Agenda Item H.1
Situation Summary
June 2008

CURRENT HABITAT ISSUES

The Habitat Committee (HC) will meet on Monday, June 9, 2008, to discuss National Marine Sanctuary issues, wave energy, the Council's Research and Data Needs document, and other matters. A draft letter to the Minerals Management Service on wave energy is attached. This letter is similar to the letter on wave energy sent by the Council to the Federal Energy Regulatory Commission last November.

Council Action:

Consider comments and recommendations developed by the HC at its June 2008 meeting.

Reference Materials:

1. Agenda Item H.1.a, Attachment 1: Draft letter to Minerals Management Service.
2. Agenda Item H.1.b: Supplemental HC Report.

Agenda Order:

a. Agenda Item Overview	Jennifer Gilden
b. Report of the Habitat Committee	Stuart Ellis
c. Reports and Comments of Advisory Bodies	
d. Public Comment	
e. **Council Action:** Consider Habitat Committee Recommendations	

PFMC
05/22/08

DRAFT

June 10, 2008

Director Randall Luthi
Minerals Management Service
Offshore Minerals Management
Alternative Energy and Alternate Use Team
381 Elden Street
Herndon, Virginia 20170-4817

Re: Docket ID MMS-2008-OMM-0020

Dear Director Luthi and Alternative Energy and Alternate Use Team:

These comments on Minerals Management Service's (MMS) designation of five areas off the outer continental shelf for alternative energy testing sites are being submitted by the Pacific Fishery Management Council (Council) in fulfillment of its federal statutory mandates and prerogatives. Since federal waters off California are within our jurisdiction, we are particularly concerned with the two sites proposed off Mendocino and Humboldt Counties, Ukiah NJ 1—02 (which contains 14 MMS blocks of approximately nine square miles each) and Eureka NK 10-10 (which contain 24 MMS blocks). These sites were nominated to accommodate the WaveConnect projects proposed by Pacific Gas and Electric Company (PGE) in each area. We understand that you also received applications for wave energy lease sites off Washington and Oregon, but are not proposing sites in waters off those states at this time.

We note that you seek comments and information related to the environmental values of the selected sites, effects on other ocean users, and applicable policies; and that you seek information on how to coordinate and consult effectively with federal, state, and local counterparts about the nomination sites and the interim process for these test facilities. We thank you for that interest.

The Council is one of eight regional fishery management councils established by the Magnuson-Stevens Fishery Conservation and Management Act (MSA) of 1976, 16 USC 1801 et seq. The Council manages fisheries in the Exclusive Economic Zone off the west coast states, including California. It works closely with relevant state and tribal governments to coordinate sound fisheries and habitat management practices. The Council operates under federally approved fishery management plans (FMP) for Pacific Coast Salmon (three species), Pacific Coast Groundfish (8 species), Coastal Pelagic Species (five species); and Highly Migratory Species (13 species). These FMPs have been implemented through federal regulations issued by the National Marine Fisheries Service (NMFS), an agency within the National Oceanic and Atmospheric Administration under the U.S. Department of Commerce.

An integral part of fishery management plans is the designation of "Essential Fish Habitat" (EFH) for the managed species and consideration of actions to ensure the conservation and enhancement of such habitat. EFH is defined as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." When actions are taken by a federal agency that may adversely affect EFH, MSA requires that the agency consult with NMFS on the activity. Under the MSA, the Council **must** comment on and make recommendations to MMS concerning any activity that, in the Council's view, is likely to substantially affect the EFH of the anadromous fishery resources under its authority; and it **may** comment on actions that adversely affect the habitat of other species under its authority. In an effort to improve coordination between the Council and MMS, we request that MMS directly engage the Council via written correspondence to solicit input on actions that may affect fishery management practices.

The Council is concerned that the proposed wave facility test areas on the Northern California outer continental shelf may adversely affect fish and fisheries, as well as EFH for various federally managed species identified in the Pacific Coast Groundfish, Coastal Pelagic Species, Pacific Coast Salmon, and Highly Migratory Species FMPs. Furthermore, this is the first research license application process for wind, wave and ocean current energy development being proposed by MMS and is likely to set a precedent for other energy projects in the future. Therefore, we ask that MMS work closely with the Council before issuing any licenses to ensure that the Council's concerns are addressed.

Our concerns and suggestions are as follows:

1) Precautionary approach. The Council urges the MMS take a precautionary approach with the development of this new technology. Location and design criteria should avoid unnecessary risks until more is known about the impacts of this technology and which wave energy design will yield the least environmental risk. We request that MMS avoid siting projects in sensitive or biologically rich habitats. If test areas are successful, they are likely to be commercially developed. Therefore, each of the blocks nominated by applicants should be screened by MMS to determine which have the least resource and user conflicts or sensitive habitat. Additionally, MMS has established no upper limit on the number or size of facilities allowed, or their maximum "footprint."

2) Scale of projects and cumulative effects. As noted above, MMS has established no limit on the number of total test facilities that will be allowed within the nominated areas. In addition, there is no limit on the scale at which wave energy test projects are being considered in the Pacific Northwest (both in state and federal waters), and we have very little knowledge of their effects on marine species and the environment. Not enough testing of wave energy technology has occurred to allow us to understand the impacts of even a single project; yet it is unclear how many individual projects might be developed. Multiple wave test projects distributed across multiple blocks could have cumulative effects on marine fish, mammals, and habitats, as well as on the commercial fishing fleet. A large number of projects could compromise healthy ecosystems, and should be evaluated at a regional ecosystem scale before projects are installed. How these outer continental shelf projects will interact with wave energy projects in state waters also needs to be considered in a cumulative fashion.

3) *Impacts to fisheries and species.* Fishing is likely to be prohibited in designated wave energy test areas for safety and liability reasons. Spatial data for most of these fisheries is lacking,

making it difficult to estimate the economic impact this and expanded or subsequent wave energy projects will have on the local fishing industry. Impacts to these fisheries will occur as either reduction in total fishing effort and lost productivity (economic impact) or displacement of fishing effort to areas outside the area closed to fishing due to these test facilities. Displaced fishers will likely concentrate their efforts on areas immediately outside the wave park boundary, resulting in increased pressure on fish and habitat in those areas. These indirect impacts should be included in the project's assessed impacts.

The NEPA analysis must include fishing effort information, compiled in cooperation with the fishing sector, in order to identify important fishing areas and to minimize the placement of wave energy facilities in these areas. In addition, potential economic losses should be estimated as part of this and future applications.

4) Need for site-specific information. The potential impacts of wave energy development on fish species and their habitat must be assessed on a site-specific basis. Site-specific information will be necessary for the applicant to conduct *in situ* baseline studies within the proposed project area to characterize the species community and determine relative importance of local habitats. Baseline studies should be conducted prior to a final MMS decision on site location, and prior to project construction, to minimize unnecessary impacts.

5) Technology standards to minimize footprint of test facilities. The Council is concerned about the size of the potential test sites. In order to minimize the size of the area needed, standards for high energy-efficient turbine design should be implemented. Testing inefficient technologies may be an unnecessary risk.

In the attached appendix, the Council recommends specific project development and management requirements in the lease related to:

- Baseline studies on biological and physical characteristics
- A site-specific monitoring plan
- Addressing cumulative impacts from multiple projects
- Efforts to minimize emissions from electro-magnetic, acoustic and light sources and monitoring of these potential effects
- Adaptive management conditions or lease termination provided for during the lease term if sensitive species, habitats are found to be affected
- A decommissioning plan
- Fiscal mechanisms that assure removal of all equipment and site remediation that will survive bankruptcies, corporation name changes, etc.

Additional comments on environmental concerns are summarized below and provided with more detail in Appendix A, including:

- Alteration in species composition and abundance in and around the project area, including trophic level impacts
- Electromagnetic fields
- Acoustical effects
- Collision, entanglement and entrapment

- Project site location
- Habitat alterations
- Effects on spawning habitat
- Areas of concentrated prey species
- Changes to habitat quality
- Physical dynamics of habitat displacement

Knowledge of potential impacts of this technology is rapidly developing. Oregon State University's Hatfield Marine Science Center recently hosted a scientific forum of 50 scientists to consider the range of potential environmental impacts of wave energy (http://hmsc.oregonstate.edu/waveenergy/index.html) that may be helpful in your efforts.

We hope the Council's comments are helpful to MMS in developing this new licensing program and that a wave energy program takes advantage of the collective wisdom of the scientists and resource managers.

Sincerely,

D. O. McIsaac, Ph.D.
Executive Director

JDG:xxx

cc: Council members
Habitat Committee
Council staff

APPENDIX

Project Development and Management:

a. MMS leases should be designed to gather baseline biological and physical data.

In the context of living marine organisms and dynamic environments, "baseline" is not a static point in time, but rather a "trend analysis" that takes into account the natural variability in nature, both temporally and spatially. Baseline information of the biological and habitat resources at the site allows for a) characterization of species community, diversity, and abundance and habitat, and b) a benchmark on which to monitor and measure short and long term effects of wave energy projects on natural resources. Additionally, it will be necessary to identify such features as current convergence zones, migration corridors, spawning and settlement aggregations and other essential habitat factors that are unique or specific to the project area. Baseline information is also needed in reference or control areas outside the project boundary in order to differentiate between naturally occurring phenomena and artificial changes. To account for changing climatic conditions, El Nino/La Nina weather patterns, hypoxia events, and other annual environmental variables, baseline data are needed over a five-year period.

Baseline information of particular interest to the Council includes:

1) Characterization of the substrate
2) Characterization of the benthic and epibenthic invertebrate communities on which several Council-managed species prey
3) Characterization of the entire fish community, including forage species during spring, summer and winter to account for seasonal migration patterns

b. Site-specific monitoring plans are needed to monitor changes to the biological and physical environment.

As there no other full-scale wave energy projects in the U.S. on which to gauge environmental impacts, a comprehensive monitoring plan is needed for the MMS test projects. This plan would serve as a template for subsequent projects as well. The monitoring plan should be developed in coordination with state and federal regulatory agencies. The monitoring plan should also include a requirement for monitoring following decommissioning, should that occur.

c. Determine and manage for cumulative impacts of multiple projects.

The cumulative impacts of multiple wave energy projects along the coast are unknown. Factors such as size, spacing, spatial relationship to littoral drift, currents, etc. may have unforeseen impacts on the overall dynamics of the environment. Cumulative impact studies should be developed as part of a larger, regional wave energy program, incorporating expertise in the fields of physical and biological oceanography, marine geology, marine ecology and fisheries.

d. MMS test leases should be required to meet minimum construction standards to minimize emissions from electro-magnetic, acoustic and light sources and to help test if these standards are adequate to protect fish and wildlife species.

