintering and migrating shorebirds. Well-developed estuarine wetlands are important foraging and breeding habitat for long-legged wading birds, including the endangered Wood Stork and sensitive marshbirds such as King Rail and Black Rail. All sections regarding potential impacts of offshore alternative energy development need to be expanded for the Atlantic coast.

The Service recommends the DPEIS mitigation sections include a requirement of conducting surveys to determine impacts of alternative energy development on birds before, during, and after each phase of development. The sections that require additional information include the description of wind-farm impacts to migratory birds and the mitigation measures identified to minimize those impacts.

In general, we recommend tracking studies be conducted for imperilled avian species when existing information regarding movement is inadequate or lacking. This will assist in the proper siting and timing of operations of future projects. There is a paucity of information regarding the impacts of offshore wind generation to avian species. Assessing offshore wind impacts is complicated by the difficulty in retaining physical avian evidence, as such evidence would be lost in the ocean after the impact occurs. To provide information regarding the impacts of offshore wind generation to avian species, we recommend conducting site-specific studies using heat activated infrared video to capture impacts as they occur.

Wind

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 forage in. Therefore, the Service recommends avoidance of key areas to minimize impacts to birds during migration or foraging. 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 pre- and post-construction evaluation for migratory bird impacts is recommended and construction of offshore facilities should be conducted in the non-breeding season to minimize impacts.

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.

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.

Bats
The DPEIS does not address potential wind-farm impacts to bats. Therefore, we recommend text be added to address this issue.

Wave Energy Technology
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.

Ocean Current Technology
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 currents to diving birds. We recommend site-specific studies be conducted to assess avian impacts of ocean current turbines.

Sea Turtle Impacts
Along the coast of Georgia, all sea turtle nesting areas occur on barrier islands (see Attachment 3). As an additional mention, 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 (GDETR 1994); however, this period will vary coastwise with latitude.

Other Impacts
Pollution
Oil spills (crude and synthetic) can cause bird mortality; degrade shorebird feeding, nesting, and roosting habitat; and reduce pelagic and benthic prey. Preventative measures during construction, maintenance, and deconstruction should be used such as deployment of absorbent booms. An oil response plan for each region should be developed, appropriate training should be provided to potential responders, and holding facilities should be identified.

Use of Facilities as Artificial Reefs
Submerged structures may be colonized by invertebrate marine life that will attract fish and other aquatic organisms. Avian predators may also be attracted and more likely to collide with structures or be exposed to pollutants. We recommend text be added to discuss this issue.

Lighting
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.

Specific Comments:

Executive Summary
Page ES-1, Bullet 1; regarding "... resources 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.

Page ES-2, and 2.1.2 Alternate Uses of Existing Oil and Gas Platforms, Page 2.27: "MMS was also given jurisdiction over other projects that make alternate use of existing oil and gas platforms in Federal waters (OCS waters of the Gulf of Mexico and southern California)." If wind turbines are being proposed for installation on top of existing oil and gas platforms, detailed reports indicate that trans-Gulf migrants – especially during periods of inclement weather on their migrations across the Gulf of Mexico – frequently alight on these platforms, sometimes in numbers exceeding 10,000 bird/platform. We recommend detailed coordination between MMS and the Service's Ecological Services and Migratory Bird specialists regarding this issue in order to avoid potentially catastrophic consequences.

Page ES-4: As a further consequence of taking no action alternative, a potentially significant option for meeting U.S. 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 resources 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 Statewide 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 EIS.

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.

Pages ES-4-5: Wind Energy: Impacts and minimization measures for birds are mentioned (e.g., nesting/foraging habit; 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).

Page ES-6 Mitigation Measures: Marine and aquatic reserves should be included in “areas of special concern,” and eelgrass/seagrass and other vegetated habitats should be included under “seafloor habitats.”

Page ES-10: Third 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 fisheries. 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 would also be prudent to evaluate the effects of disrupting ocean current energy on productivity. (For example, how would the disruption of ocean currents affect the flow of nutrients, forage, and organic material in the ocean?)

