

PMC-ND

(1.08.09.13)

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



RECIPIENT: Oregon State University

STATE: OR

PROJECT TITLE : Advanced Laboratory and Field Arrays (ALFA) for Marine Energy

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
	DE-EE0006816	GFO-0006816-002	GO6816

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:

B3.16 Research activities in aquatic environments Small-scale, temporary surveying, site characterization, and research activities in aquatic environments, limited to: (a) Acquisition of rights-of-way, easements, and temporary use permits; (b) Installation, operation, and removal of passive scientific measurement devices, including, but not limited to, antennae, tide gauges, flow testing equipment for existing wells, weighted hydrophones, salinity measurement devices, and water quality measurement devices; (c) Natural resource inventories, data and sample collection, environmental monitoring, and basic and applied research, excluding (1) large-scale vibratory coring techniques and (2) seismic activities other than passive techniques; and (d) Surveying and mapping. These activities would be conducted in accordance with, where applicable, an approved spill prevention, control, and response plan and would incorporate appropriate control technologies and best management practices. None of the activities listed above would occur within the boundary of an established marine sanctuary or wildlife refuge, a governmentally proposed marine sanctuary or wildlife refuge, or a governmentally recognized area of high biological sensitivity, unless authorized by the agency responsible for such refuge, sanctuary, or area (or after consultation with the responsible agency, if no authorization is required). If the proposed activities would occur outside such refuge, sanctuary, or area and if the activities would have the potential to cause impacts within such refuge, sanctuary, or area, then the responsible agency shall be consulted in order to determine whether authorization is required and whether such activities would have the potential to cause significant impacts on such refuge, sanctuary, or area. Areas of high biological sensitivity include, but are not limited to, areas of known ecological importance, whale and marine mammal mating and calving/pupping areas, and fish and invertebrate spawning and nursery areas recognized as being limited or unique and vulnerable to perturbation; these areas can occur in bays, estuaries, near shore, and far offshore, and may vary seasonally. No permanent facilities or devices would be constructed or installed. Covered actions do not include drilling of resource exploration or extraction wells.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide funding to Oregon State University and the Northwest National Marine Renewable Energy Center (NNMREC) for their Advanced Laboratory and Field Arrays (ALFA) project. The project's goal is to accelerate the development of next-generation arrays of wave energy conversion (WEC) and tidal energy conversion (TEC) devices through a suite of field-focused R&D projects.

Each task listed in the SOPO for this award is a separate project being conducted by NNMREC partners for a total of six different projects. Project activities would involve debris modeling; detection and mitigation; autonomous monitoring and intervention; wave resource characterization; power transmission system research; anchoring and mooring systems; array design for performance enhancement; and refining biological sampling techniques.

DOE completed one previous NEPA determination for this project (GFO-00006816-001, CX A9, B3.6, 12/17/2014). The initial NEPA review allowed all administrative and laboratory tasks or subtasks. All tasks or subtasks which would be conducted in the water (the ocean or a river) required additional NEPA review and Endangered Species Act consultation. Specifically, the following subtasks required additional NEPA review and consultation:

Subtask 1.1.2: Field Deployment and Analysis

Subtask 2.2: AUV navigation within MEC arrays – FIELD ACTIVITIES/DEPLOYMENTS

Subtask 2.3: Autonomous manipulation and monitoring of marine renewable energy arrays using AUVs – FIELD

ACTIVITIES/DEPLOYMENTS

Task 3: Resource Characterization for Extreme Conditions (all sub-tasks unallowable)

Subtask 5.7 Coordinated Control of Dense Arrays of Cross-flow Turbines – Field Testing of Dense Array

Subtask 6.2: Evaluate Habitat Utilization (all sub-tasks)

Subtask 6.3: Technological Comparison of Passive and Active Acoustic Systems

Task 1 (subtask 1.1.2) would be completed on the Tanana River near Nenana, Alaska. This site is located approximately 60 miles from Fairbanks and is physically in the center of the State of Alaska. Task 1 would include the deployment of a Doppler current profiler (ADCP) and velocimeter (ADV) to detect water velocity. The ADCP would be mounted from the bow of a pontoon barge, between the pontoons. The ADV would be mounted near the river bottom with a sounding weight. The acoustic frequencies of the devices are several magnitudes of order higher than the auditory signal of any fish. The river bottom is cobble which is frequently scoured and turned over by river currents. Deployment and decommissioning would require the limited use of river john boats which would temporarily elevate noise levels, but the noise would be very limited in duration and would dissipate rapidly. A Biological Evaluation for this Task was completed. Based on that evaluation, and because of the limited nature of the deployment, the passive nature of the devices, and because no known ESA listed species occur within the area, DOE has determined that the Task would have no effect on ESA listed species.

Task 2 (subtask 2.2 and 2.3) of the proposed action would include the deployment of a Seabotix vLBV300 remote operated vehicle (ROV) at the PMEC-NETS and SETS sites. The goal is to perform four deployments, of less than 8 hours per deployment, of the ROV per year. The ROV would not come in contact with the seabed. The ROV uses a Teledyne RDI Explorer Doppler Velocity Log (VDL) to get its relative velocity to the seabed. The ROV would also use a Tritech 720i Imaging Sonar to generate a 3d map. The VDL operates at a center frequency of 614.4 kHz. The sonar operates at 720 kHz.

