APPENDIX H:

AGENCY CORRESPONDENCE REGARDING COMPLIANCE UNDER THE ENDANGERED SPECIES ACT (ESA), MARINE MAMMAL PROTECTION ACT (MMPA), AND MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT (MSA)

NMFS CORRESPONDENCE REGARDING ESA

NATIONAL SCIENCE FOUNDATION
4201 WILSON BOULEVARD
ARLINGTON, VIRGINIA 22230

August 10, 2010

Mr. James Lecky
Office of Protected Resources (F/PR)
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, Md. 20910

Dear Mr. Lecky:

To provide the U.S. Ocean sciences research community with the basic sensors and infrastructure required to make sustained, long-term, and adaptive measurements in the oceans, the National Science Foundation's (NSF's) Division of Ocean Sciences is currently planning a major research facility program referred to as the Ocean Observatories Initiative (OOI). The OOI Project is funded in part by the American Recovery and Reinvestment Act via a cooperative agreement with NSF. The proposed OOI would be an interactive, globally distributed and integrated network of cutting-edge technological capabilities for ocean observatories. The OOI design is based upon three main technical elements across global, regional, and coastal scales. The OOI infrastructure would include cables, buoys, deployment platforms, moorings, junction boxes, electric power generation, mobile assets, and two-way communications systems. This large-scale infrastructure would support sensors located at the sea surface, in the water column, and at or beneath the seafloor.

In June 2008, NSF prepared the Programmatic Environmental Assessment (PEA) assessing the potential impacts to marine resources from the proposed OOI at an initial programmatic stage (a pdf copy of the PEA is on the enclosed CD). At that time, NSF requested a 'Letter of Concurrence' (LOC) from the National Marine Fisheries Service (NMFS) for 'no significant impacts' to marine mammals under the Marine Mammal Protection Act (MMPA) and for 'no adverse effects' to federally listed species and designated or proposed critical habitat under the Endangered Species Act (ESA). In November 2008, NMFS issued an LOC stating that installation and operation of the proposed OOI, as described in the PEA, would not likely result in the take of marine mammals and that an Incidental Harassment Authorization (IHA) is not necessary pursuant to the MMPA (refer to the attached LOC dated 4 November 2008). In November 2008, NMFS also issued an LOC stating that the installation and operation of the proposed OOI, as described in the PEA, is not likely to adversely affect threatened and endangered species and will not affect proposed critical habitat (refer to the attached LOC dated 12 November 2008). At the time of the PEA, NSF stated that any future changes or additions to the infrastructure or sensors will be evaluated separately from these determinations.

The Draft Site-specific Environmental Assessment (Draft SSEA) has been prepared by NSF to assess the potential impacts on the human and natural environment associated with proposed site-specific requirements in the design, installation, and operation of the OOI that were previously assessed in the PEA and a Supplemental Environmental Report (SER). Because the OOI action would occur over several different locations across the Atlantic and Pacific oceans and would be phased in over time, it was determined that an initial programmatic approach would be the most efficient in terms of overall analysis and, hence, a PEA was prepared in 2008. A programmatic analysis at a conceptual level of detail provided early identification and analysis of potential impacts, methods to mitigate anticipated impacts, and a strategy to address issue areas at a tiered level if necessary. The PEA set up a framework for addressing the time- and location-specific aspects of the proposed OOI, as well as more detailed technical information (when it becomes available) through site-specific tiered EAs (e.g., the Draft SSEA) or other environmental documentation (e.g., the SER). The SER was prepared in April 2009 to assess the potential impacts on the environment associated with proposed modifications in the design, installation, and operation of the OOI since the completion of the PEA. The SER analysis concluded that the

proposed changes in the design, installation, and operation of the OOI as presented in the 2008 Final PEA would not result in additional impacts to the environment.

The scope of the environmental impact analysis of this Draft SSEA is tiered from the previously prepared PEA, associated FONSI, and SER. It focuses only on those activities and the associated potential impacts, including cumulative impacts, resulting from the site-specific installation and operation and maintenance (O&M), including field testing of OOI assets not previously assessed in the PEA and SER. Installation of OOI assets would be completed by 2015.

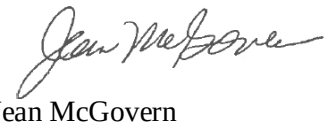
Although the Region of Influence or Action Area for the proposed action has not changed since the preparation of the PEA and SER, there has been an overall reduction in the amount of infrastructure proposed to be installed and the level of activity to support the installation and operation and maintenance (O&M) of the proposed OOI. Specifically, the following summarizes the changes in infrastructure since the 2008 PEA and 2009 SER (details can be found in the Draft SSEA):

- A reduction in the number of moorings for the Endurance Array off the coast of Washington and the Pioneer Array off the coast of Massachusetts.
- A reduction in the overall infrastructure associated with the Regional Scale Nodes (RSN) off the coast of Oregon. The length of submarine cable that would be installed has been reduced from 1,403 km to 903 km, there would be one less primary/secondary node, and half as many junction boxes.
- Elimination of the Global moorings at the Mid-Atlantic Ridge site in the Atlantic Ocean.

For the site-specific installation and O&M of the proposed OOI, NSF is requesting an LOC from NMFS for no significant impacts to marine mammals under the MMPA and for no adverse effects to federally listed species and designated or proposed critical habitat under the ESA. A pdf copy of the OOI Draft SSEA is contained in the enclosed CD. The Draft SSEA includes an assessment of the potential site-specific impacts of the proposed OOI on those species previously assessed in the PEA or for those species or critical habitat that became listed after the completion of the PEA and associated MMPA and ESA consultations. In addition, NSF has attached an application for MMPA LOC in accordance with previous requirements. Based on the previous LOCs and the overall reduction in the potential impacts associated with the Proposed Action as described in detail in the Draft SSEA, we hope to receive notice of concurrence from NMFS within thirty (30) days from your receipt of this request.

For further information regarding the OOI program, please contact Jean McGovern, OOI Program Director, at jmcgover@nsf.gov or 703-292-7591.

Sincerely,



Jean McGovern

Attachments:

- LOC for MMPA compliance, from James Lecky, Director, OPR, NMFS to Dr. Shelby Walker, Program Manager, NSF; 4 November 2008.
- LOC for ESA compliance, from James Lecky, Director, OPR, NMFS to Dr. Shelby Walker, Program Manager, NSF; 12 November 2008.
- Draft SSEA for OOI (August 2010)

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

Dr. Shelby Walker
Program Officer
Division of Ocean Sciences
National Science Foundation
4201 Wilson Boulevard
Arlington, VA 22230

NOV 12 2008

Dear Dr. Walker:

This letter responds to your September 3, 2008, email request for the Office of Protected Resources' concurrence with your determination that the installation and operation of the proposed Ocean Observatories Initiative (OOI) is not likely to adversely affect threatened and endangered species. After careful review of your email, the Final Programmatic Environmental Assessment (PEA), supporting documentation and other relevant information we concur with your determination. We have also determined that the proposed action will not affect proposed critical habitat. This finding is based on the description of the proposed action as described in the PEA, additional information submitted on October 15, 2008, and our assessment of the action's effects on listed resources, which we summarize briefly below.

Background
The U.S. Commission on Ocean Policy has requested the creation of a sustained and Integrated Ocean Observing System (IOOS) to increase our knowledge of the oceans. The IOOS is a system of systems that routinely and continuously provides data and information on current and future states of the oceans and Great Lakes from the global scale of ocean basins to local scales of coastal ecosystems. The proposed action, installation of the infrastructure for the OOI in selected sites within the Atlantic, Pacific and Southern Oceans, is NSF's contribution to the IOOS. The OOI would be networked with and become an integral part of the IOOS and would enable real time observations of ocean and seafloor processes and events.

Proposed Action
The OOI design is based upon global, regional and coastal observational needs. To meet these needs the OOI structure consists of nodes or buoy sites designed and equipped to capture oceanic processes and events at global, regional and costal scales. These nodes would provide power and Internet connectivity to a variety of seafloor and platform instruments and sensors. Up to four Global-scale Nodes (GSNs) are proposed for ocean sensing in the Eastern Pacific, Atlantic and Southern oceans. These nodes will be sited in the Southern Gulf of Alaska (Station Papa), in the Southern Ocean off Chile, in the Irminger Sea southeast of Greenland and along the Mid-Atlantic Ridge.

Two Regional-scale Nodes (RSNs) are proposed for the Eastern Pacific. These nodes would be sited off the coast of Washington and Oregon and would consist of seafloor observatories with various chemical, biological, and geological sensors linked to shore via submarine cable. The submarine cable will supply power and two-way communications for the RSN. The submarine cable would originate from two field stations located at Warrenton and Pacific City, Oregon and terminate at four seafloor nodes at four offshore locations. These field stations are existing submarine telecommunications shore stations but horizontal directional drilling would be required to accommodate new submarine cables.

Coastal-scale Nodes (CSNs) would be represented by the Endurance Array and the Pioneer Array. The Endurance Array is comprised of two lines of moorings, one located off the coast of central Oregon (Newport Line) and the other off the coast of central Washington (Grays Harbor Line). The Newport Line would also include sensors linked via submarine cable. The Pioneer Array would be sited off the coast of Massachusetts.

The OOI infrastructure would include cables, buoys, deployment platforms, moorings, junction boxes, electric power generation and two-way communications systems. In addition, mobile assets such as autonomous underwater vehicles (AUVs) and gliders would provide sampling within the GSN and CSN observatories. This large-scale infrastructure would support sensors located at the sea surface, in the water column and at or beneath the seafloor.

Effects of the Proposed Action

Aspects of the OOI infrastructure and operation that may affect listed resources include submarine cable laying and other infrastructure installations, water column moorings and cables and acoustic sources associated with sensors, profilers, multibeam ecosounders, etc (See Table 1). These aspects will be discussed below. The proposed action does not occur in any designated critical habitat, but does occur in critical habitat proposed for the southern distinct population (DPS) of green sturgeon.

As noted in your PEA vessels and activities associated with installation of submarine cable, moorings and associated scientific sensors on the sea floor may cause listed species to temporarily avoid the immediate vicinity of the proposed installation activities. This avoidance, however, would not rise to the level of harassment due to the small scale and temporary nature of the proposed activities. Cable and mooring deployment operations would occur slowly enough for listed resources to avoid the deployment vessel, thus, we would not expect vessel strikes to occur.

Entanglement of listed species is also not likely to occur. In waters less than 1,100 meters (m) submarine cable would be buried. In water depths greater than 1,100 m, where cable is not buried, the cable's rigidity would cause it to lie flat on the seafloor or over rocky areas, not looping or floating, thereby eliminating the potential for entanglement. There have been no documented entanglements associated with submarine cables during the last 50 years (Norman and Lopez 2002).

The likelihood of entanglements of listed species within mooring cables in the water column is considered low because cables are sufficiently rigid eliminating the slack that causes entanglement and the spacing between moorings is sufficiently wide as to allow whales to migrate through without snagging lines or presenting barriers to migration.

The OOI infrastructure would contain active acoustic sources associated with sensors attached to water column moorings and on the seafloor, gliders and AUVs (See Table 1 below). Most of the acoustic sources have frequencies much higher than those that would be audible by fish (500 Hz to ~3 kHz), marine mammals (mysticetes ~7 Hz to 22 kHz; odontocetes ~150 Hz to 180 kHz; pinnipeds 1-180 kHz) and sea turtles (60 Hz to 1 kHz) (Richardson *et al.* 1995; Southall *et al.* 2007, Ridgway *et al.*1969). The ADV, BAP, and the ADCP would all operate at frequencies greater than 180 kHz, with most operating at frequencies greater than 200 kHz. However, the HPIES, MBES, SBP, altimeters, acoustic modems, and tracking pingers operate at frequencies between 2 and 170 kHz and the hearing frequencies for fish, odontocetes, namely sperm whales, and humpback whales (Au 2000) overlap with these frequencies. These acoustic sources would be audible to individuals of these species within the narrow extent of a transmitted sound beam. Given the low duty cycles, the brief period when an individual animal would potentially be within the very narrow beam of the source and the relatively low source levels we would not expect fish, sperm whales or humpback whales to be harassed by these acoustic sources.

