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National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
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F/SER31:AL
SER-2012-1471

JUL 25 2013

Ms. Michelle Morin
Chief, Environment Branch for Renewable Energy
Bureau of Ocean Energy Management
Office of Renewable Energy Programs
381 Elden Street, HM 1328
Herndon, Virginia 20170-4817

Ref.: Florida Atlantic University's Lease Application to Conduct Marine Hydrokinetic Technology Testing on the Outer Continental Shelf, Fort Lauderdale, Florida

Dear Ms. Morin:

This responds to your April 24, 2012, letter requesting informal consultation with the National Marine Fisheries Service (NMFS), pursuant to Section 7 of the Endangered Species Act (ESA), for the referenced Bureau of Ocean Energy Management (BOEM) lease application submitted by Florida Atlantic University (FAU). You determined the project may affect, but is not likely to adversely affect five species of sea turtles (all endangered with the exception of the threatened Northwest Atlantic Distinct Population Segment of the loggerhead sea turtle) and eight species of endangered whales (North Atlantic right whale, sei whale, fin whale, humpback whale, Bryde's whale, blue whale, minke whale, and sperm whale). NMFS's determinations regarding the effects of the proposed action are based on the description of the action in this informal consultation. Changes to the proposed action may negate our findings and may require reinitiating consultation.

Consultation History
On April 24, 2012, BOEM sent a letter to NMFS requesting informal consultation. Your request included a draft Environmental Assessment (EA). You stated the draft EA would serve as your Biological Assessment for the project. On May 30, 2012, we sent BOEM a letter requesting additional information. On August 31, 2012, you sent us an interim response stating our information needs would be addressed in a revised draft EA. We received the revised draft EA by e-mail on January 4, 2013. After review, we determined it only partially addressed our information needs, and informed BOEM by e-mail on February 21, 2013. BOEM made further revisions and sent a revised draft EA by e-mail on March 21, 2013. After reviewing it we determined its completeness and initiated informal consultation on March 21, 2013.

Project Description
BOEM (Lessor) proposes to issue a five-year lease to FAU (Lessee) to conduct marine hydrokinetic technology testing within three lease blocks on the Outer Continental Shelf (OCS) located approximately 9 to 15 nautical miles offshore from Fort Lauderdale, Florida, in water depths ranging from 860 to 1,200 ft. The initial proposed mooring location for the technology testing facility would be at latitude 26.042°N, longitude 79.92°W (North American Datum 1983) (Figure 1).

