

PMC-ND  
(1.08.09.13)

**U.S. DEPARTMENT OF ENERGY**  
**OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY**  
**NEPA DETERMINATION**



**RECIPIENT:** Florida Atlantic University

**STATE:** FL

**PROJECT TITLE :** Effects of EMF Emissions from Cables and Junction Boxes on Marine Species

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0000816	DE-EE0006386	GFO-0006386-001	

**Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Order 451.1A), I have made the following determination:**

**CX, EA, EIS APPENDIX AND NUMBER:**

Description:

- B3.3 Research related to conservation of fish, wildlife, and cultural resources** Field and laboratory research, inventory, and information collection activities that are directly related to the conservation of fish and wildlife resources or to the protection of cultural resources, provided that such activities would not have the potential to cause significant impacts on fish and wildlife habitat or populations or to cultural resources.
- B3.2 Aviation activities** Aviation activities for survey, monitoring, or security purposes that comply with Federal Aviation Administration regulations.

**Rationale for determination:**

DOE is proposing to provide federal funding to Florida Atlantic University (FAU) to plan and execute studies that would (1) characterize the electromagnetic field (EMF) emissions from current-carrying cables and connectors and (2) examine the impact of the emitted EMF on aquatic species in the area. Emphasis would be on examining responses of electro-sensitive species, fishes, marine mammals and potentially endangered life forms in the region. FAU would conduct the study at the South Florida Ocean Measurement Facility (SFOMF) of Naval Surface Warfare Center - Carderock Division (NSWC-CD) in waters on the south side of Port Everglades inlet in Fort Lauderdale, Florida. This is a cabled offshore in-water Navy restricted area that consists of a number of bottom-mounted sensors for measuring and characterizing acoustic and EMF signatures.

Five types of studies would be conducted as part of this project:

1. EMF field surveys:

Background EMF levels and EMF emissions at selected representative locations on the range would be measured using commercial off-the-shelf passive EMF sensors deployed from a Bluefin 21 autonomous underwater vehicle (AUV) at various fixed altitudes above the seafloor. Studies would be conducted quarterly, over two days, approximately four hours duration each day.

2. Aquatic species monitoring by divers on SCUBA

SCUBA-based surveys would use two standardized methods, stationary point count and transect-count, to record fish species, size, and abundance during quarterly surveys during periods with the power to the cables turned on and off.

3. Aquatic species monitoring via AUV

The Bluefin 21 AUV device would be equipped with high-resolution video cameras and low-light cameras to monitor the aquatic species and their abundance during period when the power to the cables is alternating on and off. The AUV would follow the terrain approximately 3-4 m above the seafloor in 30-150ft waters. Studies would be conducted quarterly, over two days, approximately four hours each day.

4. Underwater video observations:

Two bottom-mounted underwater video stations would be established, one in the vicinity of one of the cables in the shallow water region (0 – 30 m depth), and the other using an existing operational camera in the vicinity of a junction



box in 150m water depth. Observations would be recorded quarterly with the power to the cables alternating on and off. The shallow water video station would consist of a 3x3 ft. platform with passive video recording instrumentation attached. It would be anchored down with dive weights, all of which would be removed after each quarterly survey. The stations would be in place up to 2 days per quarterly survey.

#### 5. Aerial surveys

Complementary quarterly aerial surveys of the region would assess potential changes, due to the presence of the EMF emissions, in behavior patterns of migratory sharks and other large marine animals that may be difficult to monitor from in-water observations. The aerial surveys would be carried out using a video/still camera and a GPS sensor mounted on a small commercial plane. The plane would fly at an average elevation of 500 ft. above sea level. Surveys would be conducted once per quarter.

All monitoring activities would be conducted via passive recording and observational methods. The AUV would be transported and deployed using the R/V Oceaneer, a small 34 foot Thomson trawler craft. A similar or smaller vessel would be used to transport divers for the manual observations surveys.