Page ES-12: Aquaculture: The concerns identified in the Executive Summary are common for most aquaculture applications. However, placing aquaculture facilities offshore would make net pen applications vulnerable to the extremes of ocean weather and wave action, greatly increasing the potential for escape of the penned animals. Please discuss the potential for entanglement of predators and the use of measures to avoid these and other impacts.

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 terrestrial/operating wind facilities, and (4) the combined impacts of all anthropogenic pressures 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.

Page ES-15: Aquaculture: Describes potential impacts to aquatic species from underwater turbines-like generators located in ocean currents which are important migratory corridors. The 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 fisheries. Assessment of the effects of generator sounds on marine aquatic species should be evaluated.

Page ES-16: Aquaculture: The concerns identified in the Executive Summary are common for most aquaculture applications. However, placing aquaculture facilities offshore would make net pen applications vulnerable to the extremes of ocean weather and wave action, greatly increasing the potential for escape of the penned animals. Please discuss the potential for entanglement of predators and the use of measures to avoid these and other impacts.

Page ES-17: Aquaculture: Describes potential impacts to aquatic species from underwater turbines-like generators located in ocean currents which are important migratory corridors. The 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 fisheries. Assessment of the effects of generator sounds on marine aquatic species should be evaluated.

Page ES-18: Aquaculture: The concerns identified in the Executive Summary are common for most aquaculture applications. However, placing aquaculture facilities offshore would make net pen applications vulnerable to the extremes of ocean weather and wave action, greatly increasing the potential for escape of the penned animals. Please discuss the potential for entanglement of predators and the use of measures to avoid these and other impacts.

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Page ES-21: Aquaculture: Describes potential impacts to aquatic species from underwater turbines-like generators located in ocean currents which are important migratory corridors. The 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 fisheries. Assessment of the effects of generator sounds on marine aquatic species should be evaluated.

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Page ES-23: Aquaculture: Describes potential impacts to aquatic species from underwater turbines-like generators located in ocean currents which are important migratory corridors. The 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 fisheries. Assessment of the effects of generator sounds on marine aquatic species should be evaluated.

Page ES-24: Aquaculture: The concerns identified in the Executive Summary are common for most aquaculture applications. However, placing aquaculture facilities offshore would make net pen applications vulnerable to the extremes of ocean weather and wave action, greatly increasing the potential for escape of the penned animals. Please discuss the potential for entanglement of predators and the use of measures to avoid these and other impacts.

Page ES-25: Aquaculture: Describes potential impacts to aquatic species from underwater turbines-like generators located in ocean currents which are important migratory corridors. The 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 fisheries. Assessment of the effects of generator sounds on marine aquatic species should be evaluated.

Page ES-26: Aquaculture: The concerns identified in the Executive Summary are common for most aquaculture applications. However, placing aquaculture facilities offshore would make net pen applications vulnerable to the extremes of ocean weather and wave action, greatly increasing the potential for escape of the penned animals. Please discuss the potential for entanglement of predators and the use of measures to avoid these and other impacts.

Page ES-27: Aquaculture: Describes potential impacts to aquatic species from underwater turbines-like generators located in ocean currents which are important migratory corridors. The 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 fisheries. Assessment of the effects of generator sounds on marine aquatic species should be evaluated.

Page ES-28: Aquaculture: The concerns identified in the Executive Summary are common for most aquaculture applications. However, placing aquaculture facilities offshore would make net pen applications vulnerable to the extremes of ocean weather and wave action, greatly increasing the potential for escape of the penned animals. Please discuss the potential for entanglement of predators and the use of measures to avoid these and other impacts.

Page ES-29: Aquaculture: Describes potential impacts to aquatic species from underwater turbines-like generators located in ocean currents which are important migratory corridors. The 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 fisheries. Assessment of the effects of generator sounds on marine aquatic species should be evaluated.

Page ES-30: Aquaculture: The concerns identified in the Executive Summary are common for most aquaculture applications. However, placing aquaculture facilities offshore would make net pen applications vulnerable to the extremes of ocean weather and wave action, greatly increasing the potential for escape of the penned animals. Please discuss the potential for entanglement of predators and the use of measures to avoid these and other impacts.