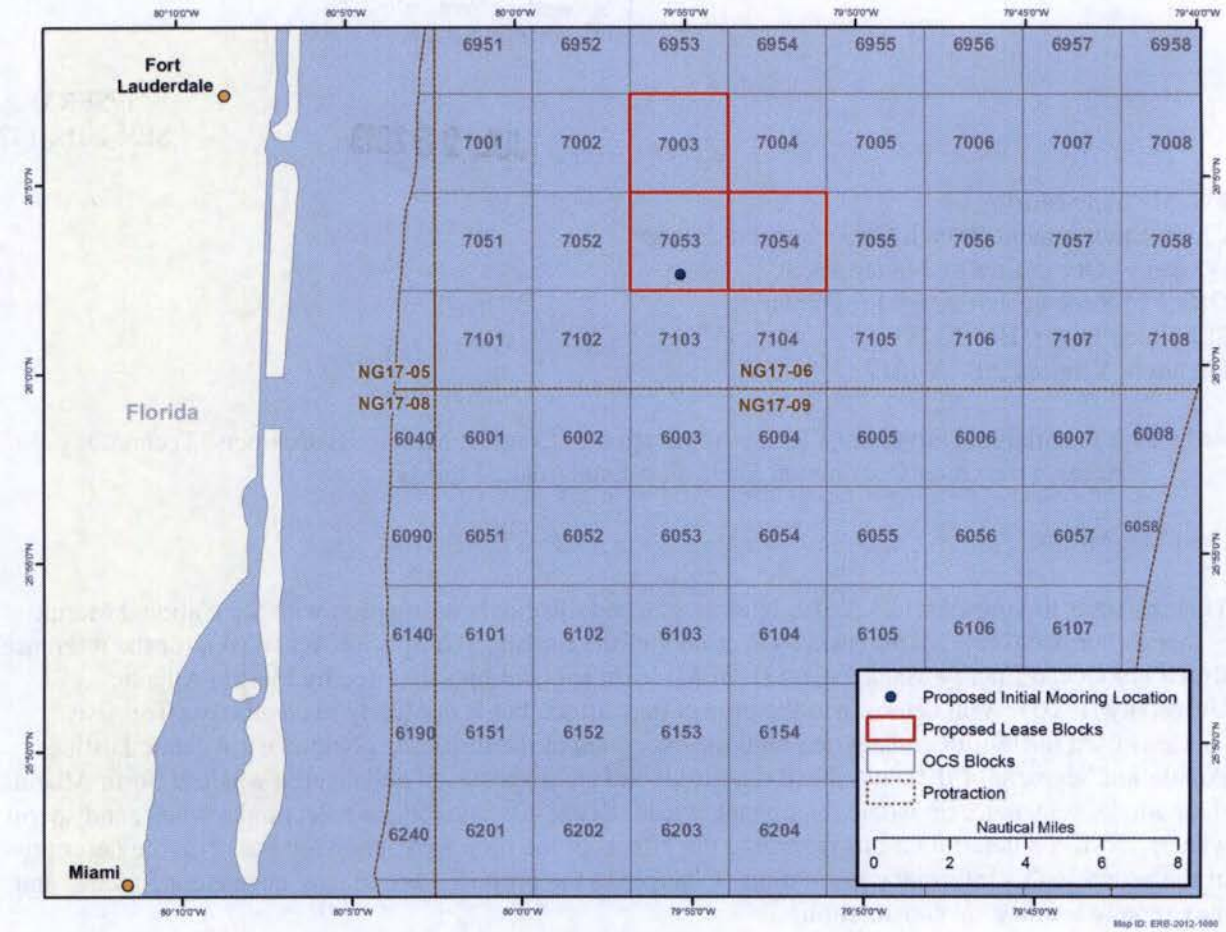

Figure 1. OCS Lease Blocks and initial mooring location.

Prior to installing the mooring system on the OCS, FAU proposes preliminary tow testing of the ocean current turbine (OCT). FAU states the preferred location for the tow tests is offshore from Fort Pierce, Florida, which is near FAU's Harbor Branch Oceanographic Institute. The proposed test location area is 11.8 nautical miles east of the Fort Pierce Inlet, with the center of the test area located at latitude 27.4667°N, longitude 80.0342°W (North American Datum 1983), and approximately 5.4 nautical miles from north to south by 3.7 nautical miles from east to west (20 square nautical miles). Figure 2 shows the proposed test area and its proximity to shore.