Although studies are would be conducted using passive methods, the AUV would utilize active acoustic sources for navigation and control. These would only be active during test events which would not exceed 5 hours per day and two days every 3 months, up to 2 years. Instrumentation utilized by the AUV emits frequencies 678-1800 kHz, which is considered well above the hearing sensitivities of marine mammals.

The U.S. Navy has also conducted a NEPA analysis for this project. It was concluded that the project would have no significant impact to historical resources, marine species, and aquatic/benthic habitats; and therefore the U.S. Navy categorically excluded the project from further NEPA review (under CX #18). This determination was signed on June 7, 2013 (Ref 5090 Ser00/195).

DOE's Endangered Species Act (ESA) Section 7 review:

The following ESA-listed species are found regionally in the Atlantic South-east waters of the U.S.:

blue whale, finback whale, humpback whale, North Atlantic right whale, sei whale, sperm whale, green sea turtle, hawksbill sea turtle, Kemp's ridley sea turtle, leatherback sea turtle, loggerhead sea turtle, Atlantic sturgeon, shortnose sturgeon, smalltooth sawfish, elkhorn coral, staghorn coral, and Johnson's seagrass

Per results of diving surveys conducted by the NSWC-CD, the area of study in the SFOMF is on unconsolidated sediments in a reef gap free of any coral and other sensitive benthic species. The site does not contain any critical habitat for ESA-listed marine species and is used extensively by the Navy for ongoing marine and warfare testing. ESA-listed fish, mammal and turtle species are not frequent in the area, due to active military activities, but they may occur during project activities.

Based on the proposed project activities, potential impacts to marine species may occur from 1) Collision with project related vessels; 2) Direct impact by project related equipment and materials; 3) Exposure to sound from the AUV; 4) Exposure to wastes and discharges; and 5) General disturbance.

1) Project activities would include the operation of vessels. When at or near the surface, marine mammals and turtles are at risk of being struck by vessels or their propellers as they transit to and from the survey sites. Based on the relatively low number of vessel trips expected to be conducted as part of the project, and on the expectation that vessel operators would carefully watch for and avoid protected marine species, and alter course and speed according to the NMFS PRD-recommended BMP (listed below), the risk of collisions between project-related vessels and protected species would be discountable.

2) The proposed project involves the placement of project materials (platform with camera and tripod) on the seafloor. This has the potential to strike ESA-listed marine animals should those animals be present when the equipment is being installed on the seafloor. The NMFS PRD-recommended BMPs require that work be postponed or halted when protected species are within 50 yards, that the area where materials would be deployed be specifically cleared, and that materials be lowered in a controlled manner. Given that marine animals would likely avoid project areas on their own due to on-going activities, that the BMPs would be followed and require that the project manager ensure the area is free of ESA-listed marine animals, and that all materials and equipment will be lowered in a controlled manner, we have determined that the risk of an ESA-listed animal being impacted by project related equipment and materials is discountable.

3) Operation of the AUV would result in active acoustic emissions while the unit is being operated. The frequencies of the acoustics produced by the AUV for navigation are at high levels, and are considered out of the hearing thresholds of ESA-listed marine species. In addition, emissions would be temporary and short term, totaling only five hours per day, over two days, once per yearly quarter. No activities would occur on beaches during sea turtle nesting season



(March through October). As such, any potential impacts from acoustic sources to ESA-listed species would be discountable.

4) Based on the expectation that project-associated work would comply with BMPs set forth by EPA and the U.S. Coast Guard for vessel operations, it is expected that discharges and spills are unlikely to occur, but would be infrequent, small, and quickly cleaned if they do occur. Therefore, impacts related to exposure potential vessel discharges that may result from project activities would be discountable.

5) The project-specific BMPs and conditions, discussed below, require all work to be postponed or halted when ESA-listed marine species are within 50 yards of the proposed work. Based on the best available information, exposure to general disturbance would be infrequent and result in insignificant effects on the ESA-listed marine species that encounter project activities; therefore impacts from general disturbance would be discountable.