Page ES-31: Aquaculture: Describes potential impacts to aquatic species from underwater turbines-like generators located in ocean currents which are important migratory corridors. The 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 fisheries. Assessment of the effects of generator sounds on marine aquatic species should be evaluated.

Page ES-32: Aquaculture: The concerns identified in the Executive Summary are common for most aquaculture applications. However, placing aquaculture facilities offshore would make net pen applications vulnerable to the extremes of ocean weather and wave action, greatly increasing the potential for escape of the penned animals. Please discuss the potential for entanglement of predators and the use of measures to avoid these and other impacts.
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.

Page 2-4, Section 2.4.2 Identifying and Analyzing Specific Areas in Federal Waters Along the Coast with the Greatest Resource Potential: The Service would like to assist MMS in identifying zones in the Northeast that have significant wildlife management values and concerns warranting a re-development zone.

In addition, MMS should not solely rely on the coastal States and potential applicants to identify the locations in Federal waters on the OCS with key resources. The Department of Energy reasonably attained the requisite information to "map-out" the wind resources on land for most of the Nation. MMS is encouraged to provide this data and additional information to guide the burgeoning industry and program. The DPEIS mentions the number of places many areas where development should not occur, e.g., various preserves, parks, and refuges, military, flyways, over-wintering areas for birds, etc. Fishing areas should be added to the list. (The potential for space-use conflicts between commercial fishing methods and OCS construction, service vessels, and fixed OCS facilities located in previously fished areas is mentioned in the first paragraph of page 4-112). These areas should be mapped according to uniform standards and made available for the public to download off the MMS web site. Doing so will be helpful to all concerned and the renewable energy industry in focusing its efforts on areas not restricted. The Service is willing to respond to a call for relevant boundary information and invites MMS to request the information.

Chapter 3 Overview of Potential Alternative Energy Technologies on the OCS

Page 3-2, Section 3.1 Screening of Alternative Energy Technologies: “Screening should also consider the distance between the offshore facility and the onshore connections.” Where offshore wind energy is to be developed, and transmission and distribution lines and their infrastructures must be sited, the Service recommends that MMS require permits only for the transmission line infrastructure. The Service can assist permittees with reviewing and using the currently scientifically validated tools/techniques to avoid and/or minimize avian collision and electrocution. The two key documents available providing guidance on techniques to avoid or minimize power line electrocutions and strikes include, respectively, ‘Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 (electrocution avoidance), and Mitigating Bird Collisions with Power Lines: the State of the Art in 1994 (the strike avoidance is now being updated). We suggest inclusion of this discussion in the final PEIS with our recommendation to MMS regarding permitting consideration.

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.
alternative energy programmatic EIS

Chapter 4 Affected Environment

Page 4-58, 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.

Page 4-57, Section 4.2.9.2 Neotropical Species: Neotropical species include the ringed plover, the American golden plover, and the black-bellied plover. These species are common in the study area and are known to breed in the area. They are also known to migrate through the area during the fall and spring migrations.

Page 4-57, Section 4.2.9.3 Use of Atlantic Coast Habitats by Neotropical Species: Neotropical species use the Atlantic Coast for breeding, nesting, and wintering. They are known to use a variety of habitats, including beaches, estuaries, and salt marshes. They are also known to use areas with submerged vegetation.
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.

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.

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.

Page 4-82, 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), Great Salt Lake NWR and Lido Beach Wildlife Management Area on Long Island, New York need to be listed. Likewise, Carlisle Pond Waterfowl Production Area in Maine should be added to the table.

Page 4-145, Section 4.3.9 Marine and Coastal Birds: Hummingbirds should be added to list of migrating landbirds.

Page 4-146, Section 4.3.9.5 Threatened and Endangered Species: Red Knot should be added as a potential candidate for listing.

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 or landings. Many migrant species will fail to reach their final destination if wind facilities are sited in these locations.

