



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
NORTHEAST REGION  
55 Great Republic Drive  
Gloucester, MA 01930-2276

SEP - 1 2009

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

Re: Comments on the proposed ORPC Eastport Tidal Energy Project  
ORPC Eastport Tidal Energy Project (P-12680-003)

Dear Secretary Bose:

This letter is in response to the Federal Energy Regulatory Commission's (Commission or FERC) notice of intent (Notice) to file hydrokinetic pilot project license application, filing of draft pilot license application (DPLA), request for waivers of integrated licensing process regulations necessary for expedited processing of a pilot project license application and soliciting comments for a hydrokinetic project in the Atlantic Ocean in Western Passage and Cobscook Bay in Eastport, Maine. On July 24, 2009, Ocean Renewable Power Company, LLC (ORPC) filed a DPLA with FERC for the Eastport Tidal Energy Project (FERC No. 12680). The proposed Eastport Tidal Energy Project would consist of: (1) a single 1-megawatt (MW) hydrokinetic device in Western Passage during Phase 1; (2) a single 1-MW hydrokinetic device in Cobscook Bay and three additional 1-MW hydrokinetic devices in Western Passage during Phase 2; (3) underwater bundled cables from each device that would interconnect with a control room and station located on shore, one at Western Passage and one at Cobscook Bay; (4) a transmission line connecting the shore stations to the Eastport electrical grid; and (5) appurtenant facilities for operating and maintaining the project. The estimated annual generation of the proposed project during Phase 1 is 2,760 megawatt-hours (MWh) and 15,000 MWh during Phase 2.

NOAA's National Marine Fisheries Service (NMFS) has reviewed the DPLA filed by ORPC for the tidal energy project in Eastport, Maine. The DPLA follows the FERC's Pilot Licensing procedures for ocean kinetic projects. Contents of the application include the Pilot Licensing Criteria, Process Plan and Schedule, Request for Designation as Non-Federal Representative, Exhibit A – Project Description and Proposed Mode of Operation, Exhibit G – Project Boundary Maps, Draft Environmental Report, Appendix A – Consultation Record, Appendix B – Draft Project Monitoring and Study Plans, and Appendix C – Pre-Filing Study Requests and Assessments.



In an August 28, 2006 letter to FERC and herein, NMFS raises concerns regarding the potential effects of the ORPC tidal energy project on species of fish and whales listed under the Endangered Species Act (ESA) of 1973, marine mammals protected under the Marine Mammal Protection Act (MMPA), and federally managed species under the Magnuson-Stevens Fishery Conservation and Management Act (MSA). Many, if not most, of these concerns have the potential to be addressed by sufficient collection of baseline data. NMFS requests expanding the proposed pre-and post deployment fisheries monitoring plan to provide more robust data on which to determine any project effects on our trust resources.

NMFS offers the attached specific comments relative to the ESA, MMPA, MSA, and Federal Power Act (FPA). If you have any questions regarding these comments, please contact Jeff Murphy, Protected Resources Division at 207-866-7379 or [Jeff.Murphy@noaa.gov](mailto:Jeff.Murphy@noaa.gov), or Sean McDermott, Habitat Conservation Division at 978-281-9113 or [Sean.McDermott@noaa.gov](mailto:Sean.McDermott@noaa.gov).

Sincerely,



Patricia A. Kurkul  
Regional Administrator

E-filed FERC, Project No. P12680-003

Cc: Service List  
Christopher R. Sauer, ORPC

National Marine Fisheries Service Comments on the Draft License Application for ORPC's  
Eastport Tidal Energy Project  
Attachment to September 1, 2009 letter

**I. Consolidation of Permits**

In the DPLA, ORPC requests that FERC combine the preliminary permits issued to ORPC for the Western Passage OCGen Power Project (FERC No. 12680) and Cobscook Bay OCGEN Power Project (FERC No. 12711) into a single pilot license for the Eastport Tidal Energy Project (FERC No. 12680). NMFS does not object to combining the two preliminary permits into a single pilot license; however, FERC should consider each project deployment area separately when considering the environmental effects of the project on aquatic and other environmental resources such that separate and complete environmental studies and analysis occur in each deployment area. While ORPC suggests that the two deployment areas have similar environments, this has not been demonstrated in the DPLA. Furthermore, NMFS expects that significant differences exist between marine resources present in each area including use of the two project areas by federally endangered Atlantic salmon and protected marine mammals. Separate and complete studies and analysis will be necessary for each deployment area throughout the term of any license granted to ORPC to determine the effects of the proposed tidal energy projects on the environmental resources in the deployment areas.