The Council recommends establishing standards for construction of all wave energy devices to minimize electromagnetic, acoustic and light emissions in order to reduce exposure of susceptible marine species to such impacts. Such a standard protocol could minimize or eliminate the need to evaluate their utility with each new wave energy proposal.

e. License conditions should require adaptive management.

As wave energy technology is early in the developmental phase and will continue to evolve with studies and advances in technology, environmental impacts remain unpredictable. To best manage wave energy projects, including test projects, for unforeseen impacts, a management and monitoring plan should be responsive, flexible and adaptive to ensure that necessary safeguards for the marine environment are put in place as needed. In practice, this could include modifying existing equipment where demonstrated impacts are unacceptable or may be reduced. It could also mean minimizing the size of the overall project footprint, if results can be achieved operationally in a smaller overall area.

f. License conditions should require curtailment and/or decommissioning of unsuccessful projects.

If adaptation is unsuccessful, ESA-listed species or sensitive species are taken, or habitat impacts are beyond those anticipated, the project should be curtailed or decommissioned. Given the lack of knowledge about impacts of wave energy projects, a condition of impact review and mandatory consultation and response before any lease renewal is requested or granted.

Impacts to Species and Habitat:

Species Concerns

a. Alteration in species composition and abundance in and around the project area, including trophic level impacts

The installation of buoys, anchors and associated structures will add hard substrate to an otherwise uniform sandy environment, and will possibly attract an entire community of rocky reef fishes and invertebrate species not normally present there. It is unknown what the ecological consequences will be over the extent of the project area, including displacement of resident fishes. Another consideration is the potential increase in seabird and marine mammal activity in response to concentrations of prey organisms, and increased risk for collisions with structures while diving and swimming. As stated previously, it is necessary to establish the natural, baseline population to determine relative habitat value of the area and to monitor changes throughout the permit period.

b. Electromagnetic fields

Electromagnetic fields (EMF) may impact organisms such as elasmobranchs, sea turtles, and marine mammals that use electric and/or magnetic sense in detecting predators and prey, orientating to ocean currents, and sensing their magnetic compass headings. Information on EMF emanating from wave buoys is lacking. Studies would be needed to evaluate the impacts of EMF on these species and evaluate the effectiveness of any device installed to minimize impacts.

c. Acoustics

Fish and seabirds are highly sensitive to sound, and marine mammals use sound for communication and detection of prey. Sounds and vibrations created by movements of the structure above and below the water surface, along with acoustic guidance devices that may be deployed to direct marine mammals around the array, could disturb or displace fish, diving seabirds and mammals. Studies are needed to determine specific acoustic signatures of test devices and site-specific ambient transmissions.

d. Collision, entanglement and entrapment

All mobile marine animals are susceptible to collision, entanglement and entrapment at varying degrees. Assessment of these impacts would be necessary during and post-construction, and modifications to the structural design may be necessary to reduce observed impacts.

Habitat Concerns

a. *Project site location*

Wave projects should not be sited in or near areas that are known to be important ecological habitats (e.g., rare, sensitive, vulnerable). Areas that have been designated by the Council as HAPCs should be off limits to wave energy development, and areas closed by the Council to protect certain species from fishing should be given particular attention.

b. Habitat alterations

Artificial structure (i.e., fish aggregating devices) may be created in what appears to be an otherwise uniform sand environment. Effects on species are noted above under Species Concerns (a).

c. *Effects on spawning habitat*

It is unknown if the proposed area is located in fish spawning habitat. Changes in habitat dynamics, including current dynamics and sand movement, could have negative impacts on spawning success. Visual recording of fish use activities on a random sampled design (both day and night) should be considered.

d. *Upwelling areas with high concentrations of prey*

Local topographic features can create local upwelling areas or other conditions that serve to distinguish areas from each other and support areas of higher primary (plant) and secondary (zooplankton) production, as well as concentrate forage species. Identification and avoidance of such areas would be important.

e. *Changes to habitat quality*

Grain size, homogeneity, and amount of organic material in the sediment are characteristics that contribute to defining a habitat. These characteristics are likely to change as energy is removed from the wave train and deposition of finer sediments occurs. Analysis of these potential effects should be required.

f. *Toxins and chemicals*

The release of anti-fouling agents, chemical byproducts from the manufacturer of the facility's components, and chemicals associated with operation could contaminate habitat and impact species. This factor should be addressed.

DRAFT (DUE JUNE 18)

June 10, 2008

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381 Elden Street
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Re: Docket ID MMS-2008-OMM-0020

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We note that you seek comments and information related to the environmental values of the selected sites, effects on other ocean users, and applicable policies; and that you seek information on how to coordinate and consult effectively with federal, state, and local counterparts about the nomination sites and the interim process for these test facilities. We thank you for that interest.

The Council is one of eight regional fishery management councils established by the Magnuson-Stevens Fishery Conservation and Management Act (MSA) of 1976, 16 USC 1801 et seq. The Council manages fisheries in the Exclusive Economic Zone off the west coast states, including California. It works closely with relevant state and tribal governments to coordinate sound fisheries and habitat management practices. The Council operates under federally approved fishery management plans (FMP) for Pacific Coast salmon (three species), Pacific Coast groundfish (more than 90 species), coastal pelagic species (five species); and highly migratory species (13 species). These FMPs have been implemented through federal regulations issued by the National Marine Fisheries Service (NMFS), an agency within the National Oceanic and Atmospheric Administration under the U.S. Department of Commerce. The Council meets five times a year and has rigid deadlines for commenting that may make it difficult to respond in a timely manner to MMS.

An integral part of fishery management plans is the designation of "Essential Fish Habitat" (EFH) for the managed species and consideration of actions to ensure the conservation and

enhancement of such habitat. EFH is defined as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." When actions are taken by a federal agency that may adversely affect EFH, MSA requires that the agency consult with NMFS on the activity. Under the MSA, the Council **must** comment on and make recommendations to MMS concerning any activity that, in the Council's view, is likely to substantially affect the EFH of the anadromous fishery resources under its authority; and it **may** comment on actions that adversely affect the habitat of other species under its authority. In an effort to improve coordination between the Council and MMS, we request that MMS directly engage the Council via written correspondence to solicit input on actions that may affect fishery management practices.
The Council is concerned that the proposed wave facility test areas on the Northern California outer continental shelf may adversely affect fish and fisheries, as well as EFH for various federally managed species identified in the Pacific Coast Groundfish, Coastal Pelagic Species, Pacific Coast Salmon, and Highly Migratory Species FMPs. Furthermore, this is the first research license application process for wind, wave and ocean current energy development being proposed by MMS and is likely to set a precedent for other energy projects in the future.

Therefore, we ask that MMS work closely with the Council before issuing any licenses to ensure that the Council's concerns are addressed.

In the *Federal Register*, MMS has indicated that they plan to keep information gathered by applicants confidential for up to five years. While there may be economic or other data that warrant confidentiality, data regarding biological and socioeconomic effects of proposed projects should not be confidential.

Our other concerns and suggestions are as follows:

1) Precautionary approach. The Council urges the MMS take a precautionary approach with the development of this new technology. Location and design criteria should avoid unnecessary risks until more is known about the impacts of this technology and which wave energy design will yield the least environmental risk. We request that MMS avoid siting projects in sensitive or biologically rich habitats. If test areas are successful, they are likely to be commercially developed. Therefore, each of the blocks nominated by applicants should be screened by MMS to determine which have the least resource and user conflicts or sensitive habitat. Additionally, MMS has established no upper limit on the number or size of facilities allowed, or their maximum "footprint."

2) Scale of projects and cumulative effects. As noted above, MMS has established no limit on the number of total test facilities that will be allowed within the nominated areas. In addition, there is no limit on the size of wave energy test projects being considered in the Pacific Northwest (both in state and federal waters), and we have very little knowledge of their effects on marine species and the environment. Testing of wave energy technology is limited and has not allowed us to understand the environmental impacts of even a single project; yet it is unclear how many individual projects might be developed. Multiple wave test projects distributed across multiple blocks could have cumulative effects on marine fish, mammals, and habitats, as well as on the commercial fishing fleet. A large number of projects could compromise healthy ecosystems, and should be evaluated at a regional ecosystem scale before projects are installed.

How these outer continental shelf projects will interact with wave energy projects in state waters also needs to be considered in a cumulative fashion.

3) *Displacement of fisheries.* Fishing is likely to be prohibited in designated wave energy test areas for safety and liability reasons. Spatial data for most of these fisheries is lacking, making it difficult to estimate the economic impact this and expanded or subsequent wave energy projects will have on the local fishing industry. Impacts to these fisheries will occur as either reduction in total fishing effort and lost productivity (economic impact) or displacement of fishing effort to areas outside the area closed to fishing due to these test facilities. Displaced fishers will likely concentrate their efforts on areas immediately outside the wave park boundary, resulting in increased pressure on fish and habitat in those areas. These indirect impacts should be included in the project's assessed impacts.

4) *Economic impacts on fisheries.* The final rules must address NEPA requirements, and include fishing effort information, compiled in cooperation with the fishing sector, in order to identify important fishing areas and to minimize the placement of wave energy facilities in these areas. In addition, potential economic losses should be estimated as part of this and future applications.

5) *Need for site-specific information.* The potential impacts of wave energy development on fish species and their habitat must be assessed on a site-specific basis. The applicant should conduct *in situ* baseline studies within the proposed project area to characterize the species community and determine relative importance of local habitats. Baseline studies should be conducted prior to a final MMS decision on site location, and prior to project construction, to minimize unnecessary impacts. The applicant should be responsible for funding needed studies.

6) *Technology standards to minimize footprint of test facilities.* The Council is concerned about the size of the potential test sites. In order to minimize the size of the area needed, standards for high energy-efficient turbine design should be implemented. Testing inefficient technologies may be an unnecessary risk.

In the attached appendix, the Council recommends specific project development and management requirements in the lease related to:

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- A decommissioning plan

Additional comments on environmental concerns are summarized below and provided with more detail in Appendix A, including:

- Alteration in species composition and abundance in and around the project area, including trophic level impacts
- Electromagnetic fields

- Acoustical effects
- Collision, entanglement and entrapment
- Project site location
- Habitat alterations
- Effects on spawning habitat
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Knowledge of potential impacts of this technology is rapidly developing. Oregon State University's Hatfield Marine Science Center recently hosted a scientific forum of 50 scientists to consider the range of potential environmental impacts of wave energy (http://hmsc.oregonstate.edu/waveenergy/index.html) that may be helpful in your efforts.

We hope the Council's comments are helpful to MMS in developing this new licensing program and that a wave energy program takes advantage of the collective wisdom of the scientists and resource managers. The task force proposed by MMS would be useful in this regard.