Based on the information provided above and the FAU implemented conditions described, it is DOE's determination that project activities would have no effect on listed species, their habitats, or proposed or designated critical habitat.

FAU and their subcontractors would implement the following general and special conditions and Best Management Practices (BMPs) as part of the project:

FAU will ensure that they and/or their subcontractors comply with the NMFS "Standard Manatee Conditions for In-Water Work".

FAU will ensure that they and/or their subcontractors abide by the NMFS "Sea Turtle and Smalltooth Sawfish Construction Conditions".

FAU will ensure that they and/or their subcontractors abide by the NMFS "Vessel Strike Avoidance Measures and Reporting" measures.

All in-water work will be postponed or halted if ESA-listed marine species are visible within the work area, and will only begin/resume after the animals have voluntarily departed the area.

If ESA-listed marine species are noticed after work has already begun, that work may continue only if there is no way for the activity to adversely affect the animal(s) and required distances are still maintained.

Marine mammal observers will be utilized and will alert test personnel if a marine mammal is observed within 2 km, whereby the acoustic source would be silenced until the mammal has left the area.

When piloting vessels, vessel operators will alter course to remain at least 100 yards from whales, and at least 50 yards from other marine mammals and sea turtles.

When piloting vessels, operators will reduce vessel speed to 10 knots or less when piloting vessels in the proximity of marine mammals and turtles. If practicable, reduce vessel speed to 5 knots or less when piloting vessels in areas of known or suspected turtle activity.

If approached by a marine mammal or turtle, the vessel operator will put the engine in neutral and allow the animal to pass.

Observations of protected species in the project areas for the duration of authorized activities will be maintained and recorded at the close of each episode or phase of work.

Vessel operations and potential discharges will comply with all EPA and Coast Guard regulations.

During their diving operations, personnel will follow general procedures recommended in the Program Specific Diving Supplement, Everglades National Park and Dry Tortugas National Park.

A 'Notice to Mariners' will be filed with the U.S. Coast Guard to warn against potential navigations hazards.

Aerial surveys will comply with Federal Aviation Administration regulations.

All equipment deployed by FAU or its subs will be removed after each survey.

DOE has determined that this project is consistent with actions covered under DOE CX B3.2 (Aviation activities for survey, monitoring, or security purposes that comply with Federal Aviation Administration) and B3.3 (Field research, inventory, and information collection activities that are directly related to the conservation of fish and wildlife resources); and therefore is categorically excluded from further NEPA review.



**NEPA PROVISION**

DOE has made a final NEPA determination for this award

Insert the following language in the award:

If you intend to make changes to the scope or objective of your project you are required to contact the Project Officer identified in Block 11 of the Notice of Financial Assistance Award before proceeding. You must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved.

Insert the following language in the award:

You are required to:

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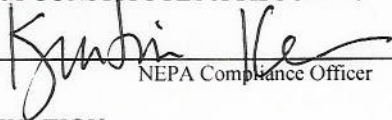
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Note to Specialist :

NEPA review completed by Laura Margason on December 12, 2013.

This NEPA Determination requires a tailored NEPA provision.

**SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.**

NEPA Compliance Officer Signature:   
NEPA Compliance Officer

Date: 12/16/2013

**FIELD OFFICE MANAGER DETERMINATION**

Field Office Manager review required

**NCO REQUESTS THE FIELD OFFICE MANAGER REVIEW FOR THE FOLLOWING REASON:**

- Proposed action fits within a categorical exclusion but involves a high profile or controversial issue that warrants Field Office Manager's attention.
- Proposed action falls within an EA or EIS category and therefore requires Field Office Manager's review and determination.

**BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :**

Field Office Manager's Signature: \_\_\_\_\_  
Field Office Manager

Date: \_\_\_\_\_