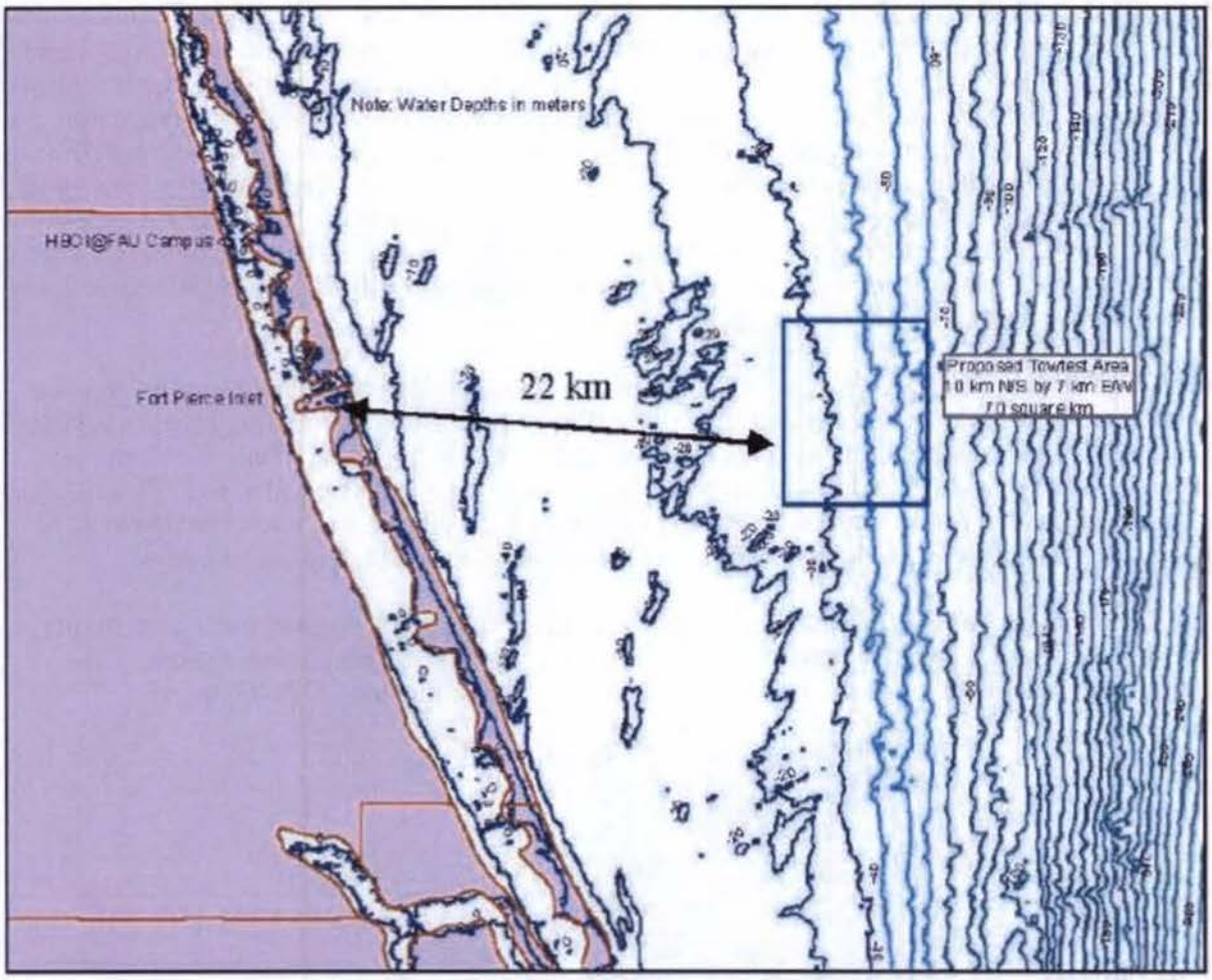

Figure 2. Proposed tow test area offshore from Fort Pierce, Florida.

FAU states the preliminary tow tests are standard practice in the marine industry to verify the dynamic behavior and safe handling characteristics of a system before a moored deployment (draft EA, Appendix B, page 148). The tow tests would occur in two phases. In Phase 1, FAU would deploy a drogue chute in lieu of rotor blades. In Phase 2, FAU would deploy the OCT with rotor blades (Figure 3).