Sincerely,

D. O. McIsaac, Ph.D.
Executive Director

JDG:xxx

cc: Council members
Habitat Committee
Council staff

APPENDIX

Project Development and Management:

a. MMS leases should be designed to gather baseline biological and physical data.

In the context of living marine organisms and dynamic environments, "baseline" is not a static point in time, but rather a "trend analysis" that takes into account the natural variability in nature, both temporally and spatially. Baseline information of the biological and habitat resources at the site allows for a) characterization of species community, diversity, and abundance and habitat, and b) a benchmark on which to monitor and measure short and long-term effects of wave energy projects on natural resources. Additionally, it will be necessary to identify such features as current convergence zones, migration corridors, spawning and settlement aggregations and other essential habitat factors that are unique or specific to the project area. Baseline information is also needed in reference or control areas outside the project boundary in order to differentiate between naturally occurring phenomena and artificial changes. To account for changing climatic conditions, El Nino/La Nina weather patterns, hypoxia events, and other annual environmental variables, baseline data are needed over a five-year period.

Baseline information of particular interest to the Council includes:

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2) Characterization of the benthic and epibenthic invertebrate communities on which several Council-managed species prey
3) Characterization of the entire fish community, including forage species during spring, summer and winter to account for seasonal migration patterns

b. Site-specific monitoring plans are needed to monitor changes to the biological and physical environment.

As there no other full-scale wave energy projects in the U.S. on which to gauge environmental impacts, a comprehensive monitoring plan is needed for the MMS test projects. This plan would serve as a template for subsequent projects as well. The monitoring plan should be developed in coordination with state and federal regulatory agencies. The monitoring plan should also include a requirement for monitoring following decommissioning, should that occur.

c. Determine and manage for cumulative impacts of multiple projects.

The cumulative impacts of multiple wave energy projects along the coast are unknown. Factors such as size, spacing, spatial relationship to littoral drift, currents, etc. may have unforeseen impacts on the overall dynamics of the environment. Cumulative impact studies should be developed as part of a larger, regional wave energy program, incorporating expertise in the fields of physical and biological oceanography, marine geology, marine ecology and fisheries.

d. MMS test leases should be required to meet minimum construction standards to minimize emissions from electro-magnetic, acoustic and light sources and to help test if these standards are adequate to protect fish and wildlife species.

The Council recommends establishing standards for construction of all wave energy devices to minimize electromagnetic, acoustic and light emissions in order to reduce exposure of susceptible marine species to such impacts. Such a standard protocol could minimize or eliminate the need to evaluate their utility with each new wave energy proposal.

e. License conditions should require adaptive management.

As wave energy technology is early in the developmental phase and will continue to evolve with studies and advances in technology, environmental impacts remain unpredictable. To best manage wave energy projects, including test projects, for unforeseen impacts, a management and monitoring plan should be responsive, flexible and adaptive to ensure that necessary safeguards for the marine environment are put in place as needed. In practice, this could include modifying existing equipment where demonstrated impacts are unacceptable or may be reduced. It could also mean minimizing the size of the overall project footprint, if results can be achieved operationally in a smaller overall area. Adaptive management should be used to identify and respond to uncertainties in the projects' effects.

f. License conditions should require curtailment and/or decommissioning of unsuccessful projects.

If adaptation is unsuccessful, ESA-listed species or sensitive species are taken, or habitat impacts are beyond those anticipated, the project should be curtailed or decommissioned. Given the lack of knowledge about impacts of wave energy projects, a condition of impact review and mandatory consultation and response before any lease renewal is requested or granted.

Impacts to Species and Habitat:

Species Concerns

a. Alteration in species composition and abundance in and around the project area, including trophic level impacts

The installation of buoys, anchors and associated structures will add hard substrate to an otherwise uniform sandy environment, and will possibly attract an entire community of rocky reef fishes and invertebrate species not normally present there. It is unknown what the ecological consequences will be over the extent of the project area, including displacement of resident fishes. Another consideration is the potential increase in seabird and marine mammal activity in response to concentrations of prey organisms, and increased risk for collisions with structures while diving and swimming. As stated previously, it is necessary to establish the natural, baseline population to determine relative habitat value of the area and to monitor changes throughout the permit period.

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c. Acoustics

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d. Collision, entanglement and entrapment

All mobile marine animals are susceptible to collision, entanglement and entrapment at varying degrees. Assessment of these impacts would be necessary during and postconstruction, and modifications to the structural design may be necessary to reduce observed impacts. In addition to assessing impacts, the applicant should develop a response protocol for marine mammal entanglement.

Habitat Concerns

a. Project site location

Wave projects should not be sited in or near areas that are known to be important ecological habitats. Areas designated as HAPCs are rare, sensitive, or vulnerable habitats, and should be off limits to wave energy development, and areas closed by the Council to protect certain species from fishing should also be avoided.

b. Habitat alterations

Artificial structure (i.e., fish aggregating devices) may be created in what appears to be an otherwise uniform sand environment. Effects on species are noted above under Species Concerns (a).

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It is unknown if the proposed area is located in fish spawning habitat. Changes in habitat dynamics, including current dynamics and sand movement, could have negative impacts on spawning success. Visual recording of fish use activities on a random sampled design (both day and night) should be considered.

d. Upwelling areas with high concentrations of prey

Local topographic features can create local upwelling areas or other conditions that serve to distinguish areas from each other and support areas of higher primary (plant) and secondary (zooplankton) production, as well as concentrate forage species. Identification and avoidance of such areas would be important.

e. Changes to habitat quality

Grain size, homogeneity, and amount of organic material in the sediment are characteristics that contribute to defining a habitat. These characteristics are likely to change as energy is removed from the wave train and deposition of finer sediments occurs. Analysis of these potential effects should be required.

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Alternative Energy and Alternate Use Team
381 Elden Street
Herndon, Virginia 20170-4817

Re: Docket ID MMS-2008-OMM-0020

Dear Director Luthi and Alternative Energy and Alternate Use Team:

These comments on Minerals Management Service's (MMS) proposal to lease areas off the outer continental shelf for alternative energy testing sites, and on the interim policy to authorize alternative energy projects on the Outer Continental Shelf (OCS), are being submitted by the Pacific Fishery Management Council (Council) in fulfillment of its federal statutory mandates and prerogatives (73 FR 21152, 72 FR 62673. Since federal waters off California are within our jurisdiction, we are particularly concerned with the two sites proposed off Mendocino and Humboldt Counties, Ukiah NJ 10-02 (which contains 14 MMS blocks of approximately nine square miles each) and Eureka NK 10-10 (which contain 24 MMS blocks). These sites were nominated to accommodate the WaveConnect projects proposed by Pacific Gas and Electric Company (PGE) in each area. We understand that you also received applications for wave energy lease sites off Washington and Oregon, but are not proposing sites in waters off those states at this time.

We note that you seek comments and information related to the environmental values of the selected sites, effects on other ocean users, and applicable policies; and that you seek information on how to coordinate and consult effectively with federal, state, and local counterparts about the nomination sites and the interim process for these test facilities. We thank you for that interest.

The Council is one of eight regional fishery management councils established by the Magnuson-Stevens Fishery Conservation and Management Act (MSA), 16 USC 1801 et seq. The Council develops conservation and management measures for fisheries in the Exclusive Economic Zone off the west coast states, including California. It works closely with relevant state and tribal governments to coordinate sound fisheries and habitat management practices. The Council has prepared fishery management plans (FMP) for Pacific Coast salmon (three species), Pacific Coast groundfish (more than 90 species), coastal pelagic species (five species); and highly migratory species (13 species). These FMPs have been implemented through federal regulations issued by the National Marine Fisheries Service (NMFS), an agency within the National Oceanic and Atmospheric Administration under the U.S. Department of Commerce. The Council meets five times a year and has rigid deadlines for commenting that may make it difficult to respond in a timely manner to MMS.

An integral part of fishery management plans is the designation of "Essential Fish Habitat" (EFH) for the managed species and consideration of actions to ensure the conservation and enhancement of such habitat (see 16 U.S.C. 1855(b)). EFH is defined as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." When actions are taken by a federal agency that may adversely affect EFH, Section 305(b)(2) of the MSA requires that the agency consult with NMFS on the activity. Under the MSA, the Council **must** comment on and make recommendations to MMS concerning any activity that, in the Council's view, is likely to substantially affect the EFH of the anadromous fishery resources under its authority; and it **may** comment on actions that adversely affect the habitat of other species under its authority. In an effort to improve coordination between the Council and MMS, we request that MMS directly engage the Council via written correspondence to solicit input on actions that may affect fishery management practices.

The proposed wave facility test areas on the Northern California outer continental shelf would occur in areas that are designed as EFH, and may adversely affect fish and fisheries, as well as EFH for various federally managed species identified in the Pacific Coast Groundfish, Coastal Pelagic Species, Pacific Coast Salmon, and Highly Migratory Species FMPs. Furthermore, this is the first research license application process for wind, wave and ocean current energy development being proposed by MMS and is likely to set a precedent for other energy projects in the future.

Therefore, we ask that MMS work closely with the Council before issuing any licenses to ensure that the Council's concerns are addressed.

In the *Federal Register [Need reference]*, MMS has indicated that they plan to keep information gathered by applicants confidential for up to five years. While there may be economic or other data that warrant confidentiality, data regarding biological and socioeconomic effects of proposed projects should not be confidential.

Our other concerns and suggestions are as follows:

1) Precautionary approach. The Council urges the MMS take a precautionary approach with the development of this new technology. Location and design criteria should avoid unnecessary risks until more is known about the impacts of this technology and which wave energy design will yield the least environmental risk. We request that MMS avoid siting projects in sensitive or biologically rich habitats. If test areas are successful, they are likely to be commercially developed. Therefore, each of the blocks nominated by applicants should be screened by MMS to determine which have the least resource and user conflicts or sensitive habitat. Additionally, MMS has established no upper limit on the number or size of facilities allowed, or their maximum "footprint."

2) Scale of projects and cumulative effects. As noted above, MMS has established no limit on the number of total test facilities that will be allowed within the nominated areas. In addition, there is no limit on the size of wave energy test projects being considered in the Pacific Northwest (both in state and federal waters), and we have very little knowledge of their effects on marine species and the environment. Testing of wave energy technology is limited and has not allowed us to understand the environmental impacts of even a single project; yet it is unclear how many individual projects might be developed. Multiple wave test projects distributed across multiple blocks could have cumulative effects on marine fish, mammals, and habitats, as well as on the

commercial fishing fleet. A large number of projects could compromise healthy ecosystems, and should be evaluated at a regional ecosystem scale before projects are installed.

How these outer continental shelf projects will interact with wave energy projects in state waters also needs to be considered in a cumulative fashion.