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.

Chapter 5 Potential Impacts of Alternate Energy Development on the OCS and Analysis of Potential Mitigation Measures

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.

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 manatees 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) 2005], Standard Manatee Conditions for Blasting [Corps, Service, and GDNR 2003], and Manatee Standard Conditions for Marinas/DoCKS/Plans [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 range-wide.

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 shorebirds — including federally listed species. They are not in this DPEIS.

This section of the document should include migrating inland birds in the title.

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.

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. In certain instances, perhaps indeterminable errors 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.
Page 5-49. Section 5.2.9.3 Construction: Construction of onshore facilities may displace nesting 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.

Page 5-50. Section 5.2.9.3 Onshore Construction: This section should identify potential impacts to federally listed critical habitat for piping plovers.

Page 5-51. Section 5.2.9.4 Operations: 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.

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 incoming birds. While wind energy developments are still early in the building 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 Mountainier, West Virginia indicates that about one-third of the species collected at those 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.

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 phase of wind projects. Species avoidance of an area is a form of excursive 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.

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 area at a 100-foot elevation should be installed. Continuous radar 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 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 tailored to the migrations of various species of avifauna which will frequently differ considerably in timing, duration, intensity, and location. Where listed or impalpable 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 2007) 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 multicolored) be used. Removing steady-burning L-810 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 03-177, “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 would 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.

Page 5-54, Section 5.2.10 Terrestrial Birds: 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.

Page 5-55, 5.2.10.2 Site Characterization: Guy-supported meteorological towers are known to kill birds in terrestrial environments. We recommend offshore towers be required to be unguarped, self-supporting monopole structures. However, if monopole structures cannot be self-supporting, unguarped, a self-supporting lattice structure would be an acceptable alternative. Additionally, we suggest that these requirements be included as part of the rulemaking once regulations are proposed.

Page 5-56, 5.2.10.5 Operations: 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.
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.

Page 5-88, Section 5.2.14.6 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.

Page 5-119 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.

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.

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 “camb” lights and other steady-burning, bright lighting. These types of lighting have been well documented to attract birds, especially during inclement weather.

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.

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 seabirds, eiders and other sea ducks – as was previously mentioned. Since these shallow water areas are of may be important feeding, rafting, and staging grounds for seabirds, eiders, Longtails and Harlequin Ducks (among others), we recommend that a careful review and assessment of this issue be included in the final PEIS.

Page 5-292, 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.

Chapter 6 Alternate Uses of Existing Oil and Natural Gas Platforms on the OCS

Page 6-9 Section 6.3.2 Aquaculture: Converting of offshore oil and gas facilities to aquaculture facilities may attract high numbers of seabirds due to the presence of large quantities of fish and other aquatic life at the site, there is increased potential for impacts due to entanglement in netting or the material used for pen construction. The Service recommends the DPEIS include measures to reduce these impacts.

Chapter 7 Analysis of the Proposed Action and Its Alternatives

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).

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.

Page 7.8, Table 7.1.1 (cont.) Sea Turtles: See comments above for “Page 5.74, Section 5.2.12.6 Mitigation Measures.”

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-generated 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.

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.

Page 7.28, Section 7.5.1.1.1 Atlantic Region: Although there are currently no offshore platforms in the Atlantic, the DPEIS mentions that there is one lease lease for the sale of oil and gas in the Atlantic. Alternative uses for the platforms may be an issue for the Atlantic in the future. We recommend precluding aquaculture among the allowed uses until it has been shown that the potential impacts listed on page ES-12 can be resolved.

Page 7.37, Section 7.5.2.3 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 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.

Chapter 8 Consultation and Coordination

Page 8.5, Section 8.3.1 Biological Assessment and Opinion for Threatened and Endangered Species: We encourage MMS to engage in informal consultation with the Service early in the process to determine whether actions identified in the DPEIS may affect listed species. If during informal consultation the Service determines listed species may be adversely affected, MMS can initiate formal consultation.

80118-081
(cont.)