Table 1: Potential Acoustic Sources Within the OOI

Acoustic Source	*Frequency*	*Source Level (re 1μPa @ 1 m)*	*Pulse Length*	*Purpose/Platform(s)*
ADV	1-6 MHz	~220	600 μs	Current velocity/Mooring, benthic
ADCP	75-1,200 kHz	~220	0.6-1-5 ms	Current velocity across the water column/Mooring profilers, gliders, AUVs, benthic sensors
BAPs	200 kHz	213	150-350 μs	Presence and location of biological parameters (e.g., zooplankton)/Mooring profilers
Altimeters	170 kHz	206	4 sec	Height above seafloor/glider
MBES	100 kHz	225	*	Bottom mapping/AUVs, gliders, mooring profilers
Acoustic modems	20-30 kHz	180	1-2,000 ms	Communication/Moorings, AUVs, gliders, mooring profilers
Tracking pingers	10-30 kHz	180-186	~7 ms	Location/AUVs, gliders
HPIES	12 kHz	172, 177, 182 (depending on depth)	6 ms	Water column velocity, pressure, temperature/Mooring, benthic sensors
SBP	2-7 kHz	203	*	Bottom mapping/AUVs

Critical habitat for the southern DPS of green sturgeon was proposed on September 8, 2008 (73 FR 52084). Proposed critical habitat includes coastal U.S. marine waters within

110 m depth from Monterey Bay, California (including Monterey Bay), north to Cape Flattery, Washington, including the Strait of Juan de Fuca, Washington, to its United States boundary as well as several rivers and bays along the west coast. The primary constituent elements necessary for the conservation of green sturgeon in nearshore estuarine areas are a safe and timely migratory corridor, water quality necessary for the normal behavior, growth and viability of green sturgeon (i.e., free of contaminants) and abundant prey.

The landing stations for the submarine cables are located at Warrenton and Pacific City, Oregon. Horizontal directional drilling (HDD) would be required to accommodate new cables landing at each station. Both landing stations run perpendicular through green sturgeon critical habitat and out into offshore areas. The construction activities related to landing new cable is not expected to affect proposed critical habitat. The bentonite clay used in the drilling process is non-toxic and its use would be discontinued during the final stages of drilling as the bore exits the seabed. Any turbidity generated from the HDD process or any other activities such as the installation of cables on the seafloor or instruments is expected to be minimal and short term. Given this, we do not expect the primary constituent elements necessary for the conservation of green sturgeon in nearshore estuarine areas to be affected and, therefore, the proposed OOI is not expected to affect proposed critical habitat.

This concludes section 7 consultation on the proposed Ocean Observatories Initiative. We understand that additions (e.g., sensors, moorings, cables) to some or all elements of the OOI may be proposed in the future. Please be aware that these additions may require further consultation with the Office of Protected Resources. If you have any questions or concerns about this consultation or the consultation process in general, please feel free to contact Kellie Foster at 301-713-1401.

Sincerely,

James H. Lecky
Director,
Office of Protected Resources

Au WWL. 2000. Hearing in whales and dolphins: an overview. Chapter 1 *In:* Au, W.W.L., A.N. Popper, and R.R. Fay (eds), Hearing by Whales and Dolphins. Springer-Verlag New York, Inc. pp.1-42.

Richardson WJ, Greene CR, Jr., Malme CI, Thomson DH. 1995. Marine Mammals and Noise. San Diego: Academic Press. 576 p.

Ridgway SH, Wever EG, McCormick JG, Palin J, Anderson JH. 1969. Hearing in the giant sea turtle, *Chelonia mydas*. Proceedings of the National Academy of Sciences of the United States of America 64:884-890.

Southall BL, Bowles AE, Ellison WT, Finneran JJ, Gentry RL, Greene CR, Jr., Kastak D, Ketten DR, Miller JH, Nachtigall PE and others. 2007. Marine Mammal Noise Exposure Criteria: Initial Scientific Recommendations. Aquatic Mammals 33(4):411-521.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

JAN 25 2011

Jean McGovern, Program Director
Ocean Observatory Initiative
National Science Foundation
4201 Wilson Boulevard, Suite 725
Arlington, VA 22230

Dear Ms. McGovern:

This letter responds to the National Science Foundation's (NSF's) August 10, 2010, letter regarding the Ocean Observatories Initiative (OOI). Your letter requests the Office of Protected Resource's (OPR's) concurrence with your determination that the proposed revisions to the installation, operation and maintenance of the OOI are not likely to adversely affect species currently listed or critical habitat currently designated nor species proposed for listing or critical habitat proposed for designation.

On November 12, 2008, OPR concurred with NSF's determination that the proposed installation and operation of the OOI was not likely to adversely affect threatened and endangered species or proposed critical habitat. This concurrence was based on information contained in the Final Programmatic Environmental Assessment (PEA) for the OOI and other relevant information.

A number of events have occurred since 2008 that have resulted in a re-evaluation of the proposed installation and operation of the OOI:

- modifications to the design, installation and operation of the OOI;
- a new proposal to test OOI moorings and certain equipment in Puget Sound;
- a number of species have been listed and proposed for listing as well as areas designated and proposed for designation as critical habitat.

Original OOI Design
The OOI design is based upon global, regional and coastal observational needs. To meet these needs the original proposed OOI structure consisted of nodes or buoy sites designed and equipped to capture oceanic processes and events at global, regional and coastal scales. These nodes would provide power and Internet connectivity to a variety of seafloor and platform instruments and sensors. Up to five Global-scale Nodes (GSN) were proposed for ocean sensing in the Eastern Pacific, Atlantic and Southern oceans. These nodes were to be sited in the Southern Gulf of Alaska (Station Papa), in the Southern Ocean off Chile, in the Irminger Sea southeast of Greenland, in the south Atlantic off Argentina (Argentine Basin) and along the Mid-Atlantic Ridge.

Regional-scale Nodes (RSN) are proposed for the Eastern Pacific. The RSN would be sited off the coast of Oregon and would consist of seafloor observatories with various chemical, biological, and geological sensors linked to shore via submarine cable. The

submarine cable will supply power and two-way communications for the RSN. The submarine cable would originate from two shore stations located at Warrenton and Pacific City, Oregon and terminate at four seafloor nodes at four offshore locations. These shore stations are existing submarine telecommunications shore stations but horizontal directional drilling would be required to accommodate new submarine cables.

Coastal-scale Nodes (CSN) would be represented by the Endurance Array and the Pioneer Array. The Endurance Array is comprised of two lines of moorings, one located off the coast of central Oregon (Newport Line) and the other off the coast of central Washington (Grays Harbor Line). The Newport Line would also include sensors linked via submarine cable to the RSN component. The Pioneer Array would be sited off the coast of southern Massachusetts.

The OOI infrastructure includes cables, buoys, deployment platforms, moorings, junction boxes, electric power generation and two-way communications systems. In addition, mobile assets such as autonomous underwater vehicles (AUVs) and gliders would provide sampling within the GSN and CSN observatories. This large-scale infrastructure would support sensors located at the sea surface, in the water column and at or beneath the seafloor.

Proposed Changes to the OOI Design and Operation

RSN

There has been a reduction in the overall infrastructure associated with the RSN off the coast of Oregon. The length of the submarine cable that would be installed has been reduced from 1,403 km to 903 km, including burying 166 km less of backbone cable, there will be two less primary/secondary node sites, 15 fewer low-voltage nodes, 7 fewer low-power junction boxes, and 8 fewer medium-power junction boxes all culminating in a reduction in installation and operation and maintenance activities. In addition only one shore station (Pacific City) is proposed for use.

CSN

There has also been an overall reduction in the amount of infrastructure associated with the CSN. Specifically, the following modifications are proposed to the design, installation and operation and maintenance of the CSN components:

- For the Endurance Array one subsurface mooring would be eliminated from the Grays Harbor Line off Washington and one subsurface mooring would be eliminated from the Newport Line off Oregon. Additionally for the Grays Harbor line the submarine cable linking the now eliminated subsurface mooring to the RSN would also be eliminated; and
- The Pioneer Array off the coast of Massachusetts would contain three surface moorings instead of four, two surface piercing profiler moorings instead of four and five wire-following profiler moorings instead of four. While the array will still contain three AUVs the number of gliders will decrease from ten to six.

Additionally, glider operations areas have been revised for both the Endurance and Pioneer Arrays:

- The glider tracks corresponding to the Grays Harbor Line and the Newport Line would be extended two degrees from 126° W to 128° W and an additional east-west glider track would be added north of Pacific City, Oregon; and
- The glider mission box for the Pioneer Array would be extended 4 nm to the east and the AUV mission box would be extended 5 nm to the north.

CSN and GSN components will be tested at the Endurance and Pioneer Array areas prior to actual deployment. RSN components may be tested at two sites within Puget Sound, Washington (one site in Shilshole Bay and one site in eastern central Puget Sound); at the Monterey Accelerated Research System Ocean Observatory, Monterey Bay, California; or at the Victoria Experimental Network Under the Sea facility in British Columbia, Canada. Each test would last less than 24 hours and a maximum of 5 tests would occur each year, starting in spring 2011.

OOI installation would begin with the laying of RSN submarine cable in 2011. Limited data flow would begin in 2012 with deployment of the Endurance and Pioneer Array gliders and installation of the RSN's primary nodes. In 2013 installation of the Argentine Basin, Irminger Sea and Station Papa GSNs would occur along with deployment of gliders, the beginning of data flow and commissioning of these GSNs. The Southern Ocean GSN will be deployed in 2014. Although the Mid-Atlantic GSN is still considered a viable component of the overall OOI design, it is not expected to be implemented during the construction period ending in 2015, but may be implemented at a later date. All other aspects of the design, installation and operation of the OOI remains as originally described in the PEA and the 2008 concurrence letter and would be operational and online by 2015.

Listed Species that May be Affected by the Proposed Action
The installation, operation and maintenance of the OOI occurs in several locations (GSN sites) and ocean basins (North Atlantic, South Atlantic, Pacific and Southern Oceans). The following species occur within the action area for the OOI and may be affected by the proposed installation and operation and maintenance of the OOI:

Blue Whale	*Balaenoptera musculus*	Endangered
Fin Whale	*Balaenoptera physalus*	Endangered
Humpback Whale	*Megaptera novaeangliae*	Endangered
North Atlantic Right Whale	*Eubalaena glacialis*	Endangered
North Pacific Right Whale	*Eubalaena japonica*	Endangered
Sei Whale	*Balaenoptera borealis*	Endangered
Sperm Whale	*Physeter macrocephalus*	Endangered
Killer Whale (Southern Resident)	*Orcinus Orca*	Endangered

Steller Sea Lion (Eastern Distinct Population Segment (DPS)	*Eumetopias jubatus*	Threatened
Steller Sea Lion (Western DPS)	*Eumetopias jubatus*	Endangered
Green sea turtle	*Chelona mydas*	Endangered/ Threatened[1]
Kemp's ridley sea turtle	*Lepidochelys kempii*	Endangered
Leatherback sea turtle	*Dermochelys coriacea*	Endangered
Loggerhead sea turtle	*Caretta caretta*	Threatened
Loggerhead sea turtle (Northwest Atlantic Ocean DPS)	*Caretta caretta*	Proposed Endangered[2]
Loggerhead sea turtle (North Pacific Ocean DPS)	*Caretta caretta*	Proposed Endangered[3]
Olive Ridley sea turtle	*Lepidochelys olivacea*	Endangered[4]
Chinook salmon (Puget Sound ESU)	*Oncorhynchus tshawytscha*	Threatened
Steelhead (Puget Sound DPS)	*Oncorhynchus mykiss*	Threatened
Green Sturgeon	*Acipenser medirostris*	Threatened
Pacific Eulachon (Southern DPS)	*Thalichthys pacificus*	Threatened

Critical Habitat
Critical habitat was designated for Southern Resident killer whales on November 29, 2006 (71 FR 69068) within Puget Sound.