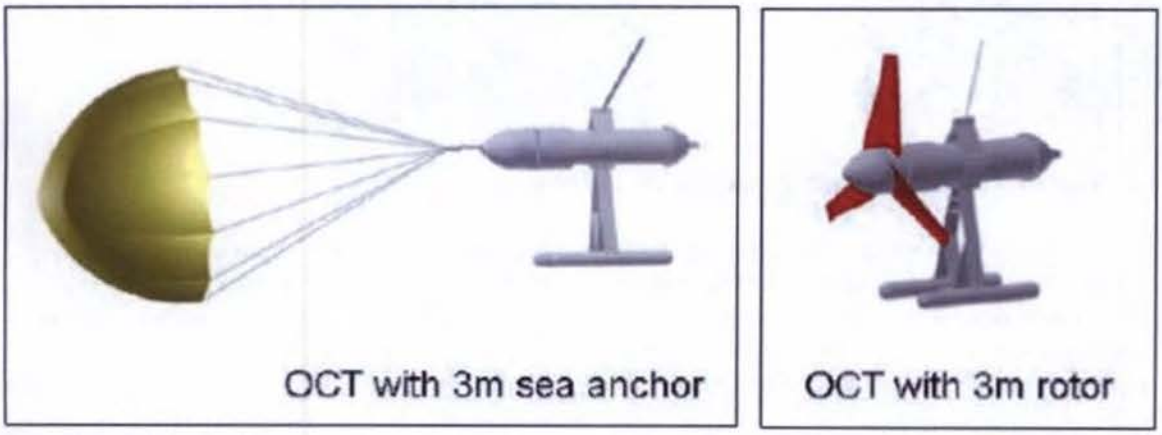

Figure 3. Phase 1 of tow testing using a drogue chute. Phase 2 of tow testing includes rotor blades.

During Phase 1, the OCT and the drogue chute would be towed at several speeds ranging from one to six knots for approximately five to ten minutes per tow speed. FAU states this range of tow speeds would provide results indicative of the expected window of operational conditions when the device is deployed in the moored configuration offshore from Fort Lauderdale, Florida, where typical flows range from one to 2.5 m/second. During towed testing in Phase 1, the turbine would be deployed and recovered from the vessel to practice handling the device. The OCT would be towed at various depths ranging from 30 to 100 ft. FAU expects to gather sufficient data and observations at shallower depths (draft EA, Appendix B, page 151). One tow test using the drogue chute is proposed. However, FAU states if the first tow experiment results in adjustments that would benefit from additional verification, there is the possibility of a second tow event using the drogue chute.

Following Phase 1 tow testing to observe OCT dynamics, practice shipboard handling procedures, and complete post-test analyses of the results, FAU states Phase 2 of the tow testing would begin. In Phase 2, the electrical generation performance and system integration will be evaluated. Thus, the electrical generator would be installed along with all control and monitoring equipment and a rotor (Figure 3, image on the right). FAU states all of the other OCT characteristics and equipment for tow testing would be identical to Phase 1 testing, including the range of tow speeds, depths, location, and duration.

During both phases, the OCTs would be equipped with underwater video cameras (three cameras per OCT) to allow for any potential observations of sea turtles, whales, or other protected species. The cameras are positioned to allow for observations in front of and behind the OCTs (Figure 4).

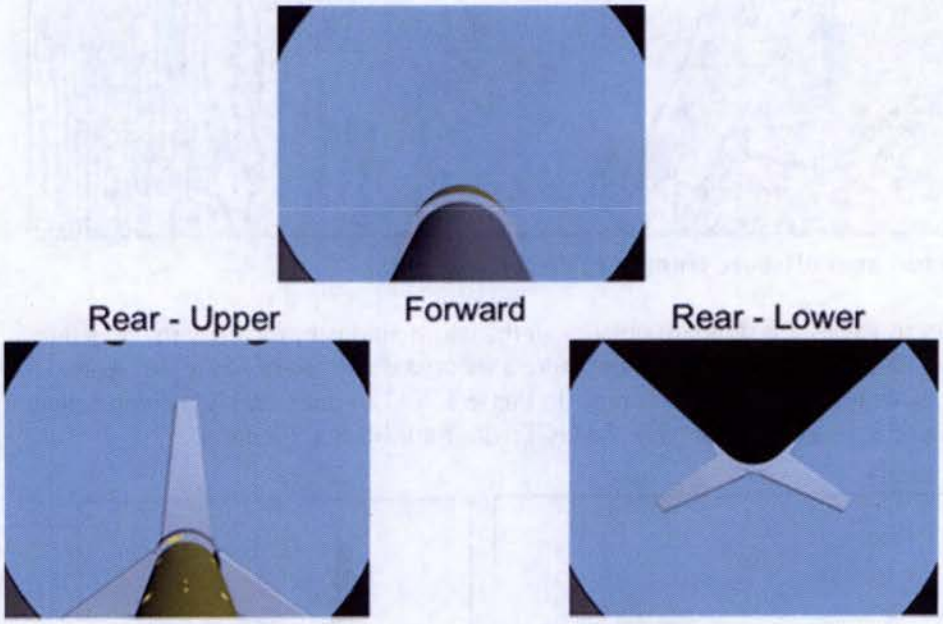

Figure 4. The views from the underwater video cameras.