**II. Pilot License Duration**

One of the FERC Pilot licensing criteria is that the project be of short term duration, generally five years, though modifications are allowed on a case-by-case basis. ORPC has requested an extension to eight years. NMFS has no objection to the proposed duration of the Pilot license; however, NMFS believes it is necessary for environmental monitoring to be conducted for the term of the Pilot license. These data will facilitate an understanding of this novel technology within the marine environment and be used to modify project operations during the license period, as appropriate.

**III. Federal Statutory Requirements**

The proposed project has the potential to significantly impact NOAA trust resources. NMFS has federal statutory responsibility for the protection and enhancement of living marine resources and associated habitats that may be directly or indirectly affected by projects such as this. Those authorities include the protection of aquatic species and habitat under the Federal Power Act (FPA); federally managed marine finfish and shellfish, and their habitats under the Magnuson-Stevens Fishery Conservation and Management Act (MSA); living marine and aquatic species under the Fish and Wildlife Coordination Act (FWCA); marine mammals pursuant to the Marine Mammals Protection Act (MMPA); and threatened and endangered species under the Endangered Species Act (ESA). These same statutory authorities also obligate any federal agency, including the FERC, to consult with NMFS before taking any action that might adversely affect NMFS trust resources. Thus, the schedule for the Pilot License process will need to allow sufficient time for the FERC to consult with NMFS pursuant to the statutory

authorities outlined above, including the potential for a formal Section 7 consultation, before authorizing installation in the involved waterway, even if the installation is limited to data collection devices or a small scale experimental pilot study.

#### **IV. Request for Designation of Non-Federal Representative**

ORPC requests to be designated as FERC's non-federal representative for the purposes of informal consultation pursuant to Section 7 of the ESA with NMFS following the submittal of the final Pilot license application. Section 7 of the ESA specifies a process for interagency cooperation and consultation during project review to ensure that actions funded, authorized or implemented by a federal agency are not likely to jeopardize the continued existence of any listed species, or result in the destruction or adverse modification of critical habitat.

As noted in previous correspondence, the Gulf of Maine Distinct Population Segment (GOM DPS) of Atlantic salmon (*Salmo salar*) occurs in the project area. Additionally, critical habitat for the GOM DPS has been designated for this species and also occurs in the project area. Additionally, several species of listed whales and sea turtles, including the endangered North Atlantic right whale (*Eubalaena glacialis*), humpback whale (*Megaptera novaeangliae*) and fin whale (*Balaenoptera physalus*), endangered leatherback (*Dermochelys coriacea*) and threatened loggerhead (*Caretta caretta*) sea turtles occur seasonally off of the Maine coast and may occur in the action area. Also, please note that Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*), which are considered to be a candidate species by NMFS, may occur in the action area. As the listing status of this species may change during the licensing process, NMFS requests that ORPC and/or FERC obtain an updated species list prior to initiating Section 7 consultation with NMFS.

As you know, pursuant to the Section 7 regulations at 50 CFR 402.08, the role of the non-federal representative is limited to informal consultation and drafting of a Biological Assessment. NMFS encourages FERC to work with ORPC to make a determination of the proposed project on listed species. If it is determined that all effects of the proposed project will be insignificant or discountable, it is appropriate for ORPC, as FERC's designated non-federal representative, to request NMFS concurrence with the determination that the action is not likely to adversely affect listed species. However, if all effects will not be insignificant or discountable (i.e., there will be adverse effects, including take as defined by the ESA), a request for formal consultation from FERC will be necessary. Please note that NMFS is allowed 135 days for completion of formal consultation, resulting in the issuance of a Biological Opinion and Incidental Take Statement, if appropriate and that this time period does not start until NMFS has determined that we have all the information necessary for consultation. Further, NMFS requests that ORPC and/or FERC coordinate with the US Army Corps of Engineers (ACOE) to determine if any authorizations from the ACOE will be necessary for the proposed project. If so, NMFS requests that any request for Section 7 consultation be coordinated between all of the involved agencies and/or their designated non-Federal representatives.