80118-082

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Literature Sources and Sites:


The DPEIS is silent on the availability, toxicity, and adverse effects of tributyltin (TBT) -
based antifouling paints coatings, and low-risk alternatives. The DPEIS contains
unsubstantiated statements on antifouling that belie the facts. (For example, see pages 5-
16, 5-81, 5-82, 5-83, 5-100, 5-101, 5-208, 5-209, 5-211, 5-276, 5-282, 5-323 and 5-326.)
Pursuant to the National Environmental Policy Act, the DPEIS should report how and to
what extent TBT-based antifouling will adversely affect the human environment and
other relevant information. To assist MMS and as support for the above
recommendations, relevant information is provided in the paragraphs that follow.

TBT has been identified as an endocrine disruptor and described as the most toxic
substance ever intentionally introduced into the marine environment. TBT ranks as one of
the most hazardous compounds (worst 10 percent) to ecosystems and more hazardous
than most chemicals in 4-out-of-4 ranking systems. TBT compounds are highly to
very highly toxic to many species of aquatic organisms and can be considered moderately
toxic to birds. TBT and its toxic degradation are very persistent in the aquatic
environment and concentrate in the sediment, causing documented damage to benthic
species. For example, TBT causes adverse morphological effects in oysters, including
economically important species, and reproductive effects in certain marine snails. These
affected species are considered sentinels that indicate the potential for adverse effects in a
greater number of species. This pesticide is particularly harmful because it accumulates
in these organisms and in the fish and mammals that consume them. TBT concentrations
in some aquatic organisms, such as oysters, can be up to 250,000 times higher than
surrounding seawater. TBT can cause irreversible reproductive damage and infertility in
some aquatic creatures, leading to local extinction of some species. Human consumption of
fish contaminated with TBT can suppress the immune system. There is also evidence of adverse effects (lowered disease resistance, increased"
marine mammals exposed to TBT in the natural environment (particularly via bioaccumulation in prey species).

In June 1988, the President signed into law the Organomin Antifouling Paint Control Act
(OAPCA), which built on risk and benefit assessments developed by the U.S.
Environmental Protection Agency (EPA). OAPCA restricted the use of organotin to
effect a reduction in use and environmental concentrations. Other countries implemented
similar restrictions (e.g., UK, France, and Australia). Within the next few months, EPA
added further restrictions on who could apply the paints and how waste materials were to
be handled, and mandated implementation of a long-term monitoring program of
butyltin in water, sediment, and tissue in coastal regions and the Great Lakes. Based on
the monitoring data, the EPA subsequently concluded that the restrictions had lowered
butyltin concentrations somewhat in water, but that ambient levels were still in excess of
levels that cause adverse effects in nontarget organisms. These findings led the U.S.
to participate in negotiations on an international ban of TBT antifouling systems and to the
phase-out of domestic production and sales of TBT antifouling paints. Exceptions were
made only for minor uses in oceanographic probes and rubber sonar domes. The last
legal date of manufacture for a TBT antifouling paint to be sold in the U.S. was in
December 2005. It is expected that stocks in the channels of trade are greatly depleted
and that such paints will not be available in the U.S. in the near future. The global
antifouling treaty was signed in 2001 and is on its way to entry-into-force. The White
House has identified ratification of the treaty as one of its priority goals for 2007. The
ingrumenting legislation would prohibit the domestic use of TBT paints and allow the
U.S. to prohibit the entry of vessels painted with TBT into U.S. ports.

Decisions on phasing out TBT paints were based on an understanding of the risks and the
availability of less risky antifouling systems. Alternative antifouling paint and coatings
exist. Concerns about the high concentration of copper in conventional antifouling
systems have led to the development of copper-free paints and the self-polishing paints
that are lower in copper concentration. A number of nonmetallic organic antifoulants and
nonbiocidal systems are also available.