3) *Displacement of fisheries*. Fishing is likely to be prohibited in designated wave energy test areas for safety and liability reasons. Spatial data for most of these fisheries is lacking, making it difficult to estimate the economic impact these and expanded or subsequent wave energy projects would have on the local fishing industry. Impacts to these fisheries would occur as either reduction in total fishing effort and lost productivity (economic impact) or displacement of fishing effort to areas outside the area closed to fishing due to these test facilities. Displaced fishers would likely concentrate their efforts on areas immediately outside the wave park boundary, resulting in increased pressure on fish and habitat in those areas. These indirect impacts should be included in the project's assessed impacts.

4) *Economic impacts on fisheries.* The final lease conditions must address NEPA requirements, and include fishing effort information, compiled in cooperation with the fishing sector, in order to identify important fishing areas and to minimize the placement of wave energy facilities in these areas. In addition, potential economic losses should be estimated as part of this and future applications.

5) *Need for site-specific information.* The potential impacts of wave energy development on fish species and their habitat must be assessed on a site-specific basis. The applicant should conduct *in situ* baseline studies within the proposed project area to characterize the species community and determine relative importance of local habitats. Baseline studies should be conducted prior to a final MMS decision on site location, and prior to project construction, to minimize unnecessary impacts. The applicant should be responsible for funding needed studies.

6) *Technology standards to minimize footprint of test facilities.* The Council is concerned about the size of the potential test sites. In order to minimize the size of the area needed, standards for high energy-efficient turbine design should be implemented. Testing inefficient technologies may be an unnecessary risk.

In the attached appendix, the Council recommends specific project development and management requirements in the lease related to:

- Baseline studies on biological and physical characteristics
- A site-specific monitoring plan
- Addressing cumulative impacts from multiple projects
- Efforts to minimize emissions from electro-magnetic, acoustic and light sources and monitoring of these potential effects
- Adaptive management conditions or lease termination provided for during the lease term if sensitive species, habitats are found to be affected
- Fiscal mechanisms to assure removal of equipment during decommissioning or if equipment is lost or damaged, and site remediation that will survive bankruptcies, corporation name changes, etc.
- A decommissioning plan

Additional comments on environmental concerns are summarized below and provided with more detail in Appendix A, including:

- Alteration in species composition and abundance in and around the project area, including trophic level impacts
- Electromagnetic fields
- Acoustical effects
- Collision, entanglement and entrapment
- Project site location
- Habitat alterations
- Effects on spawning habitat
- Areas of concentrated prey species
- Changes to habitat quality
- Physical dynamics of habitat displacement

Knowledge of potential impacts of this technology is rapidly developing. Oregon State University's Hatfield Marine Science Center recently hosted a scientific forum of 50 scientists to consider the range of potential environmental impacts of wave energy (http://hmsc.oregonstate.edu/waveenergy/index.html) that may be helpful in your efforts.

We hope the Council's comments are helpful to MMS in developing this new licensing program and that a wave energy program takes advantage of the collective wisdom of the scientists and resource managers.

Sincerely,

D. O. McIsaac, Ph.D.
Executive Director

JDG:xxx

cc: Council members
Habitat Committee
Council staff

APPENDIX

Project Development and Management:

a. MMS leases should be designed to gather baseline biological and physical data.

In the context of living marine organisms and dynamic environments, "baseline" is not a static point in time, but rather a "trend analysis" that takes into account the natural variability in nature, both temporally and spatially. Baseline information of the biological and habitat resources at the site allows for a) characterization of species community, diversity, and abundance and habitat, and b) a benchmark on which to monitor and measure short and long-term effects of wave energy projects on natural resources. Additionally, it will be necessary to identify such features as current convergence zones, migration corridors, spawning and settlement aggregations and other essential habitat factors that are unique or specific to the project area. Baseline information is also needed in reference or control areas outside the project boundary in order to differentiate between naturally occurring phenomena and artificial changes. To account for changing climatic conditions, El Nino/La Nina weather patterns, hypoxia events, and other annual environmental variables, baseline data are needed over a five-year period.

Baseline information of particular interest to the Council includes:

1) Characterization of the substrate
2) Characterization of the benthic and epibenthic invertebrate communities on which several Council-managed species prey
3) Characterization of the entire fish community, including forage species during spring, summer and winter to account for seasonal migration patterns

b. Site-specific monitoring plans are needed to monitor changes to the biological and physical environment.

As there no other full-scale wave energy projects in the U.S. on which to gauge environmental impacts, a comprehensive monitoring plan is needed for the MMS test projects. This plan would serve as a template for subsequent projects as well. The monitoring plan should be developed in coordination with state and federal regulatory agencies. The monitoring plan should also include a requirement for monitoring following decommissioning, should that occur.

c. Determine and manage for cumulative impacts of multiple projects.

The cumulative impacts of multiple wave energy projects along the coast are unknown. Factors such as size, spacing, spatial relationship to littoral drift, currents, etc. may have unforeseen impacts on the overall dynamics of the environment. Cumulative impact studies should be developed as part of a larger, regional wave energy program, incorporating expertise in the fields of physical and biological oceanography, marine geology, marine ecology and fisheries.

d. MMS test leases should be required to meet minimum construction standards to minimize emissions from electro-magnetic, acoustic and light sources and to help test if these standards are adequate to protect fish and wildlife species.

The Council recommends establishing standards for construction of all wave energy devices to minimize electromagnetic, acoustic and light emissions in order to reduce exposure of susceptible marine species to such impacts. Such a standard protocol could minimize or eliminate the need to evaluate their utility with each new wave energy proposal.

e. License conditions should require adaptive management.

As wave energy technology is early in the developmental phase and will continue to evolve with studies and advances in technology, environmental impacts remain unpredictable. To best manage wave energy projects, including test projects, for unforeseen impacts, a management and monitoring plan should be responsive, flexible and adaptive to ensure that necessary safeguards for the marine environment are put in place as needed. In practice, this could include modifying existing equipment where demonstrated impacts are unacceptable or may be reduced. It could also mean minimizing the size of the overall project footprint, if results can be achieved operationally in a smaller overall area. Adaptive management should be used to identify and respond to uncertainties in the projects' effects.

f. License conditions should require curtailment and/or decommissioning of unsuccessful projects.

If adaptation is unsuccessful, ESA-listed species or sensitive species are taken, or habitat impacts are beyond those anticipated, the project should be curtailed or decommissioned. Given the lack of knowledge about impacts of wave energy projects, a condition of impact review and mandatory consultation and response before any lease renewal is requested or granted.

Impacts to Species and Habitat:

Species Concerns

a. Alteration in species composition and abundance in and around the project area, including trophic level impacts

The installation of buoys, anchors and associated structures will add hard substrate to an otherwise uniform sandy environment, and will possibly attract an entire community of rocky reef fishes and invertebrate species not normally present there. It is unknown what the ecological consequences will be over the extent of the project area, including displacement of resident fishes. Another consideration is the potential increase in seabird and marine mammal activity in response to concentrations of prey organisms, and increased risk for collisions with structures while diving and swimming. As stated previously, it is necessary to establish the natural, baseline population to determine relative habitat value of the area and to monitor changes throughout the permit period.

b. Electromagnetic fields

Electromagnetic fields (EMF) may impact organisms such as elasmobranchs, sea turtles, and marine mammals that use electric and/or magnetic sense in detecting predators and prey, orientating to ocean currents, and sensing their magnetic compass headings. Information on EMF emanating from wave buoys is lacking. Studies would be needed to evaluate the impacts of EMF on these species and evaluate the effectiveness of any device installed to minimize impacts.

c. Acoustics

Fish and seabirds are highly sensitive to sound, and marine mammals use sound for communication and detection of prey. Sounds and vibrations created by movements of the structure above and below the water surface, along with acoustic guidance devices that may be deployed to direct marine mammals around the array, could disturb or displace fish, diving seabirds and mammals. Studies are needed to determine specific acoustic signatures of test devices and site-specific ambient transmissions.

d. Collision, entanglement and entrapment

All mobile marine animals are susceptible to collision, entanglement and entrapment at varying degrees. Assessment of these impacts would be necessary during and postconstruction, and modifications to the structural design may be necessary to reduce observed impacts. In addition to assessing impacts, the applicant should develop a response protocol for marine mammal entanglement.

Habitat Concerns

a. Project site location

Wave projects should not be sited in or near areas that are known to be important ecological habitats. Areas designated as HAPCs are rare, sensitive, or vulnerable habitats, and should be off limits to wave energy development, and areas closed by the Council to protect certain species from fishing should also be avoided.

b. Habitat alterations

Artificial structure (i.e., fish aggregating devices) may be created in what appears to be an otherwise uniform sand environment. Effects on species are noted above under Species Concerns (a).

c. Effects on spawning habitat

It is unknown if the proposed area is located in fish spawning habitat. Changes in habitat dynamics, including current dynamics and sand movement, could have negative impacts on spawning success. Visual recording of fish use activities on a random sampled design (both day and night) should be considered.

d. Upwelling areas with high concentrations of prey

Local topographic features can create local upwelling areas or other conditions that serve to distinguish areas from each other and support areas of higher primary (plant) and secondary (zooplankton) production, as well as concentrate forage species. Identification and avoidance of such areas would be important.

e. Changes to habitat quality

Grain size, homogeneity, and amount of organic material in the sediment are characteristics that contribute to defining a habitat. These characteristics are likely to change as energy is removed from the wave train and deposition of finer sediments occurs. Analysis of these potential effects should be required.

f. Toxins and chemicals

The release of anti-fouling agents, chemical byproducts from the manufacturer of the facility's components, and chemicals associated with operation could contaminate habitat and impact species. This factor should be addressed.

State of California letters on wave energy

From	To	Date	Subject
California Dept. of Fish and Game (CDFG)	Federal Energy Regulatory Commission (FERC)	3/28/2008	Notice of Intervention in Centerville OPT Wave Energy Project
California Resources Agency	Minerals Management Service (MMS), FERC	5/14/08	Offshore energy development and license processes
California State Lands Commission	FERC	12/15/07	FERC policy for conditioned licenses
CDFG	FERC	12/14/07	FERC policy for conditioned licenses
CDFG	FERC	11/1/07	Pilot project licensing policy
California Resources Agency	MMS	5/24/07	MMS DEIS on alternative energy on outer continental shelf
California State Lands Commission	MMS	5/16/07	Outer continental shelf alternative energy and alternate use programmatic EIS
California Coastal Commission	MMS	5/21/07	Outer continental shelf alternative energy and alternate use programmatic EIS

State of California – The Resources Agency
DEPARTMENT OF FISH AND GAME
OFFICE OF THE GENERAL COUNSEL
1416 Ninth Street
Sacramento, CA 95814
http://www.dfg.ca.gov
(916) 654-3821

ARNOLD SCHWARZENEGGER, Governor

March 28, 2008

Magalie R. Salas
Secretary to the Commission
Federal Energy Regulatory Commission
888 First Street, NE
Washington, D.C. 20426

Re: Notice of Intervention in Proceeding re Preliminary Permit for California Wave Energy Partners I, LLC's Centerville OPT Wave Energy Park Project (Project No. 13075-000)

Dear Secretary Salas:

Enclosed for filing in the above-referenced proceeding are the California Department of Fish and Game's Notice of Intervention and accompanying Certificate of Service.