Critical habitat was designated for the southern DPS of green sturgeon on October 9, 2009 (74 FR 52300) off the coasts of California, Oregon and Washington.

Critical habitat for leatherback sea turtles was proposed for designation on January 5, 2010, (75 FR 319) off the coasts of California, Oregon and Washington.

Effects of the Proposed Action
OOI installation and operation and maintenance activities involve submarine cable laying and installation of other OOI infrastructure, vessel traffic associated with cable laying

[1] Green sea turtles in U.S. waters are listed as threatened except for the Florida breeding population, which is listed as endangered. Due to the inability to distinguish between the populations away from the nesting beaches, green sea turtles are considered endangered wherever they occur in U.S. waters.
[2] On March 15, 2010 (75 FR 12598), NMFS issued a proposed rule that determined that globally loggerhead sea turtles comprise at least nine distinct population segments (DPSs). Two of these DPSs were proposed as threatened species and the remaining seven DPSs were proposed as endangered.
[3] On March 15, 2010 (75 FR 12598), NMFS issued a proposed rule that determined that globally loggerhead sea turtles comprise at least nine distinct population segments (DPSs). Two of these DPSs were proposed as threatened species and the remaining seven DPSs were proposed as endangered.
[4] Olive ridley sea turtles are listed as threatened except for the Mexico breeding population, which is listed as endangered. Due to the inability to distinguish between the populations away from the nesting beaches, olive ridley sea turtles are considered endangered wherever they occur in U.S. waters.

and installation activities, testing of and sited surface and subsurface moorings and testing and operation of acoustic sources associated with sensors, profilers, multibeam ecosounders, etc (See Table 1 for a representative list of acoustic sources). Potential stressors that may affect listed and proposed species and designated and proposed critical habitat associated with the above activities include disturbance from submarine cable laying and other infrastructure installations and vessel traffic, interactions with water column moorings and submarine cables and disturbance from testing and operation of acoustic sources. These potential stressors will be discussed below.

Cable Laying, Vessel Traffic, Installation and Maintenance Activities
Vessel traffic and activities associated with installation and maintenance of submarine cable, moorings and associated acoustic sources on the sea floor may cause listed and proposed species to temporarily avoid the immediate vicinity of the proposed installation activities. This avoidance, however, would not rise to the level of harassment due to the small scale and temporary nature of the proposed activities. Cable and mooring deployment operations would occur slowly enough for listed whales and listed and proposed sea turtles to avoid the deployment vessel, thus, we would not expect vessel strikes from cable laying operations to occur.

In addition NMFS and NSF have agreed upon the following mitigation and monitoring measures to minimize or avoid adverse effects to marine mammals and sea turtles:

1) The cable-laying vessel will monitor boat speed and direction to avoid marine mammals and sea turtles during cable burial operations. To the extent practicable, the vessel will maintain speed limits of generally less than 2 knots to avoid interactions with marine mammals and sea turtles.

2) NSF will establish a 500-ft (152 m) safety zone along the proposed cable route to avoid marine mammals and sea turtles.

3) To the extent practicable, NSF will schedule cable-laying and installation activities during daylight hours when visibility allows detection of marine mammals and sea turtles within the safety zone.

4) Trained marine mammal observers (MMOs) will monitor for marine mammals and sea turtles during cable-laying activities. Any incidents will immediately be reported to NMFS' Office of Protected Resources by calling 301-713-2289.

5) To the extent practicable, MMOs will have the authority to call for curtailment of operations if any marine mammal or sea turtle enters the safety zone. If a marine mammal or sea turtle is sighted, operations will be delayed until the animal moves out of the area. The operations should not resume or startup until the animal is confirmed to be out of the safety zone or 15 minutes after the last sighting of the animal within the safety zone, whichever is later.

6) The MMOs will record and document the dates, times, locations, species, number, distance from vessel, and behavior of marine mammals and sea turtles sighted during monitoring activities as well as mitigation measures implemented. After completion of submarine cable installation and at subsequent submarine cable inspection/maintenance activities these records will be combined into a summary report to be sent to the Director, NMFS' Office of Protected Resources, 1315 East-West Highway, Silver Spring, MD, 20910.

Submarine Cable and Mooring Testing and Siting
Entanglement of listed and proposed species in submarine cable is also not likely to occur. In waters less than 1,100 meters (m) submarine cable would be buried. In water depths greater than 1,100 m, where cable is not buried, the cable's rigidity would cause it to lie flat on the seafloor or over rocky areas, not looping or floating.

Heezen (1957) documented marine mammal entanglement in submarine cables based on data from the late 1800s to 1955. All positively identified whales were sperm whales. The author concluded that the sperm whales became entangled in extremely slack or looped cables while foraging along the seafloor. No instance of marine mammal entanglement in submarine cables has been documented since the 1950s (STARS 2002 as cited in NMFS 2010). Wood and Carter (2008) also reported an absence of whale entanglements since 1959 and suggested that the absence of entanglements is due to advances in cable design that produces cable less prone to self-coiling, and standard practices in submarine cable laying that minimizes suspensions and loops, avoidance of rough topography that may cause suspension of the cable, burial of cables on the continental shelf and upper slope to protect the cable against other seabed activities but which lessens the potential for entanglement and the use of repair features that reduce cable slack. OOI cable routes would be inspected at 5-year intervals after installation to determine whether there are exposed sections of cable needing repair. These advances and practices should reduce the likelihood of entanglement in submarine cable to levels so low as to be discountable.

NSF proposes to test moorings as well as site moorings into their final positions. The likelihood of entanglements of listed or proposed species within surface and subsurface mooring cables in the water column is considered low because cables are semi-rigid eliminating the slack and looping that causes entanglement. Spacing between moorings is sufficiently wide as to allow whales to migrate through without snagging lines or presenting barriers to migration. For example, moorings will be placed at approximately 25 meter (m), 80 m and 500 m water depths for the Endurance Array. The distance between these moorings is 13 nautical miles (nm) between the 25 and 80 m moorings and 20 nm between the 80 and 500 m moorings. For the GSNs, mooring spacing is larger and is on the order of 10's of kilometers apart.

Testing and Operation of Acoustic Sources
The OOI infrastructure would contain active acoustic sources associated with sensors attached to water column moorings and on the seafloor, gliders and AUVs (See Table 1 below). RSN components may be tested at two sites within Puget Sound, Washington (one site in Shilshole Bay and one site in eastern central Puget Sound); at the Monterey Accelerated Research System Ocean Observatory, Monterey Bay, California; or at the Victoria Experimental Network Under the Sea facility in British Columbia, Canada. Each test would last less than 24 hours and a maximum of 5 tests would occur each year, starting in spring 2011.

Most of the listed and proposed species within the action area have hearing sensitivities that are much lower than those that would be produced by the acoustic sources for the OOI.

Table 1: Representative Acoustic Sources and Specifications for the OOI

Acoustic Source	Frequency	Source Level (re 1μPa @ 1 m)	Pulse Length	Duty Cycle	Beam Width	Purpose/Platforms
ADV	1-6 MHz	~220 dB	600 μs	<1%	≤ 5°	Current velocity/Mooring, benthic
ADCP	75-1,200 kHz	~220 dB	0.4-25 ms	<2%	≤ 5°	Current velocity across the water column/Mooring profilers, gliders, AUVs, benthic sensors
BAPs	38-460 kHz	213 dB	150-350 μs	<1%	10°	Presence and location of biological parameters (e.g., zooplankton)/Mooring profilers
Altimeters	170 kHz	206 dB	4 ms	<1%	<5°	Height above seafloor/glider
MBES	100 kHz	225 dB	1-20 sec	<1%	1-2°	Bottom mapping/AUVs, gliders, mooring profilers
Acoustic modems	20-30 kHz	180 dB	1-2,000 ms	<1%	Omni	Communication/Moorings, AUVs, gliders mooring profilers
Tracking pingers	10-30 kHz	180-186 dB	~7 ms	Periodic	Omni	Location/AUVs, gliders
HPIES	12 kHz	172, 177, 182 dB (depending on depth)	6 ms	<1%	<5°	Water column velocity, pressure, temperature/Mooring, benthic sensors
SBP	2-7 kHz	203 dB	Chirp pulse	2%	Omni	Bottom mapping/AUVs

Marine Mammal Hearing
The available data on hearing sensitivities of mysticetes which includes blue, fin, sei and right whales indicates that these whales have hearing sensitivities between ~ 7 Hz to 24 kHz (Au et al 2006; Richardson *et al.* 1995; Southall *et al.* 2007). For odontocetes which includes sperm and southern resident killer whales the available data indicates hearing

sensitivities of 2.5 to 60 kHz and 1 to at least 120 kHz, respectively (Carder and Ridgway 1990; Szymanski et al 1999 *in* NMFS 2008).

The only study involving underwater hearing of male and female steller sea lions was conducted by Kastelein et al (2005). The authors estimated male steller sea lion maximum hearing sensitivity at 1 kHz (77 dB received level) and best hearing (defined at 10 dB from the maximum sensitivity) between 1 and 16 kHz with poorer sensitivity below 1 kHz and above 16 kHz. The female steller sea lion's maximum sensitivity occurred at 25 kHz (at 73 dB received level) with poorer sensitivity below 16 kHz and above 25 kHz. Because of the scarcity of information relating to hearing in steller sea lions and other pinnipeds, Southall et al (2007) estimated the functional underwater hearing range of all pinnipeds as between 75 Hz and 75 kHz.

Sea Turtle Hearing

The information on sea turtle hearing is very limited and there is no information on kemp's ridley, olive ridley or leatherback sea turtle hearing. However, based on the hearing sensitivities of green and loggerhead sea turtles we assume that all sea turtles' best hearing sensitivity will be in the low frequency range: from 200 to 400 Hz with rapid declines for tones at lower and higher frequencies. Their hearing will probably have a practical upper limit of about 1000 Hz (Bartol *et al.* 1999, Ridgway *et al.* 1969).

Pacific Salmon Hearing

The data available on the hearing sensitivities of Pacific salmon is limited. However, based on the information available for other salmonids, we assume that the Pacific salmon have hearing sensitivities ranging from less than 100 Hz to about 580 Hz (Hawkins and Johnstone 1978, Knudsen et al. 1992, 1994).

Green Sturgeon Hearing

While we do not have specific information on hearing in green sturgeon, Lovell et al. (2005) studied sound reception in and the hearing abilities of paddlefish (*Polyodon spathula*) and lake sturgeon (*Acipenser fulvescens*). They concluded that both species were responsive to sounds ranging in frequency from 100 to 500 Hz with lowest hearing thresholds from frequencies between 200 and 300 Hz and higher thresholds at 100 and 500 Hz. We assume that the hearing sensitivities reported for these other species of sturgeon are representative of the hearing sensitivities of southern green sturgeon.