The MMPA prohibits, with certain exceptions, the take of marine mammals in U.S. waters and by U.S. citizens on the high seas, and the importation of marine mammals and marine mammal products into the U.S. In 1994, MMPA section 101(a)(5) was amended to establish an expedited

process by which citizens of the U.S. can apply for an authorization to incidentally take small numbers of marine mammals by "harassment", referred to as Incidental Harassment Authorizations or IHAs. As harbor porpoises, harbor seals, and other marine mammals are known to occur in the project areas, and may be affected by the proposed project, ORPC may need to seek an IHA under the MMPA for the construction and operation of the project. As such, we encourage ORPC to contact NMFS' Permits, Conservation and Education Division at 301-713-2289 for more information concerning any necessary MMPA permits for this project.

## **V. Exhibit A – Project Description and Proposed Mode of Operation**

According to the July 23, 2009 DPLA, ORPC's Eastport Tidal Energy Project will consist of a phased deployment with a single 1-megawatt (MW) hydrokinetic device installed in Western Passage in 2010 followed by the installation of a single 1-MW hydrokinetic device in Cobscook Bay and three additional 1-MW hydrokinetic devices in Western Passage in 2011. Each 1-MW hydrokinetic device (module) consists of four (4) vertically stacked turbine generator units (TGU) with an overall dimension of approximately 91 feet long by 56 feet high by 14 feet wide. Each TGU contains four individual cross-flow turbines, with two turbines on either side of a generator. Overall, each 1-MW module contains 16 turbines. Each turbine contains four (4) blades with a tip speed of 1.5-18.2 feet per second (1-40 revolutions per minute). The turbines rotate in the same direction irrespective of the tidal flow direction.

The modules are positively buoyant and will be suspended approximately 65 feet below Mean Lower Low Water (MLLW) in Western Passage and approximately 40 feet below MLLW in Cobscook Bay. Each module will be moored by four mooring lines secured to four anchors. The anchor area will be 21 feet by 21 feet. The total combined seafloor footprint from all five modules is approximately 0.31 acres. The total deployment area of the modules and anchor systems will be 186 acres (1,500 feet by 5,400 feet) in Western Passage and 27.8 acres (1,100 feet by 1,100 feet) in Cobscook Bay.

Underwater transmission cables will be installed in Cobscook Bay and Western Passage to connect the hydrokinetic devices to an existing electric grid in Eastport, Maine. The submarine transmission cable in Western Passage will lay on the seafloor secured with sandbags. The transmission cable in Cobscook Bay will be buried below the seafloor using a jet plow. Cables will be grounded and shielded to minimize electromagnetic field (EMF).

To our knowledge, this type of hydrokinetic device has never been deployed in the marine waters of the U.S. This novel technology has the potential for significant adverse effects to all marine resources that utilize the Cobscook Bay and Western Passage for spawning, rearing, foraging and migration, including marine and diadromous fish and marine mammals. As this technology is new and specific studies concerning effects on marine organisms have not been undertaken, a comprehensive analysis of the effects of this technology on marine organisms must be completed prior to FERC's issuance of a commercial license. In order to obtain this information, FERC must require comprehensive monitoring studies as part of any pilot license issued to ORPC.

## VI. Volume 1 - Draft Environmental Report

The ORPC application considered project impacts on water quality, hydrodynamics and sediment transport, marine vegetation, invertebrates, benthos, fish, birds, and marine mammals. ORPC identified 6 potential effects of deploying and operating the project on marine life as: turbine strike, collision/entanglement, underwater noise/vibration, EMF, alteration of habitat/habitat avoidance, and Essential Fish Habitat.

### a. Turbine Strike

ORPC considers the likelihood of turbine strike on marine mammals and fish to be low because: 1) the turbine blades rotate at a relatively slow speed (40 rpm) with a low tip speed (18.2 feet per second); 2) the pressure wave created by the rotating blades will serve as an effective barrier, and 3) marine mammals have an inherent ability to detect and move around structures in the water. According to ORPC, any uncertainty concerning the possibility of turbine strikes on marine animals will be addressed through post-deployment monitoring and the use of emergency shutdown procedures.