If you have any questions regarding these documents, please feel free to contact Steven M. Ingram at (916) 651-7401.

Yours sincerely,

Ann S. Malcolm
General Counsel
California Department of Fish and Game

Enclosures

BEFORE THE FEDERAL ENERGY REGULATORY COMMISSION

UNITED STATES OF AMERICA

In the Matter of the Application of CALIFORNIA WAVE ENERGY PARTNERS I, LLC For a Preliminary Permit for the Centerville OPT Wave Energy Park Project located in the Pacific Ocean in Humboldt County, California, southwest of the town of Eureka	PROJECT NO. 13075-000

NOTICE OF INTERVENTION

CALIFORNIA DEPARTMENT OF FISH AND GAME

ANN S. MALCOLM
General Counsel

STEVEN M. INGRAM
Senior Staff Counsel

Attorneys for
California Department of Fish and Game
1416 Ninth Street, 12th Floor
Sacramento, CA 95814
Telephone: (916) 654-3821
Facsimile: (916) 651-7643

BEFORE THE FEDERAL ENERGY REGULATORY COMMISSION

UNITED STATES OF AMERICA

In the Matter of the Application of CALIFORNIA WAVE ENERGY PARTNERS I, LLC For a Preliminary Permit for the Centerville OPT Wave Energy Park Project located in the Pacific Ocean in Humboldt County, California, southwest of the town of Eureka	PROJECT NO. 13075-000

NOTICE OF INTERVENTION

CALIFORNIA DEPARTMENT OF FISH AND GAME

The California Department of Fish and Game ("CDFG") is the agency within the State of California with jurisdiction over the state's fish, wildlife, and plant species and natural communities. CDFG is responsible for the maintenance, management, and protection of fish, wildlife, and plant species for their intrinsic and ecological value as well as for recreational, commercial, scientific, and educational uses. As the state regulatory agency with jurisdiction over California's fish, wildlife, and plant species, CDFG has an interest in and right to participate in this proceeding.

Pursuant to Section 385.214(a)(2) of Title 18 of the Code of Federal Regulations, CDFG hereby provides notice that, as the designated fish and wildlife agency for the State of California, it is intervening as a party in the proceeding before the Federal

Energy Regulatory Commission ("FERC") on the application of California Wave Energy Partners I, LLC for a Preliminary Permit for the Centerville OPT Wave Energy Part Project located in the Pacific Ocean in Humboldt County, California, southwest of the town of Eureka (Project No. 13075-000).

FERC issued its Notice of Application Accepted for Filing and Soliciting Motions to Intervene, Protests, and Comments on January 30, 2008. CDFG has sixty (60) days from that date to file this Notice of Intervention. CDFG has met that deadline, and CDFG's Notice of Intervention is thus timely.

Service of process and other communications concerning this proceeding should be directed to:

Steven M. Ingram
Senior Staff Counsel
Office of General Counsel
California Department of Fish and Game
1416 9th Street, 12th Floor
Sacramento, CA 95814

The Notice and Application in this proceeding do not provide adequate information for CDFG to assess the potential impacts of the project on the resources under CDFG's jurisdiction at this time. For this reason, CDFG respectfully reserves the right to comment on potential project impacts as additional information is provided during this proceeding.

Respectfully submitted,

DATE: 3/28/08

ANN S. MALCOLM
General Counsel
STEVEN M. INGRAM
Senior Staff Counsel
California Department of Fish and Game

BEFORE THE FEDERAL ENERGY REGULATORY COMMISSION

UNITED STATES OF AMERICA

In the Matter of the Application of CALIFORNIA WAVE ENERGY PARTNERS I, LLC For a Preliminary Permit for the Centerville OPT Wave Energy Park Project located in the Pacific Ocean in Humboldt County, California, southwest of the town of Eureka	PROJECT NO. 13075-000

CERTIFICATE OF SERVICE

I hereby certify that I have this day served, by first class mail or electronic mail, the California Department of Fish and Game's Notice of Intervention, cover letter to Secretary Magalie R. Salas, and Certificate of Service upon each person designated on the official service list compiled by the Federal Energy Regulatory Commission in the above-captioned proceeding.

3/28/08
DATE

Gail S. Turner
GAIL S. TURNER

Mr. Dan Hytrek
National Oceanic and Atmospheric Administration
501 W. Ocean Blvd., Suite 4470
Long Beach, CA 90802

Mr. David King White
National Marine Fisheries Service
777 Sonoma Avenue, Suite 325
Santa Rosa, CA 95404

Mr. George Taylor
California Wave Energy Partners I, LLC
1590 Reed Rd
Pennington, NJ 08534-5010

Mr. Charles F Dunleavy
California Wave Energy Partners I, LLC
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Ms. Marija Vojkovich
Marine Region
California Department of Fish and Game
20 Lower Ragsdale Drive, Suite 100
Monterey, CA 93940

Ms. Becky Ota
Marine Region, Belmont Field Office
California Department of Fish and Game
350 Harbor Blvd.
Belmont, CA 94002

Ms. Annie Manji
Water Branch
California Department of Fish and Game
830 S Street
Sacramento, CA 95811

STATE OF CALIFORNIA
resources
AGENCY

ARNOLD SCHWARZENEGGER, Governor
MIKE CHRISMAN, Secretary

May 14, 2008

Randall B. Luthi
Director
Minerals Management Service
U.S. Department of Interior
1849 C Street, NW
Washington, D.C. 20240

Joseph T. Kelliher
Chairman
Federal Energy Regulatory Commission
888 First Street, NE
Washington, D.C. 20426

Re: Offshore ocean energy development and license processes

Dear Director Luthi and Chairman Kelliher:

The State of California has a significant interest in the development of renewable energy facilities off our coastline. I am submitting the following comments regarding your respective agency's permitting processes for offshore ocean energy development in California waters. These comments were prepared with input from the staff of the following departments and commissions:

- California State Lands Commission
- California Department of Fish and Game
- California Ocean Protection Council
- California Coastal Commission
- California Public Utilities Commission
- California Energy Commission

California has a goal of producing 33 percent of its electricity from renewable sources by 2020. Currently, we obtain approximately 11 percent of our electricity from wind, solar, geothermal and biomass resources located on land. Similar to our Oregon and Washington neighbors, California is interested in ocean energy as a potential new source of electricity that will contribute to the economic development of our coastal communities.

Nevertheless, the process for permitting and licensing ocean energy development has raised significant concerns. Eight projects were proposed for California's state marine waters in the last year, and three of these received preliminary permits from FERC in February and March 2008. As the state agencies responsible for overseeing these projects, we are particularly concerned by conflicting federal authorizations, the lack of a clear process to involve local governments and stakeholders, and the potential that the process that may not address all potential project impacts.

We are committed to working with MMS and FERC to ensure this new energy source can be implemented in an effective, efficient, and environmentally acceptable manner. We offer the following suggestions to help achieve these goals:

1. **Develop an agreement between FERC and MMS to clarify how the permits can be issued in a coordinated and consistent manner.**

   Both agencies are currently pursuing separate licensing processes for ocean energy projects. These policies are significantly different and often inconsistent. Where project areas overlap FERC and MMS jurisdictions, such as Pacific Gas & Electric Company's (PG&E) WaveConnect project, there needs to be clarification about authorized activities.

2. **Formally incorporate federal consistency provisions of the Coastal Zone Management Act and other state regulatory requirements into license processes.**

   Activities that will likely affect the land, water uses and natural resources of California's coastal zone are subject to Coastal Zone Management Act (CZMA) consistency review by the California Coastal Commission (CCC) and possibly the San Francisco Bay Conservation and Development Commission (BCDC). Ocean energy projects may also be subject to other state regulatory requirements, including, but not limited to, a lease for the use of state tidelands from the State Lands Commission and fill and discharge permits from the state's Regional Water Quality Control Boards. These requirements should be formally incorporated into FERC and MMS policies and adequate time reserved for state review of license applications.

3. **Recognize state marine management goals, and address those goals during the licensing processes.**

   The state's marine management goals address issues such as development of marine protected areas, protection of sensitive habitats, and displacement of commercial and recreational fishing. These goals are often developed through extensive stakeholder processes and should be recognized in wave energy siting discussions. Furthermore, early dialogue with state and federal agencies, local governments, and the general public is recommended to avoid inappropriate project siting and allow community input on project development.

4. **Limit permits to pilot-scale projects until baseline information is gathered and cumulative impacts are adequately addressed.**

   Scientific and environmental baseline information must be gathered prior to the implementation of commercial-scale projects. This data is critical to determining if the projects are negatively impacting the state's marine and coastal resources. In addition, FERC and MMS need to thoroughly address the cumulative impacts of these proposals before moving forward with large scale commercial licensing. This assessment will be critical to determining the impacts of these projects locally, and on a region-wide scale.

The State of California is committed to working with FERC and MMS regarding the development of wave and tidal energy technology to ensure it meets our renewable energy, coastal community, and marine resource goals. We look forward to working with your agencies to meet these mutual goals.

Sincerely,

Mike Chrisman

Mike Chrisman
Secretary for Resources

Cc: Ms. Maureen Bornholdt, MMS
Ms. Ann Miles, FERC
Mr. Brian Baird, California Resources Agency

STATE OF CALIFORNIA ARNOLD SCHWARZENEGGER, *Governor*

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Filed Electronically 12/14/07

December 14, 2007

File Ref: Docket No. PL08-1-000

Ann Miles
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

Dear Ms. Miles:

Subject: Federal Energy Regulatory Commission's Policy Statement of November 30, 2007 on Conditioned Licenses for Hydrokinetic Projects

Staff of the California State Lands Commission (CSLC) has received a copy of the Federal Energy Regulatory Commission's (FERC) Policy Statement (Policy) for conditioned licenses.

For your information, the State acquired sovereign ownership of all tide and submerged lands and beds of navigable waterways upon its admission to the United States in 1850. Such lands include, but are not limited to, the beds of more than 120 navigable rivers and sloughs, nearly 40 navigable lakes, and the three-mile wide band of tide and submerged land adjacent to the coast and offshore islands of the State. The State holds these lands for the benefit of all the people of the State for statewide Public Trust purposes which include, waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation, and open space. The State's sovereign interests are under the jurisdiction of the CSLC.