The ADV and altimeters would operate at frequencies of 1-6 MHz and 170 kHz, respectively. These frequencies would not be audible to any fish, marine mammal or sea turtle species and, therefore, no effects to listed and proposed species is expected from these acoustic sources.

The ADCP, BAPs, HPIES, MBES, SBP, altimeters, acoustic modems, and tracking pingers, however, can operate at frequencies within the hearing sensitivities for humpback whales (up to 24 kHz), sperm whales (up to 60 kHz), Southern Resident killer whales (up to 120 kHz) and steller sea lions (75 Hz to 75 kHz). Humpback whales, sperm whales, Southern Resident killer whales and steller sea lions are expected to be

migrating or feeding in areas where they could be exposed to acoustic sources. Acoustic sources that produce beams (all sources except modems, pingers and SBPs) would only be audible to individuals of these species within the narrow extent of a transmitted sound beam. Modems, pingers and SBPs have relatively short pulse lengths and any exposure that may occur is expected to be brief. Given this, we would only expect these marine mammals to experience a brief exposure (instead of repeated exposures where sound energy could accumulate). Because of the low duty cycles, short pulses and the period within which an individual animal would potentially be within the very narrow beam of the other acoustic sources these marine mammals could be disturbed for very brief periods of time, but we would not expect this level of disturbance to rise to the level of harassment. Any such disturbance is expected to be insignificant and, therefore, humpback whale, sperm whales, Southern Resident killer whales and steller sea lions are not likely to be adversely affected by these acoustic sources.

NSF may also test RSN acoustic components at two sites within Puget Sound, Washington (one site in Shilshole Bay and one site in eastern central Puget Sound); at the Monterey Accelerated Research System Ocean Observatory, Monterey Bay, California; or at the Victoria Experimental Network Under the Sea facility in British Columbia, Canada. Each test would last less than 24 hours and a maximum of 5 tests would occur each year, starting in spring 2011. This testing would occur within designated Southern Resident killer whale critical habitat. Southern Resident killer whale critical habitat (71 FR 69068; November 29, 2006) includes all marine waters within Puget Sound delineated by the following:

> All marine waters in Island County east and south of the Deception Pass Bridge (Highway 20), and east of a line connecting the Point Wilson Lighthouse and a point on Whidbey Island located at 48°12′30″ N./ 122°44′26″ W.; all marine waters in Skagit County east of the Deception Pass Bridge (Highway 20); all marine waters of Jefferson County east of a line connecting the Point Wilson Lighthouse and a point on Whidbey Island located at latitude 48°12′30″ N./122°44′26″ W., and north of the Hood Canal Bridge (Highway 104); all marine waters in eastern Kitsap County east of the Hood Canal Bridge (Highway 104); all marine waters (excluding Hood Canal) in Mason County; and all marine waters in King, Pierce, Snohomish, and Thurston counties.

The primary constituent elements within critical habitat identified as necessary for the conservation of killer whales are: water quality to support growth and development and prey species of sufficient quantity, quality, and availability to support individual growth, reproduction, and development, as well as overall population growth and passage conditions to allow for migration, resting and foraging.

The preferred prey for Southern Resident killer whales is chinook salmon (78 percent of identified prey), followed by chum salmon (11 percent), coho salmon (5 percent), steelhead (*O. mykiss*, 2 percent), sockeye salmon (*O. nerka*, 1 percent), and non-salmonids (e.g., Pacific herring and quillback rockfish [*Sebastes maliger*] 3 percent combined; NMFS 2008). As discussed earlier, Pacific salmonids will not hear sounds

produced by any acoustic sources used for the OOI infrastructure. As these test will only occur 5 times per year for less than 24 hours we do not expect these killer whales' migration, resting or foraging activities to be affected by any exposure to these acoustic sources, and therefore, Southern Resident killer whale critical habitat is not expected to be affected by acoustic source testing in Puget Sound.

Submarine Cable Shore Stations
As mentioned in the 2008 concurrence letter, the RSN submarine cables will be installed from shore by way of horizontal directional drilling (HDD) below the sea floor from the existing beach manhole and associated shore station at Pacific City, Oregon. The HDD portion of the proposed submarine cable would occur within green sturgeon critical habitat. It would also occur within proposed critical habitat for the leatherback sea turtle.

Critical habitat for the southern DPS of green sturgeon was designated October 9, 2009, (74 FR 52300), and includes: coastal U.S. marine waters within 110 m depth from Monterey Bay, California (including Monterey Bay), north to Cape Flattery, Washington, including the Strait of Juan de Fuca, Washington, to its United States boundary as well as several rivers and bays along the west coast. The primary constituent elements necessary for the conservation of green sturgeon in nearshore estuarine areas are a safe and timely migratory corridor, water quality necessary for the normal behavior, growth and viability of green sturgeon (i.e., free of contaminants) and abundant prey.

Critical habitat for leatherback sea turtles was proposed on January 5, 2010 (75 FR 319), and consists of two marine areas: 1) along the California coast from Point Arena to Point Vicente out to the 200 m isobath, and 2) from the U.S./Canada border to the Umpqua River (Winchester Bay), Oregon out to the 2,000 m isobath. The primary constituent elements within critical habitat identified as necessary for the conservation of leatherback sea turtles are occurrence of prey species of sufficient condition, distribution, diversity and abundance to support individual as well as population growth, reproduction, and development and migratory pathway conditions to allow for safe and timely passage and access to/from /within high use foraging areas.

As discussed in the 2008 concurrence letter two existing shore stations were designated for the submarine cable: Warrenton, Oregon and Pacific City, Oregon. Per changes to the OOI design only one shore station (Pacific City) is necessary and currently proposed for use. HDD would still be required to accommodate a new cable landing south of the existing shore station. Although the RSN submarine cable would run perpendicular through green sturgeon critical habitat and out into offshore areas, the cable would be below the sea bottom within the substrate. The only bottom disturbance would be the two exit points of the HDD; those exit points will be ~0.5 m in diameter and ~0.9 mile from shore at a depth of ~20 m. The bentonite clay used in the drilling process is non-toxic and its use would be discontinued during the final stages of drilling as the bore exits the seabed. Any turbidity generated from the HDD process or any other activities such as the installation of cables on the seafloor or instruments is expected to be minimal and short term. Water quality conditions generated by this HDD process is not expected to affect the safe and timely migration or abundant prey for green sturgeon or leatherback

sea turtles. Given this the construction activities related to landing new cable is not expected to affect the primary constituent elements necessary for the conservation of green sturgeon or the primary constituent elements necessary for the conservation of leatherback sea turtles. The proposed OOI is not expected to affect green sturgeon critical habitat nor proposed leatherback sea turtle critical habitat.

Conclusion
After review of NSF's Draft Site-Specific Environmental Assessment (SSEA) and other relevant information we concur with your determination that the proposed revisions to the installation and operation of the OOI are not likely to adversely affect currently listed or proposed threatened and endangered species or currently designated or proposed critical habitat.

This concludes section 7 consultation on the proposed Ocean Observatories Initiative. If project plans change or if you have any questions or concerns about this consultation or the consultation process in general, please feel free to contact Kellie Foster at 301-713-1401.

Sincerely,

Therese Conant
Acting Chief,
Endangered Species Division,
Office of Protected Resources

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MARINE MAMMAL RECORDING FORM - RECORD OF SIGHTING
Ocean Observatories Initiative

Ship/ platform name	**Observer's/operator's name**	**Sighting number** (start at 1 for first sighting of survey)
Date	**Time at start of encounter** (UTC)	**Time at end of encounter** (UTC)

Vessel Speed (knots)	**Position** (latitude and longitude)	**Water depth** (meters)

Species/ species group	**Description** (include features such as overall size; shape of head; colour and pattern; size, shape and position of dorsal fin; height, direction and shape of blow)
Bearing to animal (when first seen or heard)	**Range to animal** (when first seen or heard) (meters)

Total number of animals	**Number of adults**	**Number of juveniles**

Behaviour

Direction of travel (relative to ship)

- ☐ Towards ship
- ☐ Away from ship
- ☐ Parallel to ship in same direction as ship
- ☐ Travelling in opposite direction to ship
- ☐ Crossing ahead of ship
- ☐ Variable
- ☐ Milling
- ☐ Other

Direction of travel (compass points)

- ☐ N
- ☐ NE
- ☐ E
- ☐ SE
- ☐ S
- ☐ SW
- ☐ W
- ☐ NW
- ☐ Variable

Wind force (Beaufort scale)	**Sea state**	**Visibility**	**Sunglare**
	G = glassy (like mirror) S = slight (no or few white caps) C = choppy (many white caps) R = rough (big waves, foam, spray)	P = poor (< 1 km) M = moderate (1-5 km) G = good (> 5 km)	N = no glare W = weak glare S = strong glare V = variable

Mitigation Required? (according to requirements of guidelines/ regulations in country concerned)	**Length of delayed Start** (if relevant) (from original planned start time to actual start time, in minutes)	**Length of cessation of cabling activities** (if relevant) (length of time until subsequent start, in minutes)
☐ None required ☐ Delayed start of cabling activities ☐ Cessation of cabling activities		

NMFS CORRESPONDENCE REGARDING MMPA

NATIONAL SCIENCE FOUNDATION
4201 WILSON BOULEVARD
ARLINGTON, VIRGINIA 22230

August 10, 2010

Mr. James Lecky
Office of Protected Resources (F/PR)
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, Md. 20910

Dear Mr. Lecky:

To provide the U.S. Ocean sciences research community with the basic sensors and infrastructure required to make sustained, long-term, and adaptive measurements in the oceans, the National Science Foundation's (NSF's) Division of Ocean Sciences is currently planning a major research facility program referred to as the Ocean Observatories Initiative (OOI). The OOI Project is funded in part by the American Recovery and Reinvestment Act via a cooperative agreement with NSF. The proposed OOI would be an interactive, globally distributed and integrated network of cutting-edge technological capabilities for ocean observatories. The OOI design is based upon three main technical elements across global, regional, and coastal scales. The OOI infrastructure would include cables, buoys, deployment platforms, moorings, junction boxes, electric power generation, mobile assets, and two-way communications systems. This large-scale infrastructure would support sensors located at the sea surface, in the water column, and at or beneath the seafloor.

In June 2008, NSF prepared the Programmatic Environmental Assessment (PEA) assessing the potential impacts to marine resources from the proposed OOI at an initial programmatic stage (a pdf copy of the PEA is on the enclosed CD). At that time, NSF requested a 'Letter of Concurrence' (LOC) from the National Marine Fisheries Service (NMFS) for 'no significant impacts' to marine mammals under the Marine Mammal Protection Act (MMPA) and for 'no adverse effects' to federally listed species and designated or proposed critical habitat under the Endangered Species Act (ESA). In November 2008, NMFS issued an LOC stating that installation and operation of the proposed OOI, as described in the PEA, would not likely result in the take of marine mammals and that an Incidental Harassment Authorization (IHA) is not necessary pursuant to the MMPA (refer to the attached LOC dated 4 November 2008). In November 2008, NMFS also issued an LOC stating that the installation and operation of the proposed OOI, as described in the PEA, is not likely to adversely affect threatened and endangered species and will not affect proposed critical habitat (refer to the attached LOC dated 12 November 2008). At the time of the PEA, NSF stated that any future changes or additions to the infrastructure or sensors will be evaluated separately from these determinations.