NMFS concludes that it is unknown how fish and marine mammals will interact with the turbines, including whether they would avoid swimming through the units and what the effects of any interaction with the units would be. Fish exposed to turbines can suffer injury and death through blade strike, abrasion, and grinding (Odeh 1999; OTA 1995). Aside from direct strike, injury to fish may also be possible due to cavitation associated with sudden water pressure changes adjacent to the blades (Cada 2008). The capacity for marine mammal avoidance is generally dependent upon the ability to detect objects, which may be compromised by, for example, background noise or activity. Aside from a detection failure, other factors that may come into play for all species include the possibility of distraction, confusion, attraction, as well as factors indirectly affecting the animal's movements such as disease, life stage, diving constraints, or unexplained behavior. Furthermore, each species may have individual reactions. Harbor porpoises tend to be wary of novel installations whereas seals may be positively attracted (Wilson 2007). Faber, Maunsell and Metoc (2007) estimated harbor porpoise and seal sensitivity to exposed moving parts as "high" in an area with high tidal flow. They further described the possibility of a "group effect", where animals characteristically traveling in a group, such as certain whale species, collectively suffer a negative effect. Based on this information, additional information is necessary to determine the likelihood of interactions between marine mammals and the proposed turbine structures.

Monitoring data will be needed to understand how marine mammals, birds, and fish interact with the proposed hydrokinetic devices in Western Passage and Cobscook Bay. The data collected during the pilot licensing period should accurately assess marine mammal, bird, and fish presence in the area – if these animals are not typically found around the proposed project site, the likelihood of interactions with the devices is decreased. NMFS believes more extensive baseline data collection beyond that proposed in the DPLA will improve the ability to assess the effects of the proposed action on marine mammals and fish, as explained later in this letter. Once this baseline information is collected, ORPC should initiate blade strike modeling studies to assess the potential for injury and mortality of marine mammals and fishes. NMFS expects

that blade strike modeling studies would provide information on the probability of interactions between the blades and protected species.

b. Collision/Entanglement

ORPC has designed the module mooring lines to remain taut and thereby avoid marine mammal entanglements, and has indicated that any uncertainty will be addressed through post-deployment monitoring. Submarine cables will lie on the seabed floor with weighted sandbags or be buried thus also minimizing the potential for entanglements.

In general, whale entanglements in submarine cables have significantly decreased since the 1980's due to the introduction of coaxial cables as well as changes in cable characteristics, which include the use of torque-balance cables less prone to self-coiling, laying of armored cable under slight tension or non-armored cables with minimum slack, the avoidance of rough topography, cable burial and the use of fault repair procedures that reduce slack (Wood and Carter, 2008). Thick, taut mooring cables are considered to be less dangerous with respect to marine mammal entanglement (Boehlert 2008), though it has been speculated that, while smaller dolphins and pinnipeds such as harbor porpoise and harbor seals, may move through mooring cables with ease, larger whales may have difficulty either sensing the presence of mooring cables or moving through numerous, closely spaced cables (Michel et al., 2007).

NMFS recognizes the inherent uncertainty in predicting the potential for marine mammal interactions with the mooring or submarine cables. It is possible that sand bags will be insufficient in holding the proposed submarine cable in place given the high water velocity characteristic of the project area. As such, NMFS requests ORPC provide more detailed information in the operations and maintenance plan concerning measures to ensure the submarine cable in Cobscook Bay remains in place throughout module deployment. If cable movement is detected at the mooring lines, ORPC should develop a plan to correct the situation. Also, NMFS requests more detail concerning risks of entanglement associated with the installation of anchoring systems and mooring lines.

c. Underwater Noise/Vibration

ORPC maintains that the underwater noise and vibration associated with the different phases of the project will not negatively affect marine mammals. ORPC has stated that noise associated with construction and vessel traffic is expected to be short term and likely to cause only minor disturbance and possibly some avoidance. ORPC does not anticipate noise levels associated with project operations to be significant enough to cause an adverse effect to marine mammals. Because of associated uncertainty, ORPC will conduct an underwater acoustic assessment to evaluate operational noise.

NMFS knows that anthropogenic noise has the capacity to result in the harassment or injury of marine mammals and fish, and may interfere with the ability to communicate or locate prey. Potential noise associated with the project construction and operations may include: seafloor drilling of anchor screws for mooring lines, rotating machinery, flexing joints, structural noise, moving air, moving water, vibrations through mooring and anchor lines, electrical noise and instrumentation noise.