Before the CSLC can issue any lease, permit or other entitlement for use of State lands, review for compliance with the California Environmental Quality Act (CEQA) must be completed. The terms of CEQA may be found in the California Public Resources Code (PRC), Sections 21000 et seq., and in the State CEQA Guidelines, California Code of Regulations, Title 14, Sections 15000 et seq. No proposed project will be considered until the requirements of CEQA have been met. Additionally, if the application (copy enclosed) involves lands found to contain "Significant Environmental Values" within the meaning of PRC Section 6370, consistency of the proposed use with the identified values must also be determined through the CEQA review process. Pursuant to its regulations, the CSLC may not issue a lease for use of "Significant Lands" if such use is detrimental to the identified values.

Most leases, permits or other entitlements for projects in California require approvals from many other public agencies. For the majority of projects that involve lands under the jurisdiction of the CSLC, the CSLC is the Lead Agency (the public agency with the principal responsibility for carrying out or approving a project) under the CEQA. Other times, the CSLC may act a Responsible and/or Trustee Agency under the CEQA for any and all projects that could directly or indirectly affect sovereign lands, their accompanying Public Trust resources or uses, and the public easement in navigable waters.

CSLC staff understands that if a preliminary permit or conditional license is issued by the FERC for new hydrokinetic projects subject to the "Conditioned Licenses" Policy, the permit or license does not authorize the placement or construction of improvements within federal water or on State sovereign lands. The placement of any wave conversion or hydrokinetic device on State sovereign land will require the prior authorization of the CSLC. Additionally, any proposed use or co-location of existing facilities, such as a wastewater discharge pipeline located on lands subject to the leasing jurisdiction of the CSLC, will also require the prior authorization of the CSLC.

It would be appreciated if FERC would notify CSLC staff when FERC begins its review of applications for preliminary permits or conditional licenses for projects that may be located offshore California. Please contact Susan Young, Public Land Management Specialist, at (916) 574-1879 should you have any questions regarding the CSLC's jurisdiction or application process.

Sincerely,

Barbara Dugal, Chief
Land Management Division

Enclosure

cc: Susan Young

State of California – The Resources Agency ARNOLD SCHWARZENEGGER, Governor
DEPARTMENT OF FISH AND GAME
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December 14, 2007

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

Comments by California Department of Fish and Game on Federal Energy Regulatory Commission Policy Statement on Conditioned Licenses for Hydrokinetic Projects, Docket No. PL08-1-000

The California Department of Fish and Game (CDFG) has reviewed the above-referenced Policy Statement the Federal Energy Regulatory Commission (FERC) issued on November 30, 2007. CDFG respectfully submits its comments on the Policy Statement below.

Pilot Project Licenses

According to FERC, the Policy Statement is "part of its ongoing effort to establish a regulatory climate that supports the development of innovative [hydrokinetic projects]." To that end, under the policy FERC describes in the Policy Statement, FERC would issue a "conditioned license" for new hydrokinetic projects.

It is CDFG's understanding that the "conditioned license" is different from the "pilot project license" described earlier in the Policy Statement based on the description of that license. For example, pilot project licenses would have a short term of five years

or less and "include a standard condition requiring project alteration or shutdown in the event of an unacceptable environmental effect." By contrast, the Policy Statement does not state that conditioned licenses will have a term and, according to FERC, the issuance of such licenses will not have any environmental effects. It would be useful for FERC to confirm a project pilot license is different from a conditioned license.

Authorizations Under the Natural Gas Act

As FERC explains in its Policy Statement, FERC's procedural model for conditioned licenses is the authorizations it has issued to construct liquefied natural gas (LNG) facilities under the Natural Gas Act (NGA). Ostensibly, FERC would issue a conditioned license under the Federal Power Act (FPA) which has substantive and procedural requirements different from those in the NGA. FERC should explain or otherwise confirm that the procedure it uses under the NGA to authorize LNG facilities will satisfy any requirements under the FPA that apply to hydrokinetic projects.

Process for Issuing Conditioned Licenses

FERC states that "[it] will, in appropriate cases, issue [conditioned licenses]." However, it does not identify the criteria it will follow in making that determination other than promising to strictly scrutinize applications. In addition, the Policy Statement contains almost no information on the process an applicant will need to follow to apply for and obtain a conditioned license and the process FERC will follow in reviewing the

application and issuing a conditioned license, when "appropriate." At most, it appears that the applicant would file an application under FERC's normal license process and FERC would determine whether to issue a conditioned license for the project. The absence of such detail makes it difficult for interested parties to provide meaningful comments on FERC's proposed policy. FERC should fully describe the conditioned license process it envisions in a new or revised statement and allow interested parties an opportunity to further comment on its proposed policy based on that additional information.

Benefits of Conditioned License

FERC identifies three reasons to allow conditioned licenses for hydrokinetic projects: 1) issuing such licenses will not have any environmental impacts; 2) such licenses will not diminish the authority of the states and federal agencies; and 3) the proposed conditioned license procedure is suitable for demonstration projects.

Assuming this is correct, the same is true for FERC's other major license processes. Further, the conditioned license process could actually be less beneficial, primarily to the applicant, than a process similar to the integrated license process available for hydropower projects. In general, under that process, the applicant and state and federal resource agencies are able to work together to identify potential environmental problems associated with the project early in the license process, which allows the applicant to modify the project, as necessary. Under the conditioned license

process, the applicant might not become aware of such problems until it applies for its state and federal authorizations, which likely will be after it has developed its project proposal and submitted that to FERC as part of its conditioned license application, assuming that will part of the conditioned license process. This could delay state and federal authorizations, which would be contrary to one of the principal goals of conditioned licenses.

FERC did not state that a conditioned license will secure an applicant's "right" to develop its hydrokinetic project over a competing applicant that obtained its license later in time. However, if that would be the case, the same "first in time, first in right" benefit would accrue if the applicant obtained a preliminary permit from FERC. Again, FERC should confirm whether such a permit is available for hydrokinetic projects and, if so, explain how the conditioned license would be of greater benefit than a preliminary permit.

In relation to the third benefit described above, FERC stated that the conditioned license process would improve applicants' ability to obtain financing of demonstration projects. FERC did not support this conclusion with any evidence. In fact, it is possible that investors will be unwilling to finance demonstration projects without some assurance that the applicant will be able to obtain the necessary state and federal authorizations for the project. Under the conditioned license process, that would not occur until sometime after the conditioned license is issued. Conversely, if an applicant uses a conditioned license as the basis to secure financing and commence non-

construction activities related to the project, the applicant and investors will incur some risk of having to start the entire process over again after the agencies complete a comprehensive environmental consultation and review. That would be analogous to taking a shortcut only to make the journey twice as long.

Need for a Conditioned License

According to FERC, a conditioned license would allow the licensee to complete work on its hydrokinetic project that does not involve construction. FERC should provide examples of such non-construction activities so interested parties can confirm that they will not have any environmental effects. It should also explain the basis an applicant would need a license from FERC to complete such non-construction activities in the first place. Finally, FERC should make clear whether conditioned licenses will be available only for "demonstration" hydrokinetic projects or hydrokinetic projects, in general.

Compliance with the Administrative Procedure Act (APA)

FERC has promulgated its license processes for hydropower projects as regulations in accordance with the APA. FERC describes the proposed process for hydrokinetic projects as a "license process" and the authorization as a "conditioned license." FERC should explain whether it intends to implement its proposed policy by promulgating new regulations as it did for the licensing of hydropower projects, or

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State of California - The Resources Agency ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF FISH AND GAME

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Headquarters
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(916) 445-0411

November 1, 2007

Kimberly D. Bose
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Dear Ms. Bose:

The California Department of Fish and Game (Department) has reviewed the Federal Energy Regulatory Commission's (FERC) Proposed Licensing Process for Hydrokinetic Pilot Projects: A Framework for Discussion. The document identifies the criteria for a pilot project, the six-month application process, and the process for post application approval. The Department appreciates this opportunity to comment on the above-referenced document.

As trustee for the State's fish and wildlife resources, the Department has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. In this capacity, the Department administers the California Endangered Species Act, the Native Plant Protection Act, and other provisions of the California Fish and Game Code that afford protection to the State's fish and wildlife trust resources. Pursuant to our jurisdiction, the Department has the following concerns, comments, and recommendations regarding the Proposed Licensing Process.

The Department will be involved in the licensing process for hydrokinetic pilot projects and wants to be able to participate fully. However, the Department has not been notified about FERC meetings, workshops, or draft documents. It appears that we are out of the communication stream for this very important process. The additional workload to fully participate in the process will also put a strain on existing staff. Therefore, early notification is necessary for adequate review and comment on permit applications, the licensing process, and other documents.

We understand that FERC is committed to streamlining the licensing process for pilot hydrokinetic energy projects. However, the timeline for reviewing permit applications outlined in the Framework for Discussion document (30 days) is too short for the Department to provide a thorough response. Given the amount of information that an applicant is required to supply, Department staff will need more than thirty days to review the applications and provide comment.

Lastly, in reviewing the proposed licensing process, there are a number of problems with specificity. We need more information on specific terminology, concepts, and procedures discussed in the document to be able to do our job as a trustee agency.

We thank you for the opportunity to provide comments and look forward to coordinating and working with FERC in the future. As always, Department personnel are available to discuss our comments, concerns, and recommendations in greater detail. If you have any questions or need further clarification please contact Ms. Becky Ota, Senior Environmental Scientist, Marine Region, at telephone (650) 631-6789.

Sincerely,

John McCamman
Acting Director

STATE OF CALIFORNIA

resources AGENCY

ARNOLD SCHWARZENEGGER, Governor
MIKE CHRISMAN, Secretary

May 24, 2007

Mary Boatman, Programmatic EIS Coordinator
Alternative Energy and Alternate Use Program
Minerals Management Service
Argonne National Laboratory EVS/900
9700 South Cass Avenue
Argonne, Illinois 60439

Dear Ms. Boatman,

Thank you for this opportunity to provide comments on the Mineral Management Service's (MMS) Draft Programmatic Environmental Impact Statement for the Alternative Energy and Alternate Use of Facilities on the Outer Continental Shelf (draft Programmatic EIS).

In September 2006, the Governors of California, Oregon, and Washington established the West Coast Governors' Agreement on Ocean Health. This agreement is a pledge by the three governors to work together to advance goals such as ensuring healthy ocean ecosystems, reducing impacts of offshore development, and fostering sustainable economies of coastal communities. The agreement also underscores the importance of managing activities that affect our oceans to account for the relationships among all ecosystem components, including humans and nonhuman species and the environment in which they live. The three states are currently collaborating on a regional action plan to address critical ocean and coastal protection and management issues, including the development of renewable energy projects.