The Draft Site-specific Environmental Assessment (Draft SSEA) has been prepared by NSF to assess the potential impacts on the human and natural environment associated with proposed site-specific requirements in the design, installation, and operation of the OOI that were previously assessed in the PEA and a Supplemental Environmental Report (SER). Because the OOI action would occur over several different locations across the Atlantic and Pacific oceans and would be phased in over time, it was determined that an initial programmatic approach would be the most efficient in terms of overall analysis and, hence, a PEA was prepared in 2008. A programmatic analysis at a conceptual level of detail provided early identification and analysis of potential impacts, methods to mitigate anticipated impacts, and a strategy to address issue areas at a tiered level if necessary. The PEA set up a framework for addressing the time- and location-specific aspects of the proposed OOI, as well as more detailed technical information (when it becomes available) through site-specific tiered EAs (e.g., the Draft SSEA) or other environmental documentation (e.g., the SER). The SER was prepared in April 2009 to assess the potential impacts on the environment associated with proposed modifications in the design, installation, and operation of the OOI since the completion of the PEA. The SER analysis concluded that the

proposed changes in the design, installation, and operation of the OOI as presented in the 2008 Final PEA would not result in additional impacts to the environment.

The scope of the environmental impact analysis of this Draft SSEA is tiered from the previously prepared PEA, associated FONSI, and SER. It focuses only on those activities and the associated potential impacts, including cumulative impacts, resulting from the site-specific installation and operation and maintenance (O&M), including field testing of OOI assets not previously assessed in the PEA and SER. Installation of OOI assets would be completed by 2015.

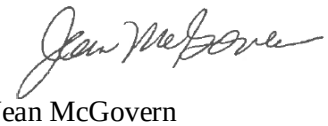
Although the Region of Influence or Action Area for the proposed action has not changed since the preparation of the PEA and SER, there has been an overall reduction in the amount of infrastructure proposed to be installed and the level of activity to support the installation and operation and maintenance (O&M) of the proposed OOI. Specifically, the following summarizes the changes in infrastructure since the 2008 PEA and 2009 SER (details can be found in the Draft SSEA):

- A reduction in the number of moorings for the Endurance Array off the coast of Washington and the Pioneer Array off the coast of Massachusetts.
- A reduction in the overall infrastructure associated with the Regional Scale Nodes (RSN) off the coast of Oregon. The length of submarine cable that would be installed has been reduced from 1,403 km to 903 km, there would be one less primary/secondary node, and half as many junction boxes.
- Elimination of the Global moorings at the Mid-Atlantic Ridge site in the Atlantic Ocean.

For the site-specific installation and O&M of the proposed OOI, NSF is requesting an LOC from NMFS for no significant impacts to marine mammals under the MMPA and for no adverse effects to federally listed species and designated or proposed critical habitat under the ESA. A pdf copy of the OOI Draft SSEA is contained in the enclosed CD. The Draft SSEA includes an assessment of the potential site-specific impacts of the proposed OOI on those species previously assessed in the PEA or for those species or critical habitat that became listed after the completion of the PEA and associated MMPA and ESA consultations. In addition, NSF has attached an application for MMPA LOC in accordance with previous requirements. Based on the previous LOCs and the overall reduction in the potential impacts associated with the Proposed Action as described in detail in the Draft SSEA, we hope to receive notice of concurrence from NMFS within thirty (30) days from your receipt of this request.

For further information regarding the OOI program, please contact Jean McGovern, OOI Program Director, at jmcgover@nsf.gov or 703-292-7591.

Sincerely,



Jean McGovern

Attachments:

- LOC for MMPA compliance, from James Lecky, Director, OPR, NMFS to Dr. Shelby Walker, Program Manager, NSF; 4 November 2008.
- LOC for ESA compliance, from James Lecky, Director, OPR, NMFS to Dr. Shelby Walker, Program Manager, NSF; 12 November 2008.
- Draft SSEA for OOI (August 2010)

APPLICATION FOR MMPA LOC

(1) A detailed description of the specific activity or class of activities that can be expected to result in incidental taking of marine mammals.
Refer to Chapters 1 and 2 of the Draft SSEA. Incidental taking of marine mammals is not expected with implementation of the proposed OOI.

(2) The date(s) and duration of such activity and the specific geographical region where it will occur.
Refer to Chapters 1 and 2 of the attached Draft SSEA.

(3) The species and numbers of marine mammals likely to be found within the activity area.
Due to the very large area that the proposed OOI covers, the numbers of marine mammals cannot be estimated. The species potentially occurring within the vicinity of the proposed OOI components are discussed in Chapters 3, 4, and 5 of the PEA and Chapter 3 of the Draft SSEA.

(4) A description of the status, distribution, and seasonal distribution (when applicable) of the affected species or stocks of marine mammals likely to be affected by such activities.
Due to the very large area that the proposed OOI covers, the status and distribution of marine mammals is not possible. The species potentially occurring within the vicinity of the proposed OOI components are discussed in Chapters 3, 4, and 5 of the PEA and Chapter 3 of the Draft SSEA. The proposed OOI would not result in any incidental takes of any marine mammal and an incidental take authorization is not being requested.

(5) The type of incidental taking authorization that is being requested (i.e., takes by harassment only; takes by harassment, injury and/or death) and the method of incidental taking.
The proposed OOI would not result in any incidental takes of any marine mammal and an incidental take authorization is not being requested.

(6) By age, sex, and reproductive condition (if possible), the number of marine mammals (by species) that may be taken by each type of taking identified in paragraph (a)(5) of this section, and the number of times such takings by each type of taking are likely to occur.
The proposed OOI would not result in any incidental takes of any marine mammal and an incidental take authorization is not being requested.

(7) The anticipated impact of the activity upon the species or stock.
No impact expected.

(8) The anticipated impact of the activity on the availability of the species or stocks of marine mammals for subsistence uses.
No impact expected for any species or stocks.

(9) The anticipated impact of the activity upon the habitat of the marine mammal populations, and the likelihood of restoration of the affected habitat.
Impacts to marine mammal habitats are not expected.

(10) The anticipated impact of the loss or modification of the habitat on the marine mammal populations involved.
Impacts to marine mammal habitats are not expected.

(11) The availability and feasibility (economic and technological) of equipment, methods, and manner of conducting such activity or other means of effecting the least practicable adverse impact upon the affected species or stocks, their habitat, and on their availability for subsistence uses, paying particular attention to rookeries, mating grounds, and areas of similar significance.
Installation, operation, and maintenance of the proposed OOI components would be conducted so as to avoid any potential impacts to marine mammals (e.g., slow vessel movement during cable laying of RSN component). Mitigation and monitoring measures identified in NMFS' 4 November 2008 LOC will be implemented during the proposed installation activities.

(12) Where the proposed activity would take place in or near a traditional Arctic subsistence hunting area and/or may affect the availability of a species or stock of marine mammal for Arctic subsistence uses, the applicant must submit either a plan of cooperation or information that identifies what measures have been taken and/or will be taken to minimize any adverse effects on the availability of marine mammals for subsistence uses.

The proposed OOI would not be located in Arctic waters (See Figure 1-1 of the Draft SSEA).

(13) The suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species, the level of taking or impacts on populations of marine mammals that are expected to be present while conducting activities and suggested means of minimizing burdens by coordinating such reporting requirements with other schemes already applicable to persons conducting such activity. Monitoring plans should include a description of the survey techniques that would be used to determine the movement and activity of marine mammals near the activity site(s) including migration and other habitat uses, such as feeding. Guidelines for developing a site-specific monitoring plan may be obtained by writing to the Director, Office of Protected Resources.

As noted previously, the proposed OOI would not result in incidental takes of any marine mammal and an incidental take authorization is not being requested. Therefore, no monitoring or mitigation program is suggested for the proposed OOI. The proposed OOI is an unmanned observing network and is not designed to monitor for the presence of marine mammals in the vicinity of any OOI components. However, mitigation and monitoring measures identified in NMFS' 4 November 2008 LOC will be implemented during the proposed installation activities.

(14) Suggested means of learning of, encouraging, and coordinating research opportunities, plans, and activities relating to reducing such incidental taking and evaluating its effects.

As noted previously, the proposed OOI is not expected to result in incidental takes of any marine mammal.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

Dr. Shelby Walker
National Science Foundation
Division of Ocean Sciences
4201 Wilson Blvd.
Arlington, VA 22203

Dear Dr. Walker:

The National Marine Fisheries Service (NMFS) has reviewed the National Science Foundation's (NSF) request for a Letter of Concurrence (LOC) for the proposed installation of the Oceans Observatories Initiative (OOI) infrastructure in the Atlantic and Pacific Oceans. Based on our review, we have determined that an Incidental Harassment Authorization (IHA) is not necessary pursuant to the Marine Mammal Protection Act (MMPA), for the for the installation and operation of the OOI provided that all NSF's planned monitoring and mitigation measures are implemented.

Based on a review of the proposed activity, NMFS understands, that the following would occur:

- NSF and the Consortium for Ocean Leadership propose to install four global-scale nodes (GSN) or buoy sites for ocean sensing in the Eastern Pacific and Atlantic Oceans; one regional-scale node (RSN) off the coast of Washington and Oregon; and two coastal-scale nodes (CSN) one off the coast of Washington and Oregon, and the other, off the coast of Massachusetts.
- Based on the best available information, the project's projected start date is July 2010, with installation activities scheduled to begin in the summer of 2013. However, initiation of OOI is dependent of the availability of future appropriations by Congress and availability of a University-National Oceanographic Laboratory System (UNOLS) vessel.
- After installation, the OOI network will remain in service for a period of 25 years.
- The infrastructure would consist of cables, buoys, deployment platforms, moorings, junction boxes, electric power generation, two-way communications systems, and sensors located at the sea surface, in the water column, and on or beneath the seafloor.
- The observatories' mobile assets will include autonomous underwater vehicles (AUVS) and/or gliders which move at very slow rates of speed (0.5-5 knots) and are easily avoided by marine organisms.
- OOI will use a suite of sensors to measure chemical, biological, and geological change and variability in the GSN, RSN, and CSN sites.

A number of marine mammal species are expected to be found in the vicinity of the proposed project area. A brief description of these species is provided in the attachment.

A summary of the proposed infrastructure and installation activities follows:

Global-Scale Nodes (GSN)

GSN mooring observatories would provide locally generated power to seafloor and platform instruments and sensors and use a satellite link to shore and the internet. These sites would support air-sea, water column, and seafloor sensors to provide sustained atmospheric, physical, biogeochemical, ecological, and seafloor observations. The GSN sites include: (1) Station Papa in the southern Gulf of Alaska; (2) Southern Ocean off Chile; and (3) the Irminger Sea southeast of Greenland; and the Mid-Atlantic Ridge.

Regional-Scale Nodes (RSN)

Five node sites in the northeast Pacific Ocean off the coast of southern Washington and northern Oregon that would host a suite of basic sensors including: ocean bottom seismometers, hydrophones, differential pressure gauges, pressure sensors, and current meters. RSNs are comprised of four components: (1) two shore stations that house power and telecommunications equipment; (2) five primary node sites on the Juan de Fuca Plate, connected to the shore stations by cables; (3) groups of low-voltage nodes positioned around each primary node; and (4) medium- or low-power junction boxes that provide power and data interface to the sensors.

Coastal-Scale Nodes (CSN)

The proposed CSN observatories will sample across two coastal shelf areas: (1) off the coast of Washington and Oregon; and (2) the Mid-Atlantic Bight, south of Massachusetts. The CSN will consist of a suite oceanographic and chemical sensors located at the sea surface, in the water column, and on or beneath the seafloor. The distances between the moorings at the CSN sites range from 8 nautical miles (nm) to 17 nm.