The Navy recognized the environmental risks associated with organotin antifouling paints
prior to the enactment of OAPCA, and discontinued their use. TBT was a desirable
component of antifouling paints because of its extreme effectiveness against target
organisms, and because TBT technology had evolved to self-polishing paints with greater
longevity. The longevity derives from the exposure of fresh biocide on the paint surface
as spent layers erode and slough off, an action facilitated by the movement of the treated
vessel through the water. The Navy has long employed a hull husbandry program
involving scrubbing and scraping of the painted hull by Navy divers, which extends the
life of the antifouling paint. Maintaining the same kind of workforce is not economically
feasible within the shipping industry. Furthermore commercial vessels are subject to
regularly scheduled dry-docking for inspection and maintenance, and shippers tend to
conduct dry-deck activities like painting on the same schedule to limit time out of
service. Under commercial conditions, the TBT paints have a practical longevity of 3-5
years.

TBT paints are almost always formulated with a copper co-biocide. Paints with copper
compounds as the sole active ingredient dominated the antifouling market before TBT
came into use and continue to be used today. Conventional copper-based antifouling
paints generally have a shorter service life than TBT + copper paints, three years on the
outside for commercial vessels, more typically 1-2 years for recreational vessels. Recently, the paint industry has developed self-polishing copolymer formulations of copper-based antifouling paints with improved longevity, approaching the service life of TBT in commercial service. These paints typically contain an organic co-biocide in addition to the copper. The only related use of TBT in the U.S. is impregnated rubber used for Some domes. The EPA determined this use was necessary for critical operations and contributed very little TBT to the environment. Other uses of treated rubber are not registered or allowed.

The need for fouling control on OCS Alternate Energy systems structures is assumed and not articulated in the DEIS. In particular, the DEIS is silent on the benefit of using antifoulants on stationary structures supporting offshore wind turbine generators. Antifoulants reduce drag on ships and thereby reduce fuel consumption and air pollution, which are considerations not relevant to static structures. It is rational and expected that a variety of organisms will attach to and congregate near such stationary structures. If the functionality of the structures is not improved by fouling prevention, or if the risks associated with the antifouling systems are not offset by improved functionality, the need for antifoulants on these structures should be reexamined. External fouling of rubber hoses associated with these structures should be subject to similar thinking. Flexing and the flow of water through the hose should prevent internal fouling of operational hoses. With regard to wave and ocean current energy capture systems, even though the structures and materials used are generally not well known and subject to change, it is suggested that antifoulants may not be needed on stationary parts that wave action on moving parts could limit fouling. The DEIS should have addressed the need for antifouling on stationary and other structures and the expected functional improvement of each type of structure.

### Attachment 3

**Sea Turtle Locations and Nesting and Hatching Season Dates**

<table>
<thead>
<tr>
<th>Loggerhead Sea Turtle</th>
<th>Nesting and Hatching Season</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location</strong></td>
<td><strong>Dates</strong></td>
</tr>
<tr>
<td>Northern Gulf of Mexico beaches (includes Louisiana, Mississippi, Alabama, and Escambia through Passo Counties in Florida)</td>
<td>May 1 through November 30</td>
</tr>
<tr>
<td>Southern Gulf of Mexico beaches (includes Pinellas through Monroe Counties in Florida)</td>
<td>April 1 through November 30</td>
</tr>
<tr>
<td>Southern Florida Atlantic beaches (includes Brevard through Dade Counties)</td>
<td>March 15 through November 30</td>
</tr>
<tr>
<td>Northern Florida Atlantic beaches (includes Nassau through Volusia Counties and Georgia beaches)</td>
<td>April 15 through November 30</td>
</tr>
<tr>
<td>South Carolina beaches</td>
<td>May 1 through November 30</td>
</tr>
<tr>
<td>North Carolina beaches</td>
<td>May 1 through November 15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Green Sea Turtle</th>
<th>Nesting and Hatching Season</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location</strong></td>
<td><strong>Dates</strong></td>
</tr>
<tr>
<td>Northern Florida Gulf of Mexico beaches (includes Escambia through Passo Counties)</td>
<td>May 15 through October 31</td>
</tr>
<tr>
<td>Southern Florida Gulf of Mexico beaches (includes Pinellas through Monroe Counties)</td>
<td>May 15 through October 31</td>
</tr>
<tr>
<td>Southern Florida Atlantic beaches (includes Brevard through Dade)</td>
<td>May 1 through November 30</td>
</tr>
</tbody>
</table>
A. Instruct all personnel associated with the project of the potential presence of manatees and the need to avoid collisions with them. All construction personnel are responsible for observing water-related activities for the presence of manatees.