Task 3 (all subtasks) of the proposed action would include the deployment of drifting SWIFT buoys at the PMEC-NETS and SETS sites. There would be two deployments between December 1, 2015 and March 30, 2016. Up to four SWIFT buoys would be deployed for a maximum of 6 days per deployment, corresponding with a forecasted wave event with significant wave height of 8 meters or greater. The SWIFT buoys use acoustic Doppler current profilers to measure turbulence during wave break. They operate in the 2 MHz range, pinging at 4MHz.

Task 6 (subtask 6.2 and 6.3) would involve the deployment of passive and active acoustic surveys, hook and line fishing tag implantation, and trawl surveys. The task would include deployment of a passive array using Vemco VR2W hydrophone receivers operating at 180kHz. The array would consist of a grid of 16 receivers oriented to detect tagged rockfish and green sturgeon. The arrays would be deployed in the spring and taken out of the water prior to winter. The task would also include deployment of active acoustic Simrad EK-60 echosounders and EK-80 echosounders. The EK-60 would be surface mounted, downward looking, while the EK-80 would be bottom mounted upward looking. Operating frequencies of the echosounders include 38, 70, 120 and 200 kHz. The task would also include up to a total of three eight hour day cruises in the project area to hook and tag rockfish. A standard 3 hook sampling rig would be used catching a maximum of 56 fish per cruise. Captured rockfish would be surgically implanted with an acoustic transmitter and released back into the project area. Up to twenty individual rockfish would be tagged. Tagged rockfish would then be identified by the acoustic survey. Finally, a midwater trawl survey would be conducted during echosounder deployment to identify fish species observed by the echosounders.

Tasks 2, 3, and 6 would be completed at the PMEC-NETS and SETS test sites. The NETS site is a one square nautical mile area between 2-3 nautical miles off Yaquina Head, Oregon. The SETS site is a 6.5 square nautical mile site approximately 5-7 nautical miles offshore just to the south of Newport, Oregon. Task 2, 3 and 6 would utilize marine vessels from Newport, Oregon to the study site for deployment, observation, and decommissioning. Over the duration of the proposed project approximately 35 vessel trips would be made in total. Vessel trips would comply with best management practices (BMPs) for general in water work and vessel operations.

A Biological Evaluation of Tasks 2, 3 and 6 was completed and found that: (1) the level of noise from acoustic monitoring devices is not in the range of ESA listed fish species; (2) the project would comply with BMPs regarding the unlikely presence of marine mammals in the project area; (3) the sounds from vessels would rapidly dissipate, occur only intermittently, and be discountable due to the limited nature of vessel traffic; and, (4) any disturbance and behavioral avoidance of the area by ESA listed fish or marine mammals due to vessel disturbance would be temporary and the project area is extremely small compared to the habitat available within the range. Based on these findings, DOE has determined that the proposed actions in Tasks 2, 3, and 6 may affect but are not likely to adversely affect ESA listed fish species, the critical habitat of the green sturgeon, or marine mammals. NMFS concurred with this determination in a letter dated June 4, 2015.

DOE has determined that Tasks 1.1.2, 2.2, 2.3, 3, 6.2 and 6.3 are consistent with actions covered under CX B3.16 (research activities in aquatic environments) and are therefore categorically excluded from further NEPA review.

NEPA PROVISION

DOE has made a conditional NEPA determination for this award, and funding for certain tasks under this award is contingent upon the final NEPA determination.

Insert the following language in the award:

You are restricted from taking any action using federal funds, which would have an adverse affect on the environment or limit the choice of reasonable alternatives prior to DOE/NNSA providing either a NEPA clearance or a final NEPA decision regarding the project.

Prohibited actions include:

Subtask 5.7 Coordinated Control of Dense Arrays of Cross-flow Turbines – Field Testing of Dense Array

This restriction does not preclude you from:

All activities in Tasks 1, 2, 3, 4, 6, 7, and:

Subtask 5.1: WEC Array Design and Operations - Layout Optimization

Subtask 5.2: WEC Array Design and Operation – Simulation for Control

Subtask 5.3: WEC Array Design and Operations - Real-time Estimation

Subtask 5.4: WEC Array Design and Operations – Coordinated WEC Array Control

Subtask 5.5: Coordinated Control of Dense Arrays of Cross-flow Turbines – Laboratory Characterization of a Single Turbine

Subtask 5.6: Coordinated Control of Dense Arrays of Cross-flow Turbines – Laboratory Control of Turbine Array

If you move forward with activities that are not authorized for federal funding by the DOE Contracting Officer in advance of the final NEPA decision, you are doing so at risk of not receiving federal funding and such costs may not be recognized as allowable cost share.

Insert the following language in the award:

You are required to:

Assist DOE in the completion of Endangered Species Act Consultation for subtask 5.7.

Use BMPs for all marine vessel activity, as defined in the Biological Evaluation and the June 4, 2015 letter from NMFS.

Note to Specialist :

Water Program

This award requires a tailored NEPA provision.

NEPA determination completed by Roak Parker on June 10, 2015

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:


NEPA Compliance Officer

Date:

6/17/2015

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:
