PMC-EF2a
(2.04.02)

U.S. DEPARTMENT OF ENERGY
EERE PROJECT MANAGEMENT CENTER
NEPA DETERMINATION

RECIPIENT: ORPC-Alaska, LLC **STATE:** AK

PROJECT TITLE : Acoustic Monitoring of Beluga Whale Interactions with Cook Inlet Tidal Energy Project

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000069	EE0002657	GFO-10-180	GO0

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 Field and laboratory research, inventory, and information collection activities that are directly related to the conservation of fish or wildlife resources and that involve only negligible habitat destruction or population reduction

Rational for determination:

ORPC Alaska is proposing to use DOE funding to conduct visual and passive hydroacoustic monitoring of the Cook Inlet beluga whales (Delphinapterus leucas) as part of the ongoing biological assessment (BA) being conducted for their proposed Cook Inlet Tidal Energy Project located in the Upper Cook Inlet off the north shore of Fire Island near the city of Anchorage, Alaska. The study is being proposed to assist the development of ORPC's BA by providing the necessary baseline data for assessing potential effects to the beluga whales.

ORPC's objectives for the proposed monitoring study include:
1. Develop and implement the technology to acoustically detect and locate beluga whales by recording their vocalizations and echolocations;
2. Use paired acoustic and visual monitoring to study the baseline (pre-deployment of tidal turbines) distribution, relative abundance, and behavior of beluga whales in the proposed Tidal Energy Project's Deployment Area.
3. Use paired acoustic and visual monitoring to study the impacts of habitat alterations (caused by the presence and operation of tidal turbines) on beluga whale distribution, relative abundance, and behavior during the installation and operation of the Cook Inlet Tidal Power Project and further correlate visual and acoustic detections of whales; and
4. Determine the acoustic effect of the tidal power project on the environment by determining the baseline acoustic environment of the study area pre-deployment and comparing it to the acoustic environment during installation and deployment.

ORPC plans to deploy four Passive Acoustic Monitoring Hydrophones known as Directional Autonomous Seafloor Acoustic Recorders (DASARs) and an Acousonde at a site proposed for ORPC's Cook Inlet Tidal Energy Project to monitor for the presence and distribution of beluga whales in the proposed project area. Each of the DASARs will be bottom mounted to triangular mooring frames 4' on a side weighing a maximum of 700 lbs. These mooring frames will be deployed at approximately 80' below "mean low lower water" (MLLW) tidal levels. They will be retrieved by means of an acoustic release pop up buoy system attached to the mooring and will have a secondary anchor attached to the mooring frame by 100' of line to offer a secondary retrieval mechanism. The DASARs will be deployed for multiyear data collection with retrieval happening 2-3 times per year through 2012. When the data collection efforts are completed, the DASARs mooring frames and ancillary anchors will be removed from the site.

For this proposed study, DOE has initiated and concluded consultation with the National Marine Fisheries Service (NMFS) regarding Section 7 requirements of the Endangered Species Act. In consultation efforts with NMFS, DOE determined that the project was not likely to adversely affect the endangered Cook Inlet beluga whale or its proposed critical habitat. In a letter dated August 5, 2010, the NMFS replied stating concurrence with this finding and determined any affects this project may have on the beluga whales are considered insignificant or discountable. This letter concluded the Section 7 requirements and serves as the NMFS's official position to this study project and its proposed

tasks.

Based on the determination by the NMFS, DOE finds that impacts to the marine environment related to this project are considered less than significant and constitute information collection activities that are directly related to the conservation of wildlife resources; therefore a CX B3.3 applies.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

Note to Specialist :

None Given.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____ Date: 8/10/10

NEPA Compliance Officer

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: _____ Date: _____

Field Office Manager

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

August 5, 2010

Laura Margason
Department of Energy
Golden Field Office
1617 Cole Boulevard
Golden, CO 80401-3393

Re: Section 7 Request for Informal Consultation for the ORPC Alaska Hydroacoustic Monitoring Project Cook Inlet, Alaska

Dear Ms. Margason:

The National Marine Fisheries Service (NMFS) has received your request to initiate consultation under Section 7(a)(2) of the Endangered Species Act of 1973, as amended (ESA). This consultation pertains to the United States Department of Energy (DOE) providing funding for ORPC Alaska, LLC (ORPC), a subsidiary of Ocean Renewable Power Company, to conduct visual and hydroacoustic monitoring of Cook Inlet beluga whales (*Delphinapterus leucas*) near Fire Island in Cook Inlet, Alaska, as part of ORPC's proposed Cook Inlet Tidal Energy Project. DOE's involvement in ORPC's project is specifically limited to funding this monitoring activity near the proposed deployment area. The Federal Energy Regulatory Commission (FERC) is the Federal action agency involved in the development, construction, and deployment of ORPC's proposed tidal energy project, and will initiate a separate consultation with NMFS. The funding provided to ORPC by DOE will be used to gather baseline data necessary for assessing potential effects to the beluga whales. This data will be used in the pursuant biological assessment submitted by FERC during the proposed tidal energy project's ESA consultation.

DOE has preliminarily determined that this action may affect, but is not likely to adversely affect, these whales or their proposed critical habitat.

Listed Species/Critical Habitat in the Action Area

Cook Inlet beluga whales are the only ESA-listed species regularly occurring within the area that may be affected by the action. Critical habitat for the endangered Cook Inlet beluga whales has been proposed by NMFS, with a final designation anticipated in October 2010. The proposed action area falls within proposed critical habitat for the Cook Inlet beluga whales.

ORPC's Proposed Cook Inlet Tidal Energy Project Overview

ORPC has applied to FERC for a pilot license for the Cook Inlet Tidal Energy Pilot Project, FERC Project No. 12697. The pilot project will evaluate the feasibility of ORPC's prototype technology using tidal energy resources in Upper Cook Inlet. The project will be located in Upper Cook Inlet off the north shore of Fire Island near the city of Anchorage, Alaska.

ORPC's proposed hydrokinetic pilot project is planned to begin in 2012 with the deployment of a single tidal generator unit (TidGen™) rated at 150kW. This TidGen™ will be intensively monitored to evaluate its technical performance and verify that there are no unacceptable environmental effects. Upon the success of the first TidGen™ device, three subsequent TidGen™ devices will be installed later in 2012 or in 2013. The first two TGU OCGen™ Modules (the full-scale version of the TidGen™) will be installed in 2014 in a phased approach. Two additional TGU OCGen™ Modules will be installed in 2015 in a phased approach to bring the project size to the full 5MW allowed under the FERC Pilot Project license.

DOE-Funded Project Overview

DOE proposes to provide funding to ORPC to conduct marine mammal monitoring studies at the proposed project site. There have been numerous surveys of beluga whales in Upper Cook Inlet related to other development projects and NMFS's annual abundance estimates; however, there is limited information regarding beluga presence/habitat use at and adjacent to OPRC's proposed deployment site near Fire Island. ORPC plans to use the funding from DOE to conduct paired acoustic and visual monitoring of the proposed project site in order to gather baseline/pre-deployment data on the presence and abundance of Cook Inlet beluga whales in the vicinity as well as their use of the habitat at and near the project site.

ORPC, along with its subcontractors LGL Alaska Research Associates, Greeneridge Sciences, and Terrasond Ltd., plan to deploy five passive acoustic monitoring (PAM) hydrophones, including four Directional Autonomous Seafloor Acoustic Recorders (DASARs) and one Acousonde, at the site proposed for ORPC's Cook Inlet Tidal Energy Project. All the hydrophones are passive hydroacoustic devices that record marine mammal vocalizations (DASARs) or echolocations (Acousonde), and will be used to monitor for the presence and distribution of beluga whales in the proposed project area.

The DASARs will be bottom mounted to triangular mooring frames 4' on a side, weighing roughly 700 pounds each, and deployed approximately 80' below MLLW in a diamond-shaped array 0.75 miles north of Race Point on Fire Island. One mooring will also include the Acousonde.

The vessel used for deployment will be an aluminum landing craft 30' in length powered by two 140 HP Suzuki four stroke engines. This vessel is currently used for the deployment of PAM devices used by the Alaska Department of Fish and Game for the beluga whale acoustic monitoring project they oversee in Upper Cook Inlet. Typical deployment will involve deploying the ancillary anchor attached to the ballasted mooring frame that houses the passive hydroacoustic DASAR and Acousonde and then lowering it to the seafloor with a passive block and tackle system. After confirming that the acoustic release for the pop up buoy is armed and that the mooring has landed upright, the line used for lowering the device is released on one end and retrieved by the vessel. Retrieval of the PAM array and mooring frame is accomplished by activating a pop-up buoy through an acoustic release and pulling the mooring to the surface with the line tethered between the

pop up buoy and the mooring frame. Should this system fail, attempts will be made to grapple the line between the buoy and the ancillary anchor.