California currently receives approximately 11 percent of its electricity from wind energy, geothermal resources and biomass sources located on land. As we look out to 2030, renewable energy could account for 33 percent or more of our electricity. Within that goal, energy from ocean waves is under serious consideration by the California Energy Commission's (CEC) research and development program and our investor-owned utilities have indicated possible interest as well. The CEC is in the final stages of preparing an ocean energy resource assessment for California. In addition, within the next few months, the California Ocean Protection Council will collaborate with the CEC on a study investigating the potential impacts to the marine environment resulting from ocean energy projects. Because of the potential for new alternative energy production in the California Outer Continental Shelf (OCS), we believe that the 'no action' alternative provided in the draft Programmatic EIS is not an appropriate or viable alternative for California.

Further, the draft Programmatic EIS focuses on potential alternative energy development that may be initiated in the next five to seven years as well as potential alternate uses of offshore facilities in the same time frame. Because California's planning horizons for both alternative energy development and alternate uses of offshore facilities is well beyond seven years, we encourage the MMS to begin planning for long-term and large-scale projects. For example, there are currently twenty-three oil and gas platforms operating in the California OCS but to our knowledge no oil company has immediate plans to decommission any of these platforms. Public discussions regarding the alternative uses of decommissioned oil and gas platforms, be it creating artificial reefs, establishing aquaculture, or other uses are just beginning in California and often have been contentious. Under current law, these facilities are required to be removed upon termination of oil and gas extraction.

The Energy Policy Act of 2005 created an environment where the MMS has energy facility siting authority in the Exclusive Economic Zone while the Federal Energy Regulatory Commission (FERC) retains authority for siting within the Territorial Sea. In addition, the historic permitting and licensing processes developed under the Outer Continental Shelf Lands Act and the Federal Power Act, administered by the MMS and FERC respectively, do not appear to have much in common. In order to foster the renewable energy technology and industry, we urge the MMS to work with FERC to develop a process that makes permitting and licensing under the two agencies as consistent and seamless as possible.

While much is known about the technology and effects of oil and gas development, little is known about the technology and effects of alternative energy development on the OCS. Undoubtedly, much of this knowledge will be obtained through NEPA studies for individual projects. However, this does not preclude the need for research on new alternative energy technology or the alternate uses of OCS facilities. It is also important once the locations of potential new alternative energy or alternate use projects are identified, that the cumulative impacts from these projects be assessed.

If you should have any questions regarding our comments, please contact Assistant Secretary for Ocean and Coastal Policy Brian Baird. Brian can be reached by e-mail at brian@resources.ca.gov or by phone at (916) 657-0198.

We appreciate the leadership that the MMS has demonstrated in looking to the OCS as a source of renewable energy and we look forward to working with the agency as it develops an Alternate Energy-Related Use Program for the OCS.

Sincerely,

Mike Chrisman

Mike Chrisman
Secretary for Resources

cc: The Honorable Dirk Kempthorne,
Secretary of the Interior

STATE OF CALIFORNIA ARNOLD SCHWARZENEGGER, *Governor*

CALIFORNIA STATE LANDS COMMISSION
100 Howe Avenue, Suite 100-South
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PAUL D. THAYER, *Executive Officer*
California Relay Service From TDD Phone **1-800-735-2922**
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May 16, 2007

MMS Alternative Energy and Alternate Use Programmatic EIS
Argonne National Laboratory
9700 S. Cass Avenue, EVS/900
Argonne, IL 60439

SUBJECT: **OCS ALTERNATIVE ENERGY AND ALTERNATE USE PROGRAMMATIC EIS**

Staff of the California State Lands Commission (CSLC) has reviewed the Draft Programmatic Environmental Impact Statement (EIS) for the above referenced proposed project. Based on this review, we offer the following comments.

By way of background, the State of California acquired sovereign ownership of all tidelands and submerged lands and beds of navigable waterways upon its admission to the United States in 1850. The State holds these lands for the benefit of all people of the State for statewide Public Trust purposes, which include waterborne commerce, navigation, fisheries, water-related recreation, habitat preservation and open space. The State's sovereign ownership includes a three-mile wide band of tide and submerged land adjacent to the coast and offshore islands of the State. The landward boundaries of the State's sovereign interests are often based upon the ordinary high water marks of these waterways as they last naturally existed, prior to artificial influences which may have altered or modified the shoreline characteristics. Such boundaries may not be readily apparent from present day site inspections. The State's sovereign interests are under the jurisdiction of the CSLC.

The facts pertaining to the project, as we understand them, are these:

The Energy Policy Act of 2005 delegates to the United States Department of the Interior (DOI) discretionary authority to grant leases, easements, or rights-of-way for activities on the U.S. Outer Continental Shelf (OCS) for the development and support of energy resources other than oil and gas and to allow for alternate uses of existing facilities on the OCS. This authority is to be exercised by the Minerals Management Service (MMS), a bureau of the DOI. A new program within MMS is in the process of being established to oversee these new operations on the OCS. It will be known as the OCS Alternative Energy and Alternate Use Program. The projects to be considered

under the Program include, but are not limited to, offshore wind, wave, ocean current, and solar energy capture technologies. The technology of generating hydrogen using the energy captured from one of the above alternative resources on the OCS and transporting the hydrogen to the shore is also included among the OCS Program projects. MMS was also given jurisdiction over other projects that make alternate use of existing oil and natural gas platforms in Federal waters. Alternate uses of these facilities may include, but would not be limited to, offshore aquaculture, research, education, recreation, support for other offshore operations and facilities, and telecommunications. The Draft Programmatic EIS only addresses those projects anticipated to be pursued within the next five to seven years.

After review of the information contained in the Draft Programmatic EIS, it is possible that some of the alternative energy projects or their components (including pipelines, conduits, or cables) may extend onto State-owned sovereign lands in the Pacific Ocean. A lease from the CSLC is required for any portion of a project extending onto State-owned lands under its jurisdiction. The CSLC has issued right-of-way leases in conjunction with existing OCS platforms. Alternate use of these platforms may require amendments to the existing CSLC leases. The Draft Programmatic EIS does not contain sufficient information to determine whether any of the projects to be considered encroach onto sovereign lands under the jurisdiction of the CSLC. Please provide detailed plans of specific projects at such time as they are available so that the CSLC can make an accurate determination as to its jurisdiction.

In addition, the Draft Programmatic EIS does not contain project specific information or analysis as required by the California Environmental Quality Act (CEQA). Therefore, any projects developed within the CSLC's jurisdiction will be subject to additional environmental review. Standards for this review are set forth in the CEQA, the State CEQA Guidelines, and the Public Resources Code.

Questions concerning the CSLC's jurisdiction may be directed to Colin Connor, Assistant Chief, Land Management Division at (916) 574-1241. You may contact Scott McFarlin, Environmental Scientist, at (916) 574-1310 to discuss environmental review.

Sincerely,

Marina R. Brand

Marina R. Brand, Assistant Chief
Division of Environmental Planning
and Management

cc: Colin Connor, CLSC
cc: Scott McFarlin, CLSC

STATE OF CALIFORNIA—THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, GOVERNOR

ALIFORNIA COASTAL COMMISSION

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May 21, 2007

Maureen Bornholdt
MMS Alternative Energy & Alternate Use Programmatic EIS
Argonne National Laboratory EVS/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. Bornholdt:

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 use, 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-reef" proposals, based on inconclusive science about the role of such structures as habitat. We recommended that "rigs-to-reef" conversions not be allowed, but that if such conversions are permitted, they be allowed only after case-by-case review and be placed in fully protected status (i.e., no fishing zones) until more conclusive science is available about their role in the ocean ecosystem. Finally, 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, use conflicts with commercial and recreational fishing, and 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 information adequate to address these concerns.

From:	ocsenergywebmaster@anl.gov
To:	mail_ocsenergyarchives; ocsenergywebmaster@anl.gov;
Subject:	OCS Alternative Energy and Alternate Use Programmatic EIS Comment 80106
Date:	Monday, May 21, 2007 6:38:10 PM
Attachments:	Comments_on_MMS_Draft_PEIS_for_OCS_Alt_Energy_80106.pdf

Thank you for your comment, Tom Luster.

The comment tracking number that has been assigned to your comment is 80106. Once the comment response document has been published, please refer to the comment tracking number to locate the response.

Comment Date: May 21, 2007 06:39:29PM CDT

OCS Alternative Energy and Alternate Use Programmatic EIS
Draft Comment: 80106

First Name: Tom
Last Name: Luster
Organization: California Coastal Commission
Address: 45 Fremont Street #2000
City: San Francisco
State: CA
Zip: 94105
Country: USA
Email: tluster@coastal.ca.gov
Privacy Preference: Don't withhold name or address from public record
Attachment: H:\Word Documents\Comments on MMS Draft PEIS for OCS Alt Energy.pdf

Comment Submitted:
Comment letter 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.

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

- 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 arising from the PEIS be used only to permit and regulate pilot-scale proposals.

- The PEIS's definitions 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 "major" are described only as being "negligible" to "moderate."

- The PEIS identifies project-related impacts and describes mitigation measures that could 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 habitat, kelp beds, etc.) and selecting preferred designs for various facilities 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 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 meant 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 admittedly 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 study 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 could then be used to develop an appropriate program and regulations applicable to larger-scale proposals. Even those 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.[1] We also recommend the MMS use this time to conduct some of the resource-specific studies needed to further develop and to 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 that any permitting 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 fully protected species; yet, for the most part, the document describes these adverse effects only as ranging from "negligible" to "moderate." Section 5.2.5, for instance, states that some activities could cause marine mammals to avoid large areas of habitat or could cause permanent hearing loss, yet these impacts are described only as "minor" to "moderate." Since both these effects would be considered "take" (under the Marine Mammal Protection Act, or MMPA) and since hearing loss would likely lead to the death of the affected animals,

[1] For example, Section 3.2 states that because of experience with projects elsewhere in the world, developers of proposed offshore wind energy facilities would likely skip the demonstration phase and move directly into full-scale operations. Even with that experience, however, we do not yet adequately understand the adverse effects that would be caused by offshore large-scale wind energy developments. This is of particular concern in some areas off the California coast known to support large populations of bird life, including many species listed as endangered, threatened, or otherwise protected under federal or state law.

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 revised 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, properly siting facilities, or other means. However, until those 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 platform 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 sensitive breeding or feeding grounds, migration routes, areas of hard bottom habitat, and other locations that provide significant habitat value and high potential for adverse impacts. In California, these areas would also include nearshore areas such as estuarine 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 all facilities were required to avoid such areas.