Sensors

At least nine types of sensors will have active acoustic sources, most of which will operate with low duty cycles and at frequencies higher than those considered audible by marine mammals. The active acoustic sources proposed for use include: acoustic Doppler velocimeters; acoustic Doppler current profilers; bio-acoustic profilers; altimeters for AUVs and gliders; a multibeam echosounder; acoustic modems; tracking pingers; a horizontal electrometer-pressure-inverted echosounder; and a sub-bottom profiler. Six of the sensors (HPIES, MBES, SBP, altimeters, acoustic modems, and tracking pingers) operate at frequencies between 2 and 170 kHz. However, marine mammals would not be disturbed by these acoustic sources given their low duty cycles and the brief period when an individual animal would potentially be within the very narrow beam of the source receiving only limited amounts of pulse energy.

Cable Laying and Installation

NSF proposes to lay a total of 1,238 kilometers of cable for the OOI network. The cable-laying vessel will bury the cable to a depth of one meter (m), where feasible, using a hydraulically operated plow that is towed by a cable installation vessel. The plow would cut a narrow trench for the cable and bury the cable in one continuous operation. In areas where the vessel is unable to bury the cable to the target depth of one meter, NSF will use a remotely-operated vehicle to complete the burial operation by jetting.

To ensure that no level B behavioral harassment to marine mammal species and/or stocks occurs, NMFS and NSF agree that harassment of marine mammals is preventable if certain mitigation and monitoring measures are implemented during the proposed installation activities.

(1) The cable-laying vessel will monitor boat speed and direction to avoid marine mammals during the cable burial operations. The vessel should maintain speed limits of generally less than 2 knots to avoid interactions with marine mammals.

(2) NSF will establish a 500-foot (152 m) safety zone along the proposed cable route to avoid marine mammals.

(3) To the extent practicable, NSF will schedule cable-laying and installation activities during daylight hours when visibility allows detection of marine mammals within the safety zone.

(4) NMFS understands that NSF plans to have trained, marine mammal observers (MMO) on the UNOLS or cable-laying vessel during installation and cable-laying activities to monitor for marine mammals. The MMOs are to report any incidents to NMFS' Office of Protected Resources immediately by calling (301) 713-2289.

(5) To the extent practicable, MMOs will have the authority to call for curtailment of operations if any marine mammal enters the safety zone. If a marine mammal is sighted, operations will be delayed until the animal moves out of the area.

NMFS believes that if the aforementioned mitigation and monitoring measures are implemented, the potential for and the actual take of marine mammals is not likely to occur; thus an IHA is not necessary pursuant to the MMPA. If for any reason, NSF does not implement these mitigation and monitoring measures, then our concurrence with NSF's determination does not apply, and we would recommend that NSF apply for an IHA under Section 101(a)(5) of the MMPA. The same information would apply if NSF subsequently obtains information during OOI installation operations that indicates that marine mammals may be disturbed by the proposed activities. For additional information on this action, please contact Jeannine Cody or Howard Goldstein at (301) 713-2289.

Sincerely,

NOV 4 2008

James H. Lecky
Director
Office of Protected Resources
National Marine Fisheries Service

Attachment

Attachment

Marine Mammal Species/Stocks in the Proposed Action Areas

CETACEANS

Blue Whale (*Balaenoptera musculus*): Eastern North Pacific Stock
One population of blue whales feeds in California waters in summer/fall (from June to November) and then migrates south to productive areas off Mexico (Calambokidis *et al.*, 1990) and further south. The best abundance estimate for the eastern North Pacific stock of blue whales is 1,744 animals (Carretta *et al.*, 2007). Blue whales are listed as endangered throughout their ranges under the Endangered Species Act (ESA); therefore, the stock is considered as a depleted and strategic stock under the MMPA.

Blue Whale (*B. musculus*): Western North Pacific Stock
Blue whales belonging to the western Pacific stock appear to feed in summer southwest of Kamchatka, south of the Aleutians, and in the Gulf of Alaska (Stafford 2003; Watkins et al. 2000), and in winter they migrate to lower latitudes in the western Pacific and less frequently in the central Pacific, including Hawaii (Stafford et al. 2001). Abundance estimates for the western Pacific blue whale stock are not available as there are no data to provide a minimum population estimate, current population trends, or current or maximum net productivity rates.

Blue Whale (*B. musculus*): Western North Atlantic Stock
The distribution of the blue whale in the western North Atlantic generally extends from the Arctic to at least mid-latitude waters. Blue whales are most frequently sighted in the waters off eastern Canada, with the majority of recent records from the Gulf of St. Lawrence (Sears et al. 1987). Little is known about the population size of blue whales except for in the Gulf of St. Lawrence area. Here, 308 individuals have been catalogued (Sears et al. 1987), but the data were deemed to be unusable for abundance estimation (Hammond et al. 1990). Mitchell (1974) estimated that the blue whale population in the western North Atlantic may number only in the low hundreds.

Fin Whale (*Balaenoptera physalus*):
California/Oregon/Washington, Northeast Pacific, and Western North Atlantic Stocks
Recent observations show aggregations of fin whales year-round in southern/central California (Dohl *et al.*, 1983; Barlow, 1997; Forney *et al.*, 1995). Acoustic signals from fin whales are detected year-round off northern California, Oregon, and Washington, with a concentration of vocal activity between September and February (Moore *et al.*, 1998). Recently 3,279 fin whales were estimated to be off California, Oregon, and Washington based on ship surveys in the summer/autumn of 1996 (Barlow and Taylor, 2001) and 2001 (Barlow, 2003). Fin whales are listed as endangered under the ESA throughout their ranges, and consequently this stock is considered as a depleted and strategic stock under the MMPA.

Within the U.S. waters in the Pacific, fin whales are found seasonally off the coast of North America and in the Bering Sea during the summer. A rough estimate of the size of the population west of the Kenai Peninsula could include the sums of the estimates from Moore et al. (2002) and Zerbini et al. (2006). Using this approach, the initial estimate of the fin whale population

west of the Kenai Peninsula would be 5,700. This is a minimum estimate for the entire stock because it was estimated from surveys which covered only a small portion of the range of this stock.

Fin whales are common in waters of the U. S. Atlantic Exclusive Economic Zone (EEZ), principally from Cape Hatteras northward. Fin whales accounted for 46 percent of the large whales and 24 percent of all cetaceans sighted over the continental shelf during aerial surveys (CETAP, 1982) between Cape Hatteras and Nova Scotia during 1978-82. The best abundance estimate available for the western North Atlantic fin whale stock is 2,269 (CV= 0.37).

Minke Whale (*Balaenoptera acutorostrata*): California/Oregon/Washington Stock
In the inland waters of Washington and central California, minke whales appear to establish home ranges (Dorsey *et al.*, 1990). Minke whales occur year-round in California waters (Dohl *et al.*, 1983; Forney *et al.*, 1995; Barlow, 1997) and in the Gulf of California (Tershy *et al.*, 1990). Minke whales are present at least in summer/fall along the Baja California peninsula (Wade and Gerrodette, 1993). Because the "resident minke whales from California to Washington appear behaviorally distinct from migratory whales further north, minke whales in coastal waters of California, Oregon, and Washington (including Puget Sound) are considered as a separate stock. The number of minke whales of this stock is estimated at 1,015 based on ship surveys in 1996 and 2001 off California, Oregon, and Washington (Barlow, 2003). Minke whales are not listed as threatened or endangered under the ESA, nor as depleted under the MMPA.

Minke Whale (*B. acutorostrata*): Alaska Stock
In the North Pacific, minke whales occur from the Bering and Chukchi Seas south to near the Equator (Leatherwood et al. 1982). No estimates have been made for the number of minke whales in the entire North Pacific. However, some information is now available on the numbers of minke whales in the Bering Sea. Results from visual surveys in the central-eastern Bering Sea in 1999 and 2000 provide provisional abundance estimates of 810 (CV = 0.36) and 1,003 (CV = 0.26) minke whales in the central-eastern and southeastern Bering Sea, respectively (Moore et al. 2002).

Minke Whale (*B. acutorostrata*): Canadian East Coast Stock
Minke whales off the eastern coast of the United States are considered to be part of the Canadian East Coast stock, which inhabits the area from the eastern half of the Davis Strait (45°W) to the Gulf of Mexico. Like most other baleen whales, minke whales generally occupy the continental shelf proper, rather than the continental shelf edge region. Records summarized by Mitchell (1991) hint at a possible winter distribution in the West Indies, and in the mid-ocean south and east of Bermuda. The best available current abundance estimate for minke whales, 3,312 (CV=0.74), is obtained from the 2006 aerial survey because this survey is recent and covered the largest portion of the animal's habitat (i.e., a 2000 m depth contour on the southern edge of Georges Bank to the upper Bay of Fundy and to the entrance of the Gulf of St. Lawrence).

Humpback Whale (*Megaptera novaeangliae*): Eastern North Pacific Stock
There are three relatively separate humpback whale populations within the U.S. EEZ that migrate between their respective summer/fall feeding areas and winter/spring calving and mating areas (Calambokidis *et al.*, 2001; Baker *et al.*, 1998). The winter/spring population in coastal Central America and Mexico which migrates to the coast of California to southern British

Columbia in summer/fall (Steiger *et al.*, 1991; Calambokidis *et al.*, 1996) is referred to as the eastern North Pacific stock. Barlow (2003) estimated 1,314 humpbacks in California, Oregon, and Washington waters based on summer/fall ship line-transect surveys in 1996 and 2001. Humpback whales are listed as endangered under the ESA throughout their ranges; therefore, the California/Mexico stock is considered as a depleted and strategic stock under the MMPA.

Humpback Whale (*M. novaeangliae*):
Central North Pacific Stock, Gulf of Maine Stock
The Central North Pacific stock of humpback whales consists of feeding aggregations along the northern Pacific Rim, and some humpbacks are present offshore in the Gulf of Alaska (Brueggeman et al. 1989). Humpback whales are also present in the Bering Sea (Moore et al. 2002); it is not conclusively known whether those animals belong to the Western or Central North Pacific stocks, or to a separate, unnamed stock. This stock of humpback whales winters in Hawaiian waters (Baker et al. 1986). The number of humpback whales in this stock is 3,698 using the population estimate (N) of 4,005 (estimated in 1993; Calambokidis et al. 1997) and its associated CV(N) of 0.095. The Central North Pacific stock is considered as a depleted and strategic stock under the MMPA.

The Gulf of Maine stock of humpback whales is broadly distributed from Cape Cod to south-west Nova Scotia (Hamazaki, 2002). Aggregations typically occur in areas of bathymetric relief such as shallow banks, ledges and slopes (Payne et al., 1986; Hamazaki, 2002). The best recent estimate for the Gulf of Maine stock is 847 whales (CV=0.55), derived from the 2006 aerial survey. This estimate is not significantly different from the 1999 estimate of 902 (CV=0.41).

North Pacific Right Whale (*Eubalaena japonica*): Eastern North Pacific Stock
North Pacific right whales inhabit the Pacific Ocean, particularly between 20° and 60° latitude. Recently, there have been few sightings of right whales in the central North Pacific and Bering Sea. Sightings have been reported as far south as central Baja California in the eastern North Pacific, as far south as Hawaii in the central North Pacific, and as far north as the sub-Arctic waters of the Bering Sea and sea of Okhotsk in the summer. Since 1996, right whales have been consistently observed in Bristol Bay, southeastern Bering Sea, during the summer months. Migratory patterns of the North Pacific right whale are unknown, although it is thought the whales spend the summer on high-latitude feeding grounds and migrate to more temperate waters during the winter. At this time, it is not possible to produce a reliable estimate of minimum abundance for this stock, as a current estimate of abundance is not available.

Killer Whale (*Orcinus orca*): Eastern North Pacific Offshore Stock
Killer whales have been observed in all the world's oceans and seas. Along the west coast of North America, killer whales occur along the entire Alaskan coast (Braham and Dahlheim, 1982), in British Columbia and Washington inland waterways (Biggs *et al.*, 1990), and along the outer coasts of Washington, Oregon, and California (Green et al. 1992, Barlow, 1995, 1997, Forney *et al.*, 1995). Offshore killer whales have more recently also been identified off the coasts of California, Oregon, and rarely, in southeast Alaska (Ford *et al.*, 1994, Black *et al.*, 1997, Dahlheim *et al.*, 1997). The abundance estimate for this stock along the U.S. west coast is 466 whales. This stock is not listed as threatened or endangered under the ESA, nor as depleted under the MMPA.

Killer Whale (*Orcinus orca*): Eastern North Pacific Southern Resident Stock

Killer whales have been observed in all the world's oceans and seas (Leatherwood and Dahlheim, 1978). Along the west coast of North America, killer whales occur along the entire Alaskan coast (Braham and Dahlheim, 1982), in British Columbia and Washington inland waterways (Biggs *et al.*, 1990), and along the outer coasts of Washington, Oregon, and California (Green *et al.*, 1992; Barlow, 1995, 1997; Forney *et al.*, 1995). Most sightings of the Eastern North Pacific Southern Resident stock of killer whales have occurred in the summer in inland waters of Washington and southern British Columbia. However, pods belonging to this stock have also been sighted in coastal waters off southern Vancouver Island and Washington (Bigg *et al.*, 1990, Ford *et al.*, 2000, NWFSC unpublished data). The complete winter range of this stock is uncertain. Of the three pods comprising this stock, one (J1) is commonly sighted in inshore waters in winter, while the other two (K1 and L1) apparently spend more time offshore (Ford *et al.*, 2000). These latter two pods have been sighted as far south as Monterey Bay and central California in recent years (N. Black, pers. comm., K. Balcomb, pers. comm.) The abundance estimate for this stock of killer whales is a direct count of individually identifiable animals. It is thought that the entire population is censused every year. This estimate therefore serves as both a best estimate of abundance and a minimum estimate of abundance. Thus, the minimum population estimate (NMIN) for the Eastern North Pacific Southern Resident stock of killer whales is 91 animals. Southern Resident killer whales are formally listed as endangered under the ESA and consequently the stock is automatically considered as depleted and strategic under the MMPA.

Sei Whale (*Balaenoptera borealis*): Eastern North Pacific Stock, Nova Scotia, Western North Atlantic Stocks

Sei whales have a cosmopolitan distribution and occur in subtropical, temperate, and subpolar waters around the world. They prefer temperate waters in the mid-latitudes, and can be found in the Atlantic, Indian, and Pacific Oceans. During the summer, they are commonly found in the Gulf of Maine, and on Georges Bank and Stellwagen Bank in the western North Atlantic. The entire distribution and movement patterns of this species is not well known. The best estimate of abundance for California, Oregon, and Washington waters out to 300 nmi is the unweighted geometric mean of the 2001 and 2005 estimates, or 43 (CV = 0.61) sei whales (Barlow 2003; Forney 2007).

The range of the Nova Scotia stock includes the continental shelf waters of the northeastern U.S., and extends northeastward to south of Newfoundland. The southern portion of the species' range during spring and summer includes the northern portions of the U.S. Atlantic Exclusive Economic Zone (EEZ) - the Gulf of Maine and Georges Bank. The total number of sei whales in the U.S. Atlantic EEZ is unknown. However, the most recent and best abundance estimate for the Nova Scotia stock is 207 whales (CV=0.62), derived from the 2006 aerial survey (Palka pers. comm.). There are no current abundance estimates for the Western North Atlantic stock, as no sei whales were sighted during an August-October 1991 aerial survey (NMFS unpublished data).

Sperm Whale (*Physeter macrocephalus*):
California/Oregon/Washington, North Pacific, North Atlantic, and Northern Gulf of Mexico Stocks

Sperm whales are widely distributed across the entire North Pacific and into the southern Bering Sea in summer, but the majority are thought to be south of 40 N in winter (Rice 1988, Gosho *et al.*, 1984, Miyashita *et al.*, 1995). Sperm whales are found year-round in California waters (Dohl *et al.*, 1983, Barlow, 1995, Forney *et al.*, 1995), but they reach peak abundance from April through mid-June and from the end of August through mid-November (Rice, 1988). The average abundance estimate is 1,233 animals. As the data used in estimating the abundance of sperm whales in the entire North Pacific are over 8 years old at this time and there are no available estimates for numbers of sperm whales in Alaska waters, a reliable estimate of abundance for the North Pacific stock is not available. Sperm whales are formally listed as "endangered" under the ESA, and consequently the California, Oregon, Washington Stock is automatically considered as a depleted and strategic stock under the MMPA.

Total numbers of sperm whales off the U.S. or Canadian Atlantic coast are unknown, although several estimates from selected regions of the habitat do exist for select time periods. Sightings were almost exclusively in the continental shelf edge and continental slope areas (Figure 1). The best recent abundance estimate for sperm whales is the sum of the estimates from the two 2004 U.S. Atlantic surveys, 4,804 (CV =0.38), where the estimate from the northern U.S. Atlantic is 2,607 (CV =0.57), and from the southern U.S. Atlantic is 2,197 (CV =0.47).

Seasonal aerial surveys confirm that sperm whales are present in the northern Gulf of Mexico in all seasons (Mullin et al. 1994; Hansen et al. 1996; Mullin and Hoggard 2000). The estimate of abundance for sperm whales in oceanic waters, pooled from 2003 to 2004, was 1,665 (CV=0.20) (Mullin 2007), which is the best available abundance estimate for the northern Gulf of Mexico stock.

North Atlantic Right Whale (*Eubalaena glacialis*): Western Atlantic Stock

Right whales have occurred historically in all the world's oceans from temperate to subpolar latitudes. They primarily occur in coastal or shelf waters, although movements over deep waters are known. For much of the year, their distribution is strongly correlated to the distribution of their prey. Individuals of the western Atlantic northern right whale population range from wintering and calving grounds in coastal waters of the southeastern United States to summer feeding and nursery grounds in New England waters and northward to the Bay of Fundy the Scotian Shelf and the Gulf of St. Lawrence. A review of the photo-id recapture database on June 15, 2006, indicated that 313 individually recognized whales were known to be alive during 2001. Because this was a nearly complete census, it is assumed that this estimate represents a minimum population size.

From: Jeannine Cody [mailto:Jeannine.Cody@noaa.gov]
Sent: Wednesday, December 08, 2010 9:36 AM
To: Spaulding, Rick
Subject: Re: NSF OOI MMPA LOC Question

Yes,

The current LOC is still effective, NSF will not receive a new LOC based on the SSEA, and we will consider the 2010 request for an MMPA LOC as canceled.

The info provided in the 2010 LOC application (which is standard for LOCs, Incidental Harassment Authorizations (IHA), and Letters of Authorization) will be added to our Admin Record and can be used in the future if NSF obtains information that OOI activities may harass marine mammals thus initiating a request for an IHA.

If you and Jean would like, I'm available Friday to discuss by phone.

Thanks.

Jeannine

Spaulding, Rick wrote:
Thanks Jeanine. So, if we go with the 2008 LOC, does that mean that our current LOC request will be cancelled and we will not be receiving an LOC based on the SSEA and the info I provided in the LOC application?

From: Jeannine Cody [mailto:Jeannine.Cody@noaa.gov]
Sent: Wednesday, December 08, 2010 7:20 AM
To: Spaulding, Rick
Subject: Re: NSF OOI MMPA LOC Question

Thanks Rick,

As we process few LOCs, this has led to some confusion as to why NSF asked for a separate MMPA LOC in August 10th (which kick-started the round lengthy application questions).

Re: the scope of the project, yes we understood that that scope had decreased. Per my Nov. 11th email response (titled: "Re: RE: Revised application for LOC under MMPA for OOI Draft SSEA") I stated that the 2008 was still effective but received no new information that the 2008 LOC would still suit NSF's purpose and need and continued with the new request. Under the 2008 MMPA LOC, NSF would only need to contact NMFS if NSF subsequently obtains information during OOI installation operations that indicates that marine mammals *may be disturbed* by the proposed activities (pg. 3 of the LOC).

So the 2008 LOC is still effective.

Thanks.

Jeannine

NMFS CORRESPONDENCE REGARDING MSA

NATIONAL SCIENCE FOUNDATION
4201 WILSON BOULEVARD
ARLINGTON, VIRGINIA 22230

August 10, 2010

Karen Abrams
NOAA Fisheries
Office of Habitat Conservation
1315 East-West Highway
SSMC3, 14th Floor F/HC
Silver Spring, MD 20910

Dear Ms. Abrams:

To provide the U.S. Ocean sciences research community with the basic sensors and infrastructure required to make sustained, long-term, and adaptive measurements in the oceans, the National Science Foundation's (NSF's) Division of Ocean Sciences is currently planning a major research facility program referred to as the Ocean Observatories Initiative (OOI). The OOI Project is funded in part by the American Recovery and Reinvestment Act via a cooperative agreement with NSF. The proposed OOI would be an interactive, globally distributed and integrated network of cutting-edge technological capabilities for ocean observatories. The OOI design is based upon three main technical elements across global, regional, and coastal scales. The OOI infrastructure would include cables, buoys, deployment platforms, moorings, junction boxes, electric power generation, mobile assets, and two-way communications systems. This large-scale infrastructure would support sensors located at the sea surface, in the water column, and at or beneath the seafloor.

In June 2008, NSF prepared the Programmatic Environmental Assessment (PEA) assessing the potential impacts to marine resources from the proposed OOI at an initial programmatic stage (a pdf copy of the PEA is on the enclosed CD). Because the OOI action would occur over several different locations across the Atlantic and Pacific oceans and would be phased in over time, it was determined that an initial programmatic approach would be the most efficient in terms of overall analysis and, hence, a PEA was prepared in 2008. A programmatic analysis at a conceptual level of detail provided early identification and analysis of potential impacts, methods to mitigate anticipated impacts, and a strategy to address issue areas at a tiered level if necessary. The PEA set up a framework for addressing the time- and location-specific aspects of the proposed OOI, as well as more detailed technical information (when it becomes available) through site-specific tiered EAs (e.g., the Draft Site-specific Environmental Assessment [Draft SSEA]) or other environmental documentation (e.g., the Supplemental Environmental Report [SER]). The SER was prepared in April 2009 to assess the potential impacts on the environment associated with proposed modifications in the design, installation, and operation of the OOI since the completion of the PEA. The SER analysis concluded that the proposed changes in the design, installation, and operation of the OOI as presented in the 2008 Final PEA would not result in additional impacts to the environment. At the time of the PEA, NSF stated that any future changes or additions to the infrastructure or sensors will be evaluated separately from these determinations.

The scope of the environmental impact analysis of the attached Draft SSEA is tiered from the previously prepared PEA, associated FONSI, and SER. It focuses only on those activities and the associated potential impacts, including cumulative impacts, resulting from the site-specific installation and operation and maintenance (O&M), including field testing of OOI assets not previously assessed in the PEA and SER. Installation of OOI assets would be completed by 2015.

Although the Region of Influence or Action Area for the proposed action has not changed since the preparation of the PEA and SER, there has been an overall reduction in the amount of infrastructure proposed to be installed and the level of activity to support the installation and operation and maintenance (O&M) of the proposed OOI. Specifically, the following summarizes the changes in infrastructure since the 2008 PEA and 2009 SER (details can be found in the Draft SSEA):

- A reduction in the number of moorings for the Endurance Array off the coast of Washington and the Pioneer Array off the coast of Massachusetts.
- A reduction in the overall infrastructure associated with the Regional Scale Nodes (RSN) off the coast of Oregon. The length of submarine cable that would be installed has been reduced from 1,403 km to 903 km, there would be one less primary/secondary node, and half as many junction boxes.
- Elimination of the Global moorings at the Mid-Atlantic Ridge site in the Atlantic Ocean.