Both harbor seals and harbor porpoise may be considered highly vulnerable to marine noise (Faber Maunsell and Metoc, 2007; Boehlert 2008). Sound transmission and receipt is also very important to whales that are very dependent on the acoustic environment. Scientific research on whales has demonstrated adverse behavioral reactions to certain in-water noise. An extensive bibliography of scientific research on marine mammal reactions to noise is found at <http://www.nmfs.noaa.gov/pr/acoustics/>. Obvious changes in whale behavior as a result of noise harassment would include sudden direction changes away from the noise source, whereas subtle changes in whale behavior may include complete avoidance of the areas near the noise sources. Under the 1994 Amendments to the MMPA, harassment is statutorily defined by NMFS as, any act of pursuit, torment, or annoyance which: a) has the potential to injure a marine mammal or marine mammal stock in the wild (Level A Harassment); or b) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering but which does not have the potential to injure a marine mammal or marine mammal stock in the wild (Level B Harassment). The existing noise threshold for Level A Harassment is 180 dB rms while the threshold for Level B Harassment is 160 dB rms for impulse noise and 120 dB rms for continuous (i.e., non-impulse) noise sources. It is difficult to assess acoustic effects on whales and other marine mammals before an accurate acoustic study is completed documenting the sound sources and noise levels associated with the proposed action.

Atlantic salmon may also be sensitive to noise. As such, Atlantic salmon emigrating to or from the Dennys River may be affected by noise generated by the hydrokinetic devices. Therefore, the acoustic effects of the proposed project on listed Atlantic salmon will also need to be addressed.

As previously indicated, ORPC will conduct an underwater acoustic assessment to evaluate operational noise. Data generated by this study should be compared to published information concerning noise effects on marine mammals and fish as well as NMFS' statutory definitions of harassment under the MMPA.

#### d. Electromagnetic Fields

ORPC expects any Electromagnetic Field (EMF) effects of the pilot project to be extremely minor and localized. NMFS agrees that the current transmitted from the 1 or 5 MW turbine arrays, shielded by armored cable is not likely to cause significant effects to the marine ecosystem. However, the proposed project is theoretically a prototype for a full scale project, which could be equal to or greater than 50 – 100 MW. A full build-out would necessitate a more in-depth effects analysis, though NMFS also agrees with ORPC that there are major areas of uncertainty associated with the environmental effects of electric (E) and magnetic (B) fields as well as associated induced electric (iE) fields. EMF effects require more thorough analysis and monitoring in order for the results of the pilot project to be useful in designing the future commercial project.

#### e. Alteration or Avoidance of Habitat

The ORPC application addresses alteration of habitat primarily relative to benthic fauna. However, alteration of habitat and avoidance or displacement may impact marine mammals and fish. The presence of marine mammals and fish in the action area and their use of that habitat

(e.g., rearing, breeding, foraging, transiting), is largely currently unknown. Many marine mammals opportunistically forage on a seasonal basis. The action area may include important foraging opportunities that are not yet recognized. Both physical structures and noise could have a “wall effect” that could force the marine mammals to move a distance around them, changing local migratory patterns (Boehlert 2008). Migratory fish species such as Atlantic salmon and Atlantic sturgeon could also alter their normal migratory movements due to the presence of the hydrokinetic devices. Though habituation to noise and structures is a possibility, marine mammals may also eventually avoid areas on a permanent basis because of continuous sound or activity, leading to the abandonment of important foraging areas, mating grounds or migratory routes (Michel 2007). Wilson (2007) cited the energetic penalties of repeatedly swimming around a disturbing object and habitat exclusion as the most relevant to disturbance and avoidance. NMFS believes an accurate baseline determination of marine mammal and fish use of the area would improve the ability to accurately assess the potential for habitat avoidance or alteration.

The ORPC application also mentions colonization of a particular area because of the creation of new shelter or cover. Physical structures permanently placed in the marine environment may create habitat that serves as a fish aggregation device (FAD). The food and shelter offered by these structures may attract small fish, which in turn attracts larger fish and predators, thereby creating a virtually new ecosystem (Dempster 2005). Though the deployment of the module over the scheduled time frame will probably not dramatically change the surrounding habitat, the final commercial build-out of modules has the potential to change the surrounding habitat. Comprehensive baseline studies would allow for more accurate assessments of the effects of these habitat changes on marine mammals and fish.