Deployment and retrieval activities are anticipated to take no more than 30 minutes per device. The initial deployment of a single DASAR/Acousonde is scheduled for August 26, 2010 for a period of 10 days, at which point the device will be retrieved and data analyzed. If successful, the subsequent deployment of the entire array will take place mid-September and is anticipated to remain in place over the winter. However, if funding allows, the entire PAM array will be retrieved and redeployed mid-October for a final test of the equipment. The PAM array will then be retrieved and redeployed in late April/early May 2011, again in September/October 2011 for overwintering, with final retrieval anticipated in April/May 2012, when DOE funding is expected to expire. However, should DOE funding be extended beyond 2012, ORPC anticipates that the PAM devices will remain in use during the deployment and post-deployment of the tidal generator units, and will continue to provide data on belugas in the area.

DOE's Determination of Effects on Cook Inlet Beluga Whales

DOE has determined that the project resulting from their funding is not likely to adversely affect the endangered Cook Inlet beluga whales. A summary of the factors upon which their decision was based, as described in their correspondence with NMFS, is offered below.

1) Passive acoustic devices, such as the ones planned for this project record, rather than emit, sound. DASARs have already been used to monitor for endangered bowhead whales in the Beaufort and Chukchi seas. Other ongoing passive acoustic programs in Cook Inlet have not documented adverse affects to Cook Inlet belugas as a result of the PAM devices. Thus, there will be no acoustic impact from the devices themselves to the belugas whales.

2) Beluga whales are unlikely to occur in the proposed deployment area. Visual observations of the proposed deployment site conducted by LGL for ORPC from June 17 - November 11, 2009 documented no belugas within 2.5 km of the deployment site. Other surveys, though not for this project, have also documented only sporadic or rare use of the northeast Fire Island region by Cook Inlet beluga whales, mostly as a transit corridor.

3) Mitigation has been included in the project design to avoid impacts to Cook Inlet belugas should they be within the area during deployment/retrieval of the PAM devices. Potential impacts resulting from the deployment/retrieval of the PAM devices may include disturbance as a result of vessel presence or vessel noise, disturbance resulting from the movement of the PAM array as it is moved through the water column, or collision with the vessel or with the PAM array. In an effort to mitigate these potential risks, the deployment or retrieval of the PAM devices will be suspended or delayed if Cook Inlet belugas are sighted within a 3 km radius of the deployment site or vessel. Dedicated observers will be stationed at the observation tower on Fire Island to monitor Cook Inlet beluga whales in the area and will be in radio or cell phone contact with the vessel's skipper in order to immediately alert the skipper of the presence of belugas in the area. Additionally, the

skipper and crew of the deployment/retrieval vessel will be visually monitoring for belugas.

DOE's Determination of Effects on Proposed Critical Habitat

DOE has determined that funding the project in question is not likely to adversely affect the proposed critical habitat for Cook Inlet beluga whales. Their decision was based upon a review of the project's impacts to the five proposed primary constituent elements (summarized below):

1) Intertidal and subtidal waters of Cook Inlet with depths <30 feet (MLLW) and within 5 miles of high and medium flow anadromous fish streams.

The PAM array will not be deployed in waters <30 feet deep (MLLW). Although it will be deployed within five miles of high and medium flow anadromous fish streams (i.e., the Little Susitna River and the eastern edge of the delta of the Susitna River), it is not at likely to affect these streams acoustically because the acoustic arrays will not put sound into the environment.

The deployment vessel will be operating in the established shipping lane of upper Cook Inlet, and is therefore unlikely to contribute a significant additional amount of physical or acoustic disturbance to the proposed deployment area.

2) Primary prey species consisting of four species of Pacific salmon (Chinook, sockeye, chum, and coho), Pacific eulachon, Pacific cod, walleye pollock, saffron cod, and yellowfin sole.