For the site-specific installation and O&M of the proposed OOI, NSF is requesting an LOC from NMFS for no adverse effects to Essential Fish Habitat (EFH) under the Magnuson-Stevens Fishery Conservation and Management Act. A pdf copy of the OOI Draft SSEA is contained in the enclosed CD. The Draft SSEA includes an assessment of the potential site-specific impacts of the proposed OOI on EFH previously assessed in the PEA. Based on the overall reduction in the potential impacts associated with the Proposed Action as described in detail in the Draft SSEA, we hope to receive notice of concurrence from NMFS within thirty (30) days from your receipt of this request.

For further information regarding the OOI program, please contact Jean McGovern, OOI Program Director, at jmcgover@nsf.gov or 703-292-7591.

Sincerely,

Jean McGovern

Attachments:

- Draft SSEA for OOI (August 2010)

From: Karen Abrams [mailto:Karen.Abrams@noaa.gov]
Sent: Tuesday, December 14, 2010 9:59 AM
To: McGovern, Jean M.; Spaulding, Rick
Subject: Re: NSF actions for OOI and Seismic surveys relative to EFH

Jean and Rick,

I am writing in response to your August 10, 2010 request for a Letter of Concurrence (LOC) concerning NSF's conclusion that its proposed actions, analyzed in the "Ocean Observatories Initiative Project (OOI) draft Site-specific Environmental Assessment (SSEA)", would not adversely affect essential fish habitat (EFH). The OOI SSEA is found at http://www.nsf.gov/geo/oce/envcomp/.

The Magnsuon Stevens Fishery Conservation and Management Act requires that Federal agencies that determine their action(s) may adversely affect EFH, provide NMFS with an EFH assessment and consult with NMFS on measures that can be taken to conserve EFH. Neither the EFH provisions of the Magnuson Act nor the EFH implementing regulations (50 CFR 600) requires NMFS to provide a letter of concurrence for activities that would not adversely affect EFH. As the analysis for the actions proposed in the OOI SSEA progress, and should the NSF determine that its actions may adversely affect EFH, the NSF should prepare a site-specific EFH assessment according to the guidelines contained in 550 CFR.600.920(e), and provide them to the appropriate regional EFH coordinator for an EFH consultation. Regional coordinators most relevant to this proposed action would be:

Matthew Eagleton (Habitat Conservation Division, NMFS Alaska Regional Office) mathew.eagleton@noaa.gov; John Stadler (Habitat Conservation Division, NMFS Northwest Regional Office) john.stadler@noaa.gov; Lou Chiarella (Habitat Conservation Division, NMFS Northeast Regional Office) lou.chiarella@noaa.gov.

For more information about the EFH consultation process and requirements, please see http://www.habitat.noaa.gov/protection/efh/consultations.html.

Regards, Karen Abrams

USFWS CORRESPONDENCE REGARDING ESA

NATIONAL SCIENCE FOUNDATION
4201 WILSON BOULEVARD
ARLINGTON, VIRGINIA 22230

August 10, 2010

John Fay
Division of Endangered Species
U.S. Fish and Wildlife Service
420 ARLSQ
4401 N. Fairfax Drive
Arlington, VA 22203

Dear Mr. Fay:

To provide the U.S. Ocean sciences research community with the basic sensors and infrastructure required to make sustained, long-term, and adaptive measurements in the oceans, the National Science Foundation's (NSF's) Division of Ocean Sciences is currently planning a major research facility program referred to as the Ocean Observatories Initiative (OOI). The OOI Project is funded in part by the American Recovery and Reinvestment Act via a cooperative agreement with NSF. The proposed OOI would be an interactive, globally distributed and integrated network of cutting-edge technological capabilities for ocean observatories. The OOI design is based upon three main technical elements across global, regional, and coastal scales. The OOI infrastructure would include cables, buoys, deployment platforms, moorings, junction boxes, electric power generation, mobile assets, and two-way communications systems. This large-scale infrastructure would support sensors located at the sea surface, in the water column, and at or beneath the seafloor.

In June 2008, NSF prepared the Programmatic Environmental Assessment (PEA) assessing the potential impacts to marine resources from the proposed OOI at an initial programmatic stage (a pdf copy of the PEA is on the enclosed CD). At that time, NSF requested a 'Letter of Concurrence' (LOC) from the U.S. Fish and Wildlife Service (USFWS) for 'no adverse effects' to federally listed species and designated or proposed critical habitat under the Endangered Species Act (ESA). In December 2008, USFWS issued an LOC stating that installation and operation of the proposed OOI, as described in the PEA, is not likely to affect threatened and endangered species or any designated critical habitat (refer to the attached email LOC dated 17 December 2008). At the time of the PEA, NSF stated that any future changes or additions to the infrastructure or sensors will be evaluated separately from these determinations.

The Draft Site-specific Environmental Assessment (Draft SSEA) has been prepared by NSF to assess the potential impacts on the human and natural environment associated with proposed site-specific requirements in the design, installation, and operation of the OOI that were previously assessed in the PEA and a Supplemental Environmental Report (SER). Because the OOI action would occur over several different locations across the Atlantic and Pacific oceans and would be phased in over time, it was determined that an initial programmatic approach would be the most efficient in terms of overall analysis and, hence, a PEA was prepared in 2008. A programmatic analysis at a conceptual level of detail provided early identification and analysis of potential impacts, methods to mitigate anticipated impacts, and a strategy to address issue areas at a tiered level if necessary. The PEA set up a framework for addressing the time- and location-specific aspects of the proposed OOI, as well as more detailed technical information (when it becomes available) through site-specific tiered EAs (e.g., the Draft SSEA) or other environmental documentation (e.g., the SER). The SER was prepared in April 2009 to assess the potential impacts on the environment associated with proposed modifications in the design, installation, and operation of the OOI since the completion of the PEA. The SER analysis concluded that the proposed

changes in the design, installation, and operation of the OOI as presented in the 2008 Final PEA would not result in additional impacts to the environment.

The scope of the environmental impact analysis of this Draft SSEA is tiered from the previously prepared PEA, associated FONSI, and SER. It focuses only on those activities and the associated potential impacts, including cumulative impacts, resulting from the site-specific installation and operation and maintenance (O&M), including field testing of OOI assets not previously assessed in the PEA and SER. Installation of OOI assets would be completed by 2015.

Although the Region of Influence or Action Area for the proposed action has not changed since the preparation of the PEA and SER, there has been an overall reduction in the amount of infrastructure proposed to be installed and the level of activity to support the installation and operation and maintenance (O&M) of the proposed OOI. Specifically, the following summarizes the changes in infrastructure since the 2008 PEA and 2009 SER (details can be found in the Draft SSEA):

- A reduction in the number of moorings for the Endurance Array off the coast of Washington and the Pioneer Array off the coast of Massachusetts.
- A reduction in the overall infrastructure associated with the Regional Scale Nodes (RSN) off the coast of Oregon. The length of submarine cable that would be installed has been reduced from 1,403 km to 903 km, there would be one less primary/secondary node, and half as many junction boxes.
- Elimination of the Global moorings at the Mid-Atlantic Ridge site in the Atlantic Ocean.

For the site-specific installation and O&M of the proposed OOI, NSF is requesting an LOC from USFWS for no adverse effects to federally listed species or designated critical habitat under the ESA. A pdf copy of the OOI Draft Draft SSEA is contained in the enclosed CD. The Draft SSEA includes an assessment of the potential site-specific impacts of the proposed OOI on those species previously assessed in the PEA or for those species or critical habitat that became listed after the completion of the PEA and associated ESA consultation. Based on the previous LOC and the overall reduction in the potential impacts associated with the Proposed Action as described in detail in the Draft SSEA, we hope to receive notice of concurrence from the USFWS within thirty (30) days from your receipt of this request.

For further information regarding the OOI program, please contact Jean McGovern, OOI Program Director, at jmcgover@nsf.gov or 703-292-7591.

Sincerely,

Jean McGovern

Attachments:

- LOC for ESA compliance (via email), from John Fay, Division of Endangered Species, USFWS to Holly Smith, NSF (17 December 2008).
- Draft SSEA for OOI (August 2010)

Spaulding, Rick

From: Shelby Walker [sewalker@nsf.gov]
Sent: Thursday, December 18, 2008 2:13 AM
To: Susan Banahan; Spaulding, Rick
Subject: FW: USFWS ESA consultation

------ Forwarded Message
From: "Smith, Holly E." <hesmith@nsf.gov>
Date: Wed, 17 Dec 2008 12:54:31 -0500
To: <John_Fay@fws.gov>
Conversation: FW: USFWS ESA consultation
Subject: RE: FW: USFWS ESA consultation

John - Thank you so much for providing NSF with USFWS' concurrence with our conclusion that the proposed OOI project is not likely to affect any listed endangered or threatened species or any designated critical habitat. We are assuming that our compliance with the ESA is now completed. If anything should differ at the site-specific stage, NSF will re-initiate consultation with USFWS. Again, many thanks for your assistance.
Regards,
Holly Smith

-----Original Message-----
From: John_Fay@fws.gov [mailto:John_Fay@fws.gov]
Sent: Wednesday, December 17, 2008 11:43 AM
To: Smith, Holly E.
Subject: Re: FW: USFWS ESA consultation

Based on a review of the material you provided regarding the Ocean Observatories Initiative, your conclusion that the program is not likely to affect any listed endangered or threatened species or any designated critical habitat appears well supported.
--jf

From: "Smith, Holly E." <hesmith@nsf.gov>
Date: 12/16/2008 10:01 AM
To <john_fay@fws.gov>
Subject FW: USFWS ESA consultation

John - Thank you for meeting with me on November 19, 2008 to discuss a variety of topics, including: the OOI PEA, our proposed 2009 seismic cruises, and our draft version of our draft programmatic environmental impact statement (PEIS) on marine seismic research.

I'm glad you had the opportunity to review the OOI PEA in which there was a determination that there were no impacts on endangered species. It is NSF's position that, in light of the administrative record, there is no effect on endangered species. From our meeting, it is my understanding that USFWS has come to the same "no effects determination." I would appreciate it if you could send me an email confirming USFWS' concurrence with NSF's no effects determination so we can put it in our record.

I will follow-up with you in a week regarding your review of our proposed 2009 seismic cruises. I will also supply you with a copy of the revised draft version of our draft PEIS when it becomes available.

Thank you again for taking the time to meet and for your assistance on all of our issues.
-Holly Smith

From: John_Fay@fws.gov [mailto:John_Fay@fws.gov]
Sent: Tuesday, November 02, 2010 12:08 PM
To: Spaulding, Rick; jmcgover@nsf.gov
Subject: proposed Ocean Observatories Initiative (OOI)

I have reviewed the Draft Site-Specific Environmental Assessment (E.A.) prepared in connection with the Ocean Observatories Initiative. This was to have been transmitted to the Fish and Wildlife Service in Early August 2010 (transmittal letter dated 10 August), but evidently went astray in the mail. I was provided a copy of the letter and access to the E.A. on 15 September. Although the transmittal letter concludes that the OOI is not likely to adversely affect any listed endangered or threatened species or designated critical habitat, I believe the documentation supports a conclusion that the OOI is not likely to affect any listed species under FWS jurisdiction or its habitat. I have discussed this distinction with Mr. Spaulding and he agreed. Consequently, no formal concurrence by FWS is required, but let me affirm that a "no effect" conclusion is strongly supported by the E.A. If you have questions, please contact me.

--John Fay