#### f. EFH

Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) requires all Federal agencies to consult with NMFS on any action authorized, funded or undertaken by that agency that may adversely affect essential fish habitat (EFH). Insofar as a project involves EFH, this process is guided by the requirements of our EFH regulation at 50 CFR 600.905, which mandates the preparation of EFH assessments and generally outlines each agency’s obligations in this consultation procedure.

Section E.4.2.4 of the DPLA notes that FERC is obligated to conduct an essential fish habitat (EFH) assessment of the impacts associated with the license activities on habitat as designated EFH under the Magnuson-Stevens Fishery Conservation Management Act. Further, Section E.5.3.3 of the DPLA (page E101) ORPC includes a summary of potential effects on EFH. Since the consultation process has not been initiated, NMFS cannot comment on those potential effects. NMFS can, however, provide technical assistance and guidance to ORPC on the EFH assessment process. More importantly, the EFH consultation process is not between the project proponent and NMFS, but between NMFS and FERC. ORPC indicated its intent to submit information to the FERC for use in developing the FERC’s EFH assessment and conducting the required consultation. We encourage ORPC to maintain contact with NMFS during the development of that information which, if factually sufficient, has the potential to be adopted by the FERC for use in the federal consultation process. FERC, as the federal action agency, must

make a determination of impact on essential fish habitat as a result of its permit action. NMFS, in carrying out its obligations, may issue conservation recommendations if necessary. We look forward to working with FERC in this EFH consultation.

## **VII. Volume 2, Appendix B – Draft Project Monitoring and Study Plans**

In June and July, 2009, ORPC hosted meetings and conference calls with NMFS to discuss the development of draft project monitoring and study plans. In an email dated July 2, 2009 and sent to ORPC, NMFS agreed with the conceptual framework of a phased monitoring approach concerning fisheries monitoring during the pilot licensing phase of the project. NMFS also provided initial comments concerning ORPC's proposed benthic monitoring study plan. Benthic and fisheries monitoring plans have been revised and expanded in the DPLA submitted to FERC. Provided below are NFMS comments and recommendations on marine ecosystem-related monitoring and study plans.

### a. Post-Deployment Draft Fisheries Monitoring Plan (May 6, 2009) and Hydroacoustic Fish Survey Draft Study Plan (July 21, 2009)

The potential effects of this technology on fish are unknown. Due to the proposed location, design and placement of the generating units, and the lack of information on fish interactions with them, NMFS will require sufficient data in order to adequately assess potential impacts to marine mammals and migratory fish species occurring in Cobscook Bay and Western Passage.

ORPC proposes to conduct pre- and post deployment fisheries monitoring in collaboration with the University of Maine (UM) as part of their application for a pilot license with the FERC. ORPC presents two separate plans within the DPLA with separate methods for each deployment area within Cobscook Bay and Western Passage. In correspondence with NMFS on June 25, 2009, ORPC also presented a strategic concept for fisheries monitoring as part of the pilot license. The result is a confused array of plans and concepts. We recommend ORPC combine the plans and organize them according to phase and deployment area. A table presenting location, methods, and proposed sampling timeframe should be presented in the final plan submitted to FERC. As we understand it, ORPC in collaboration with the UM proposes to collect near-field fisheries data using dual-frequency identification sonar (DIDSON), underwater video, and hydroacoustic sonar as follows:

ORPC's Proposed Fisheries Monitoring Plan for Eastport Tidal Energy Project<sup>1</sup>