  The PEIS should also include this same type of evaluation for different facility designs. Although many proposed projects are still in the design stage, there is enough known about certain types of proposed facilities to identify likely impacts and necessary mitigation measures. For example, several wave energy devices depend on pumping seawater in and out of structures, which could cause significant entrainment impacts to planktonic organisms and have a substantial adverse effect on nearby or regional ecosystems dependent on those organisms. Other wave energy designs completely avoid this type of impact. Similarly, the document should describe standard wind energy devices and evaluate which designs would minimize bird strikes (e.g., larger and slower blades vs. shorter and faster blades). The PEIS should therefore include evaluations of known or likely facility designs, what impacts are most likely from those designs, and what mitigation measures may be needed.

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. Nearly 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 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 mounds), 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, and as noted above, Section 5.2.5 states that effects on marine mammals could range from avoidance of large areas to permanent hearing loss, yet these impacts are described only as "minor to moderate." Marine mammals would likely die due to a loss of hearing caused by these activities, so activities causing this impact should clearly be considered "take" under the MMPA and therefore considered to cause a "major" impact. The document also describes some activities that are likely to cause marine mammals to avoid substantial areas of ocean, which should also be categorized as a "major" impact, particularly if their avoidance would affect migration, breeding, or other critical life stages.

- **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 finfish (including seabass, cod, haddock, halibut and flounder).[2] 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 feed for the cultured species. Increased fishing pressures may be directed towards these low-trophic

[2] Naylor et al. 2000. "Effect of aquaculture on world fish supplies." *Nature*, Volume 405, pgs. 1017-1024.

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 boating. 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 fin-fish species and transgenic freshwater and marine fishes, invertebrates, crustaceans or mollusks in State waters (Fish and Game Code 15007 as amended in 2003 by Senate Bill 245). However, this prohibition does not specifically prohibit the cultivation of exotic shellfish or crustacean species. Commercial rearing of exotics is a serious concern, as escaped exotics can become an 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 underneath and downcurrent of fish pens and invertebrate grow-out facilities. The amount of waste and unconsumed 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 phosphorus. The accumulation of these discharges has been known to result in extensive bacterial mats, to cause anaerobic "dead zones" around fish pens due to the chemical requirements of the decomposition process, and to contribute to plankton 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 diatoms and dinoflagellates can increase in abundance due to nutrient pollution and as a result, the health of both humans 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 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 escapes; siting aquaculture operations sufficient distances 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 stock; 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 bird life.

  The PEIR provides only a cursory evaluation of potential effects on birds, and in some sections, makes unsupported conclusions. We note in particular this statement in Section 5.2.9.4.1:

  > *Because many of the threatened and endangered birds that could be found in coastal habitats would not be expected to fly to areas where offshore wind parks may be located, impacts to these species may be negligible. Other marine and coastal birds, as well as migrating inland birds... may readily encounter offshore wind parks and thus have the greatest potential for colliding with rotors and towers. Impacts to these species may be minor to moderate, depending on the species involved and the number of individuals affected.*

  This statement could be interpreted to suggest in its first sentence that because a bird is threatened or endangered, it would not fly into a wind facility, while other birds would. Next, it suggests that the loss of other birds would not cause significant impacts. There is no basis for this statement, especially since there are a number of threatened or endangered bird species in California that use shoreline, nearshore, and offshore areas, and would likely be adversely affected. Additionally, many bird species, while not protected under the federal Endangered Species Act, are protected under the federal Migratory Bird Act, and would likely be adversely affected. Further, as the PEIS states, if the offshore structures serve as fish attracting devices, then it is likely that birds would be attracted to the area and therefore subject to even more substantial adverse impacts.

  The PEIS should be revised to address these concerns by evaluating which wind power designs are more harmful or less harmful to birds, what locations and layouts may reduce bird strikes, and what mitigation measures are available to reduce impacts. Additionally, and as noted above, the document should identify which areas may not be suitable for certain

types of facilities due to their heavy use by birds. As noted above, we recommend that the MMS use the opportunity provided by the few years of postponing the development of the proposed permitting and regulatory program to instead develop and implement more rigorous studies of the existing effects of offshore structures on birds, the potential effects of proposed wind energy structures, and needed mitigation measures.

- **Effects on Plankton:** The document briefly describes potential turbidity effects on plankton, but does not evaluate the effects some projects would have on local or regional planktonic communities. Several wave energy designs provide energy by moving seawater in and out of various structures, which would result in the entrainment of numerous planktonic organisms. The entrainment effects of larger wave energy facilities could be substantial; however, the PEIS includes no discussion of this issue. We recommend the document be revised to include evaluation of this issue, and we recommend that the MMS use several recent studies conducted at California coastal power plants as the basis of its review.

- **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,

Tom Luster

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

cc: MMS – Maurice Hill
Resources Agency – Chris Potter

HABITAT COMMITTEE REPORT ON CURRENT HABITAT ISSUES

Minerals Management Service Letter

The Minerals Management Service (MMS) is involved in a process to designate certain areas of the outer continental shelf in Federal waters for alternative energy testing sites, including wave energy. MMS is the permitting agency for wave energy projects in Federal waters as Federal Energy Regulatory Commission (FERC) is for projects in state waters. MMS is seeking comments on their process. A draft letter to the MMS is attached. This letter is quite similar to a letter sent by the Council to FERC in November 2007. Some minor changes have been made to the version contained in the briefing book; they are highlighted in the attached version. If the Council approves this letter, it will be sent following the Council meeting.

Queets/Quillayute Chinook

Queets and Quillayute spring/summer Chinook have not made their escapement goals for at least three years. Although these stocks are not a significant contributor to Council-managed fisheries, the Council assigned the Habitat Committee (HC) to look at habitat issues associated with the decline in these stocks. The HC would like to confirm with the Council that it should examine habitat issues related to this issue. The HC is planning to coordinate with Washington coast tribes and Washington State on this effort.

Wave Energy Report

The State of Washington has taken FERC to court over the conditional five-year license it issued for Finavera's Makah Bay Offshore Wave pilot project. The license was the first FERC has issued for a hydrokinetic project. Washington's Department of Ecology (DOE) argued the agency overstepped its authority by failing to demonstrate compliance with state environmental laws. On May 15, the DOE asked the Washington D.C. Circuit Court of Appeals to review FERC's decision authorizing the "conditioned" license. The DOE expects support in the lawsuit from other states and resource groups.

While FERC's pilot license policy may facilitate moving renewable energy projects forward more quickly, project developers are now caught between FERC's policy and Washington's argument that the developer must first comply with Department of Environmental Quality (DEQ) water quality 401 certification and coastal zone management consistency determination laws. Over a dozen in-water renewable energy projects, in California, Oregon, and Washington, are either in the process of obtaining state environmental permits, or about to begin this process. This issue has been brought to the forefront by the DOE lawsuit described above, and both developers and regulators have a substantial stake in the outcome.

Elsewhere in wave energy, a project proposed for Douglas County, Oregon would use a different type of technology that might help to address some environmental concerns associated with wave energy. The "oscillating water column" technology would be built on or near a jetty, rather than further out to sea. From both a habitat and fisheries perspective, placing wave energy projects on human-made structures seems preferable to placing them in a more natural ocean

environment, although it may have impacts on fisheries close to the shore that will need to be better understood. In addition, such in-jetty projects would build advocacy for jetty maintenance, which would benefit coastal communities and fisheries. The HC will learn more about this project and report back to the Council in the future.

At its April meeting, the Council requested information about letters on wave energy that have been sent by individual states. A packet of letters sent by the state of California can be found under Agenda Item H.1.a, Supplemental Attachment 2, June 2008, along with a map of coastal hydrokinetic permit sites in California.

Two hydrokinetic energy conferences are scheduled for the near future. The HydroVision 2008 ocean energy conference will be held July 14-18 in Sacramento, CA. This is primarily an industry meeting. Environmental effects of new water power technology will be discussed on July 17. The HC believes a member of the Council family should attend, if possible.

A West Coast Governors' Agreement meeting will take place in Portland, OR September 23-24 to discuss hydrokinetic energy projects.

Other Issues

Columbia River Liquefied Natural Gas Terminal

FERC recently issued a final Environmental Impact Statement (EIS) on the Bradwood Landing Liquefied Natural Gas (LNG) project. Among other concerns, FERC does not require that the proponent, Northern Star, screen LNG tankers to prevent juvenile salmon from being taken in with ballast water; only that a plan to do so be developed. Northern Star has said they would "encourage" tanker owners to retrofit their tankers for ballast screens. FERC is working on an Endangered Species Act (ESA) biological assessment that may be ready for public comment this summer. The HC plans to develop comments for Council consideration in September.

Northwest Fisheries Science Center Ecosystem Team

The HC discussed ecosystem science being conducted by the Northwest Fishery Science Center. The HC plans to schedule a presentation by the NWFSC Ecosystem team at an upcoming meeting, perhaps in a joint session with SSC, to hear what work is being done and how it can apply to Council management.

Olympic Coast National Marine Sanctuary Sanctuary Advisory Council

The Olympic Coast National Marine Sanctuary (OCNMS) Sanctuary Advisory Council (SAC) met in May and discussed the importance of interacting more closely with the Council and Council review of OCNMS products. OCNMS' request for Council review of the draft OCNMS Condition Report highlighted the need for better alignment between product review times and Council processes.

In general, the National Marine Sanctuary Program is taking a hard look at how to interact with regional fishery management councils. West coast sanctuary representatives are particularly interested in improving the relationship between sanctuaries and the Council. Discussion continues about the need for a full-time liaison between west coast sanctuaries and the Council, and west coast SAC members are pressuring the Federal program to fund this position.

Trawl net recycling
The first-ever west coast regional trawl net recycling program began at Port of Seattle's Fishermen's Terminal on April 1, 2008. The program offers free or low cost net and metal recycling to commercial fishing customer vessels moored at Fishermen's Terminal. Nets stripped of metal chain, cable, shackles and floats and delivered free of debris will be recycled free of charge. Other nets are charged a small fee. For information on trawl net recycling, contact Fran Recht, Pacific States Marine Fisheries Commission, or Scott Brown at the Fishermen's Terminal, Seattle. Commercial gillnets continue to be accepted free of charge for recycling from customers at a number of locations. The HC believes efforts to recycle gear helps ensure gear does not end up loose, either on land or at sea.

Warner-Lieberman Climate Security Act
The Warner-Liberman Climate Security Act is a "cap and trade" bill that would result in large decreases in carbon in the oceans, as well as funding state efforts (including those of fish and wildlife agencies) to adapt to climate change. The Act did not pass and will likely come before Congress next year.

PFMC
06/10/08