B. Advise all construction personnel that there are civil and criminal penalties for harassing, injuring, or killing manatees, which are protected under the Marine Mammal Protection Act of 1972 and the Endangered Species Act of 1973.

C. All vessels associated with the construction project should operate at "no wake/kill" speeds at all times in the construction area. All vessels will follow routes of deepwater whenever possible.

D. Temporary signs concerning manatees should be posted prior to and during all construction/dredging activities. All signs are to be removed by the permittee upon completion of the project. A sign measuring at least 5 feet by 4 feet, reading "Manatee Habitat - Idle Speed in Construction Area," should be installed and maintained at prominent locations within the construction area/looking facility prior to the initiation of construction. For marinas, community/recreational docks, and similar proposed projects, one temporary sign should be located prominently adjacent to the construction permit and, if required, a second temporary construction sign should be installed in a prominent location visible to water-related construction crews. Larger aquatic construction projects, such as port berths and dredging, may require more than two temporary construction signs placed in more appropriate location(s) (i.e., on the dredging barge). In these cases, the Savannah Army Corps District and the U.S. Fish and Wildlife Service will determine the number of construction signs necessary and the best placement location(s) for the signs.

E. Extreme care should be taken in lowering equipment or materials, including, but not limited to, all dredging equipment, pipes, sheet piles, casings for drilled shaft construction, spuds, pile templates, anchors, etc., below the water surface and into the stream bed; taking precaution not to harm any manatees that may have entered the
construction area undetected. All such equipment or materials should be lowered at the lowest possible speed to prevent harm to any manatee(s) that may not have been detected.

F. When situation barriers are used, care should be taken not to entangle manatee(s). The barriers should be properly secured and regularly monitored to avoid manatee(s) entrapment.

G. All temporary construction materials should be removed upon completion of the work, and salt marsh areas should be restored. No construction debris or trash shall be discarded in the water.

H. For construction activities requiring dredging during the warm season (March 1 through November 30), dredging should be limited to daytime with a professional manatee observer on post and aboard the barge from which dredging is occurring. Nighttime dredging should occur during the cold season months (December 1 to February 28) only. If other times are proposed for nighttime dredging, formal consultation under section 7 of the Endangered Species Act and with the U.S. Fish and Wildlife Service may be necessary dependant on the project and location.

I. If manatee(s) are seen within 100 yards of the active daily construction/dredging operation or vessel movement, all personnel in the construction area should be alerted. Operation of any equipment closer than 50 feet to a manatee(s) should immediately be shutdown. Activities will not resume until the manatee(s) has departed the project area of its own volition.

J. Any collision with and/or injury to a manatee(s) should be reported immediately to the Georgia Department of Natural Resources (Weekdays 8:00 a.m. to 4:30 p.m. at 912-264-7218 or 1-800-272-8363; nights and weekends at 1-800-241-4113), the U.S. Fish and Wildlife Service, Brunswick Field Office (912-265-9336), and the Corps of Engineers (912-652-5058). Any dead manatee(s) found in water must be secured to a stable object to prevent the carcass from being moved by the current. In the event of injury or mortality of a manatee, all aquatic activity in the project area must cease pending section 7 consultation under the Endangered Species Act with the U.S. Fish and Wildlife Service and the lead Federal agency.

K. A log detailing sightings, collisions, and/or injuries to manatee(s) should be kept for that contract period. Following project completion, a report summarizing the above incidents and/or sightings should be submitted to the U.S. Fish and Wildlife Service, 4770 Norwich Street, Brunswick, Georgia 31520 and the lead Federal agency.
A. Aquatic blasting should not be allowed during the following time periods for the respective Georgia counties:
   1. April 1 - October 31: in Effingham, Chatham, Bryan, and Liberty Counties
   2. March 15 - November 30: in McIntosh and Glynn Counties
   3. March 1 - December 30: in Camden County

B. If aquatic blasting is planned for these restricted windows, additional section 7 consultation will be necessary with the U.S. Fish and Wildlife Service and the lead Federal agency. Additional protective measures will be necessary and should be coordinated with the agencies well in advance (at least 6 months) of the actual blasting.

MANATEE STANDARD CONDITIONS FOR MARINAS/DOCKS/PIERS

2005

SAVANNAH CORPS DISTRICT
U.S. FISH AND WILDLIFE SERVICE
GEORGIA DEPARTMENT OF NATURAL RESOURCES

The permittee should comply with the following manatee construction conditions for all marinas, piers, commercial/recreational docks, etc., conducted in areas in which manatees are known to inhabit:

A. The Standard Manatee Conditions for Aquatic Construction should also be adhered to during construction of these facilities. Private single, or dual-family docks are not required to adhere to these conditions. Depending on the size of the facility and the number of manatee sightings in that county, in-water construction may be least harmful to manatees during the winter season months (December 1 through February 28). If in-water construction is conducted outside of these months, a professional manatee observer may be recommended.

B. Permanent waymark display sign(s) (Protect Georgia’s Manatees – Use Idle Speed) on or adjacent to the facility should be installed prior to operation of the marina or community/recreational dock. Please see the Permanent Sign Placement Procedures for specific sign information and display instructions.

C. Permanent informational display (Manatee Basics for Boaters) signs should be installed prior to operation of the marina and/or community recreational dock. Please see the Permanent Sign Placement Procedures for specific sign information and display instructions.

D. Both Manatee Basics for Boaters and Protect Georgia’s Manatees signs should be displayed for all facility types (marinas, community/recreational docks, piers, etc.). The permittee may contact the Georgia Department of Natural Resources (GDNR) (912-264-7218) for additional information and/or clarification on sign placement procedures.

E. A notarized verification letter stating that all permanent signs have been installed at designated locations with color photos documenting this placement should be forwarded to the Corps of Engineers, Savannah District Office as soon as they are installed. A notarized documentation letter from the professional surveyor stating that the footprint of the facility is accurate and that all permanent signs are visible should also be forwarded to the Savannah District Office. Signs remain the responsibility of the permittee and are to be maintained in a clearly visible condition in perpetuity.

F. Best Management Practices (BMPs) for marina facilities and docks using hoses, faucets, and/or freshwater discharges should be instituted and maintained in perpetuity to prevent freshwater leakage into manatee habitat(s). Maintenance of these freshwater sources would minimize attraction of manatees to the dock areas where boats are concentrated and a potential for increased boat/marine collisions exists.

G. Oil and sewage spill contingency plans and BMPs should be created for marinas and community dock facilities.

H. An extensive manatee education awareness program should be instituted and maintained by the applicant in perpetuity. The education programs should focus on educating boaters on manatee biology, how watercraft can adversely affect manatees, and actions boaters can take to avoid adverse impacts. The program should be coordinated with the Savannah Corps District, the U.S. Fish and Wildlife Service, and GDNR for approval. Specific educational topics should include but are not limited to: manatee habitat and feeding behaviors, why feeding of manatees or luring by freshwater should not be encouraged, how to spot and
avoid manatees while boating in Georgia coastal waters; and information on what to do if an injured, dead, or sick manatee is observed. Mechanisms for educating boaters should include but not be limited to: educational materials (videos, signs, and posters), charts, handouts, and kiosks; and the State-required educational signage. For additional information on education programs and facts, please visit the web pages for Save the Manatee Club (www.savethemanatee.org) and the Florida Wildlife Conservation Commission, Bureau of Protected Species Management, Manatee Program (http://floridaconservation.org/pssp/manatee/). The U.S. Fish and Wildlife Service, Brunswick Field Office also has examples of educational material.