|                                     | <i>Cobscook Bay</i>  | <i>Western Passage</i>  |
|-------------------------------------|--|---|
| <b>Module Installation Schedule</b> | <ul style="list-style-type: none"> <li>• Install 1 module Sept/Oct 2011</li> </ul>   | <ul style="list-style-type: none"> <li>• Install 1 module Sept 2010</li> <li>• Install 3 modules Sept/Oct 2011</li> </ul>   |
| <b>Pre-Deployment Monitoring</b>    | <p><u>Fixed Hydroacoustics</u></p> <ul style="list-style-type: none"> <li>• 2 sampling stations (site and control)</li> <li>• 2 (24-hr) days sampling/season</li> <li>• Seasons:               <ul style="list-style-type: none"> <li>○ Aug/Sept 2009</li> <li>○ Spring 2010</li> <li>○ Summer 2010</li> </ul> </li> </ul> | <p><u>Fixed Hydroacoustics</u></p> <ul style="list-style-type: none"> <li>• 1 sampling station (site)</li> <li>• 2 days sampling/season</li> <li>• Seasons:               <ul style="list-style-type: none"> <li>○ Aug/Sept 2009</li> <li>○ Spring 2010</li> <li>○ Summer 2010</li> </ul> </li> </ul>   |
| <b>Post-Deployment Monitoring</b>   | <p><u>None Proposed</u></p>  | <p><u>Mobile Hydroacoustics</u></p> <ul style="list-style-type: none"> <li>• 2 sampling stations (site and control)</li> <li>• 2 days sampling/season</li> <li>• Seasons:               <ul style="list-style-type: none"> <li>○ Fall 2010</li> <li>○ Winter 2010</li> <li>○ Spring 2011</li> <li>○ Summer 2011</li> <li>○ Fall 2011</li> </ul> </li> </ul> <p><u>DIDSON</u></p> <ul style="list-style-type: none"> <li>○ Seasons (not defined)</li> <li>○ Frequency (not defined)</li> </ul> |

NMFS is concerned that ORPC's proposed fisheries monitoring plan for the Eastport Tidal Energy Project will not provide sufficient information concerning the effects of installing and operating hydrokinetic devices on the fisheries resources of Cobscook Bay or Western Passage. These data are essential for understanding the potential effects of installing and operating the proposed hydrokinetic devices on NMFS trust resources. As such, NMFS requests FERC require additional monitoring as follows:

<sup>1</sup> We did not include TGU test deployment surveys which are outside of this licensing proceeding.

## NMFS Recommended Fisheries Monitoring Plan for Eastport Tidal Energy Project

|                                   | <i>Cobscook Bay</i>   | <i>Western Passage</i>   |
|-----------------------------------|---|--|
| <b>Pre-Deployment Monitoring</b>  | <p><u>Fixed Hydroacoustics</u></p> <ul style="list-style-type: none"> <li>• 2 sampling stations (site and control)</li> <li>• 2 (24-hr) days/month for 24 months</li> </ul> <p><u>Mobile Hydroacoustics</u></p> <ul style="list-style-type: none"> <li>• 2 far-field sampling stations (site and control)</li> <li>• 2 (24-hr) days/month for 24 months</li> </ul> <p><u>DIDSON</u></p> <ul style="list-style-type: none"> <li>• 2 (24-hr) days/month for 24 months</li> </ul> <p><u>Net Sampling</u></p> <ul style="list-style-type: none"> <li>• Frequency to be determined in consultation with NMFS</li> </ul>  | <p><u>Fixed Hydroacoustics</u></p> <ul style="list-style-type: none"> <li>• 2 sampling stations (site and control)</li> <li>• 2 (24-hr) days sampling/season</li> <li>• Seasons: <ul style="list-style-type: none"> <li>○ Aug/Sept 2009</li> <li>○ Spring 2010</li> <li>○ Summer 2010</li> <li>○ Early Fall 2010</li> </ul> </li> </ul> <p><u>DIDSON</u></p> <ul style="list-style-type: none"> <li>• 2 (24-hr) days sampling/season</li> <li>• Seasons: <ul style="list-style-type: none"> <li>○ Aug/Sept 2009</li> <li>○ Spring 2010</li> <li>○ Summer 2010</li> <li>○ Early Fall 2010</li> </ul> </li> </ul>  |
| <b>Post-Deployment Monitoring</b> | <p><u>Fixed Hydroacoustics</u></p> <ul style="list-style-type: none"> <li>• 2 sampling stations (site and control)</li> <li>• 2 (24-hr) days/month for 24 months</li> </ul> <p><u>Mobile Hydroacoustics</u></p> <ul style="list-style-type: none"> <li>• 2 far-field sampling stations (site and control)</li> <li>• 2 days sampling/month for 24 months</li> </ul> <p><u>DIDSON</u></p> <ul style="list-style-type: none"> <li>• 2 (24-hr) days/month for 24 months</li> </ul> <p><u>Net Sampling</u></p> <ul style="list-style-type: none"> <li>• Frequency to be determined in consultation with NMFS</li> </ul> | <p><u>Fixed Hydroacoustics</u></p> <ul style="list-style-type: none"> <li>• 2 sampling stations (site and control)</li> <li>• 2 (24-hr) days sampling/season</li> <li>• Seasons: <ul style="list-style-type: none"> <li>○ Fall 2010</li> <li>○ Winter 2010</li> <li>○ Spring 2011</li> <li>○ Summer 2011</li> <li>○ Fall 2011</li> </ul> </li> </ul> <p><u>DIDSON</u></p> <ul style="list-style-type: none"> <li>• 2 (24-hr) days sampling/season</li> <li>• Seasons: <ul style="list-style-type: none"> <li>○ Aug/Sept 2009</li> <li>○ Spring 2010</li> <li>○ Summer 2010</li> <li>○ Early Fall 2010</li> </ul> </li> </ul> <p><i>Prior to Installing Units 2, 3, and 4:</i></p> <p><u>Fixed Hydroacoustics</u></p> <ul style="list-style-type: none"> <li>• 2 sampling stations (site and control)</li> <li>• 2 (24-hr) days/month for 24 months</li> </ul> <p><u>Mobile Hydroacoustics</u></p> <ul style="list-style-type: none"> <li>• 2 far-field sampling stations (site and control)</li> <li>• 2 days sampling/month for 24 months</li> </ul> <p><u>DIDSON</u></p> <ul style="list-style-type: none"> <li>• 2 (24-hr) days/month for 24 months</li> </ul> <p><u>Net Sampling</u></p> <ul style="list-style-type: none"> <li>• Frequency to be determined in consultation with NMFS</li> </ul> <p><u>Collision Strike Study</u></p> |