The densities of these primary prey species in the proposed deployment area seem to be low relative to other areas of Upper Cook Inlet, according to site-specific fish studies by NMFS (2009) and HDR for ORPC (2009). NMFS (2009) used a beach seine to sample fish near Race Point, Fire Island on August 18, 2009. The seine collected 1 Chinook salmon, 1 sockeye, 2 chum, 3 coho, no Pacific eulachon, 2 Pacific cod, no walleye pollock, 4 saffron cod and no yellowfin sole.

The 2009 ORPC/HDR study consisted of mobile hydroacoustic surveys and target verification netting (gill netting and trawls). Overall, fish densities in the study area were low, ranging from 8.0 (September 3) to spring peak of 29.8 to 39.6 fish per hectare (10,000 m^2). Mean fish densities within the proposed deployment area were nine fish per hectare, and the fish present were predominantly <10 centimeters in estimated size. Trawl catch was dominated by invertebrates and the majority of fish collected in the trawl net were juvenile threespine stickleback (*Gasterosteus aculeatus*). Although Chinook salmon, eulachon, sockeye salmon, pink salmon, and a cod of unspecified species were also caught, they were caught in very low numbers. As such, the proposed deployment area does not appear to be an important spawning or migratory site for the primary prey species for beluga.

The project will not affect fish acoustically because the PAM arrays do not put sound into the environment. The vessel used to deploy and retrieve the PAM array

could be a source of acoustic or physical disturbance to fish, but no more so than would other vessels using the established shipping lane that passes through the proposed deployment area.

The physical presence of the stationary PAM array on the seafloor is unlikely to affect fish in the proposed deployment area, as the PAM array will be stationary and does not have moving parts. Fish are expected to sense the PAM array as they would any other in-water structure, and there is nothing in the study area to prevent fish from moving around the PAM array. In conclusion, the DOE-related project is not likely to affect the prey species of beluga whales.

3) *The absence of toxins or other agents of a type or amount harmful to beluga whales.*

This project will not introduce toxins or other agents of a type or amount harmful to beluga whales. Although the PAM arrays will be equipped with batteries, these batteries are sealed lead acid batteries that will be further sealed with a pressurized housing in the PAM array. The operation of the vessel used to deploy and retrieve PAM devices could potentially be a source of toxins (via fuel spills or leaks), but no more so than from other vessels using the established shipping lane that passes through the proposed deployment area. The vessel is licensed by the US Coast Guard.

4) *Unrestricted passage within or between the critical habitat areas.*

The PAM array will be moored on frames deployed at approximately 80' below MLLW and there will be no buoy, line, or floating structure on the surface of the water associated with these moorings while they are in place; therefore the PAM array will not restrict passage of belugas within or between critical habitat areas. The presence of the vessel used to deploy/retrieve the PAM arrays could potentially restrict passage of belugas, but is unlikely to do so because: 1) baseline studies have shown that belugas are seldom in this area, 2) deployment/retrieval will take place under the supervision of visual observers stationed at the observation tower at Fire Island (if belugas are seen within 3 km of the vessel, observers will contact the skipper of the vessel and operations will cease until belugas have left the 3 km range), and 3) the research vessel is no more likely to affect beluga passage than are other vessels using the established shipping lane that passes through the proposed deployment area.

5) *The absence of in-water noise at levels resulting in the abandonment of habitat by Cook Inlet beluga whales.*

The PAM arrays used in this study do not produce noise, and thus will not result in the abandonment of habitat by Cook Inlet beluga whales due to in-water noise. There is no indication from other PAM studies (i.e., the Greeneridge study of endangered bowhead whales in the Chukchi and Beaufort seas and the ongoing ADF&G/NMFS/DOD study of belugas in Upper Cook Inlet) that the use of PAM has resulted in abandonment of study areas by the study animals.

The presence of the vessel used to deploy/retrieve the PAM arrays could potentially contribute noise to the study area, but this is unlikely to reach levels resulting in abandonment of the habitat; the research vessel is no more likely to cause the abandonment of habitat by belugas due to increased in-water noise than are other vessels that use the established shipping lane that passes through the proposed deployment area.

NMFS's Determination of Effects

NMFS has reviewed the letter submitted by DOE on July 9, 2010, which provides information about the project they are considering funding and requests the initiation of interagency consultation as required by section 7(a)(2) of the ESA. NMFS has also requested and reviewed additional information from the DOE, and has reviewed and considered project specific information obtained from public meetings and pre-consultation discussions with the applicant which have taken place over the past two years.

In addition to the information stated above as provided by DOE, NMFS also provides discussion on the following specific issues. While ORPC has been conducting dedicated, seasonal, visual monitoring of the project site since 2009, there is relatively little information regarding Cook Inlet beluga whale presence and habitat use in this specific area. Of particular concern is the virtual lack of data during winter months. ORPC's proposed tidal energy project would be in the water year round, thus it is important to obtain year round data on belugas in that area. In consideration that one of the goals of this PAM project is to provide an environmental baseline regarding pre-deployment conditions for the proposed tidal energy project in 2012, NMFS is supportive of a non-invasive monitoring effort conducted during the winter months. A study that will provide year round data on beluga presence in the project area would greatly aid NMFS in any future consultations for projects proposed in this area.

Unlike other PAM devices currently deployed in Cook Inlet, the DASAR array has the ability to pinpoint the location of the vocalizing whale, and will identify if the whale is within the project area or some distance away. This information will be extremely useful in documenting the location of belugas in regard to the proposed tidal energy project. It is NMFS's understanding that the applicant is working with a consultant to modify the DASARs to operate within the frequency range of Cook Inlet beluga vocalizations; the original DASARs were designed to pick up lower frequency vocalizations of bowhead whales, and as designed would not record beluga vocalizations. While the effectiveness of the DASARs for detecting belugas does not weigh into our determination regarding impacts to belugas, NMFS does have concern regarding possible conclusions drawn if the DASARs are not specifically configured to detect belugas in the area.

Additionally, during the initial testing phase of the single DASAR/Acousonde, NMFS understands that ORPC plans to also conduct intensive, daily visual monitoring in an effort to determine the percentage of whales documented/missed via each method. These visual observations will also provide information regarding changes in beluga behavior (if any) as a result of the presence of the PAM devices. ORPC has already constructed an observation tower on Fire Island overlooking the deployment site, which has been used

since August 2009 for their visual observation studies of Cook Inlet belugas. Given that visual observations are impractical during the winter months and are scheduled to cease mid-November 2010, having this visual/acoustic monitoring comparison will allow for the development of a margin of error/correction factor for the acoustic devices. Visual observations are anticipated to begin again in May 2011 and continue through November 2011, but at reduced frequency.

NMFS also considered the cumulative effects of this project. Under the ESA, cumulative effects are future state, tribal, local, or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action considered in this assessment (50 CFR 402.02). Given that this proposed hydroacoustic monitoring project is aimed at providing baseline environmental information to be used in a larger proposed project in the same area, which will involve a separate Federal action agency, the hydroacoustic project's contribution to the cumulative effects in this area of Cook Inlet are deemed negligible.

For the reasons previously summarized, DOE has determined that its activity may effect, but is not likely to adversely affect the endangered Cook Inlet beluga whale or its proposed critical habitat. An agency action is considered not likely to adversely affect listed species or designated critical habitat when its effects are expected to be discountable, insignificant, or completely beneficial. Beneficial effects are contemporaneous with positive effects without any adverse affects to the species or critical habitat. Insignificant effects relate to the size of the impact and may not reach the scale where take occurs. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur.

After review of all relevant documents and information, NMFS concurs with DOE's determination that its proposed action is not likely to adversely affect the endangered Cook Inlet beluga whale or its proposed critical habitat. A complete administrative record of this consultation is on file in this office. While the action may affect this species, our assessment finds any such effects are insignificant or discountable.

Conclusion

This concludes our 1) consultation for this action on the endangered Cook Inlet beluga whales and 2) conference for this action on the proposed critical habitat. On issuance of Final Regulations for critical habitat designation, our conclusion (that the proposed project may affect, but is not likely to adversely affect critical habitat) will be considered the official position of our agency on this specific action relative to critical habitat for the Cook Inlet beluga whale.

Reinitiating consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: 1) take of a listed species occurs, 2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered, 3) the action is subsequently modified in a manner that causes an effect to the listed species or

critical habitat not previously considered, or 4) a new species is listed or critical habitat is designated that may be affected by the action.

If there are any questions please contact Mandy Migura in our Anchorage office at mandy.migura@noaa.gov or 907-271-1332.

Sincerely,

James W. Balsiger, Ph.D.
Administrator, Alaska Region