In addition, the final study plan should provide more information concerning methods for hydroacoustic monitoring including: 1) clearly defined objectives for the studies; 2) specific locations of fixed and transect positions; and 3) specific procedures and equipment for conducting fixed and mobile hydroacoustic survey.

b. Marine Mammal and Diving Bird Draft Observation Plan (July 21, 2009)

ORPC Tidal Energy project's qualifications for a FERC pilot project license depend upon how well the licensing procedure criteria are met. One of the criteria includes project avoidance of sensitive sites. Because the project area is located within highly productive marine mammal habitat, accurately describing the extent of marine mammal activity in the proposed project area is crucial in determining whether the project has met FERC criteria in the "avoidance of sensitive sites." The marine mammal and diving bird observation plan represents an opportunistic collection of sighting information, which may not be sufficient to characterize seasonal abundance, distribution, and habitat use in the area. Based on the draft observation plan provided, it is difficult to evaluate the adequacy of the proposed plan to assess marine mammal presence in the area. NMFS requests that the plan be revised to include the following types of information: 1) the precise location for monitoring; 2) duration of monitoring periods (e.g., hours/day); 3) types of observation equipment (e.g., binoculars, spotting scopes, theodolite, etc.), 4) numbers of observers and their qualifications, 5) further detail on the type of data to be collected, 6) survey/observation protocol. A standardized survey methodology across multiple years may be necessary in order to describe marine mammal activity accurately and sufficiently. In addition, assessing the quality of the habitat for marine mammals (e.g., prey species abundance and other habitat features) may assist in estimating the potential for marine mammals to be present in the area and to be affected by the proposed project. NMFS and Northeast Fisheries Science Center (NEFSC) staff are available to assist with the development of appropriate marine mammal study and survey designs. For questions regarding seal abundance, behavior, and survey design, please contact Gordon Waring at 508-495-2000 x 2311. For questions regarding cetacean abundance, behavior, and survey design, please contact Debi Palka at 508-495-2387.

## **VIII. Conclusion**

Cobscook Bay and Western Passage are rich in marine life. NMFS recognizes that the pilot licensing process can be effective in guiding future large-scale developments in an environmentally sound manner. At the same time, NMFS is mindful of the need to protect environmental resources during project development by adhering to standard licensing procedures unless circumstances warrant a deviation, following careful consideration.

NMFS requests expanding the proposed pre- and post deployment fisheries monitoring plan to provide more robust data on which to estimate any project effects. Once this information is collected, further study plans can be modified through an adaptive approach.

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