Once the tow tests are complete and BOEM issues a five-year lease, FAU may begin activities on the OCS offshore from Fort Lauderdale, Florida. Under the proposed action, FAU would first deploy a single-anchor mooring attached to a mooring and telemetry buoy (MTB), and test, for limited periods, equipment designed to use the Florida current to generate electricity. The MTB, similar to NOMAD weather buoys with a history of excellent long-term survivability in severe seas, would remain deployed

at variable intervals throughout the year.[1] FAU then intends to deploy two additional MTBs later during the lease period. The additional MTBs would be operational simultaneously with the first MTB. This would result in three total technology testing facilities operating on the leasehold.

The initial proposed mooring location for the technology testing facility is shown in Figure 1. FAU selected the proposed MTB mooring location based upon several criteria including site-specific bottom type and slope, location of potential deep-water coral communities and benthic habitat, and oceanographic conditions. The mooring locations for the two additional MTBs would be selected by FAU using the same criteria upon the completion of the site characterization surveys. The additional site characterization surveys will include sediment samples in order to determine bottom type. Previous work in the area, as well as information from the U.S. Department of Energy's siting report,[2] indicate coarse sediments in the three OCS blocks that are suitable for the proposed mooring system. Under the proposed action, the additional mooring locations would be in the proposed lease blocks ranging from 262 m in depth in Block 7053 to 366 m in the lower half of Block 7054 (Figure 1).

FAU has the option of deploying the original MTB four to five times in different locations over the five-year lease term. The two additional MTBs would be deployed three to four times each (three to four different locations) over the five-year lifespan of the project. A total of 10-13 MTB deployments would occur over the lifetime of the project. FAU would deploy each MTB at a separate mooring location, and each MTB would require installation, operation, and decommissioning. FAU proposes 12-24 annual, in situ, OCT test sessions (up to five days duration each, with a minimum of one day duration) for each MTB. Similar to the tow testing, the OCT device would be equipped with three underwater video cameras, arranged to observe any potential marine animals that may be in front of or behind the device (Figure 4). This video would be recorded for archival and review purposes. The cameras would be low-light, black and white, and displayed in real time on the support vessel. FAU states no overnight turbine operations would occur. However, if at a later time during the lease period, FAU determines that nighttime operations are required, BOEM will require FAU to submit a monitoring plan that must be approved by BOEM in consultation with NMFS.

Installation

The first phase of installing the proposed offshore technology testing facility would be deployment of the mooring system. The anchor, chain, mooring line, and mooring buoy would be deployed and then left in place for several days to allow the anchor to settle fully into position and ensure all components are functioning properly. The expertise of the FAU staff and the capabilities of the vessel operators participating in deployment activities can be found at http://snmrec.fau.edu.

The MTB would be anchored to the ocean floor by a conventional faired mooring line attached to a 1,360-kg (3,000 lb) or 2,722-kg (6,000 lb) drag-embedment anchor, most likely a Danforth. The anchoring system for the MTB mooring was designed to hold the buoy and support vessel in the Florida current at water speeds up to 2.0 m/s (Figure 5).

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[1] U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, National Buoy Data Center. 2012. Moored Buoy Program. http://www.ndbc.noaa.gov/mooredbuoy.shtml.

[2] Vinick, C., A. Riccobono, C.G. Messing, B.K. Walker, J.K. Reed, and S. Farrington. 2012. Siting Study for a Hydrokinetic Energy Project Located Offshore Southeastern Florida: Protocols for Survey Methodology for Offshore Marine Hydrokinetic Energy Projects. Final Report submitted to the U.S. Department of Energy. February 23, 2012.

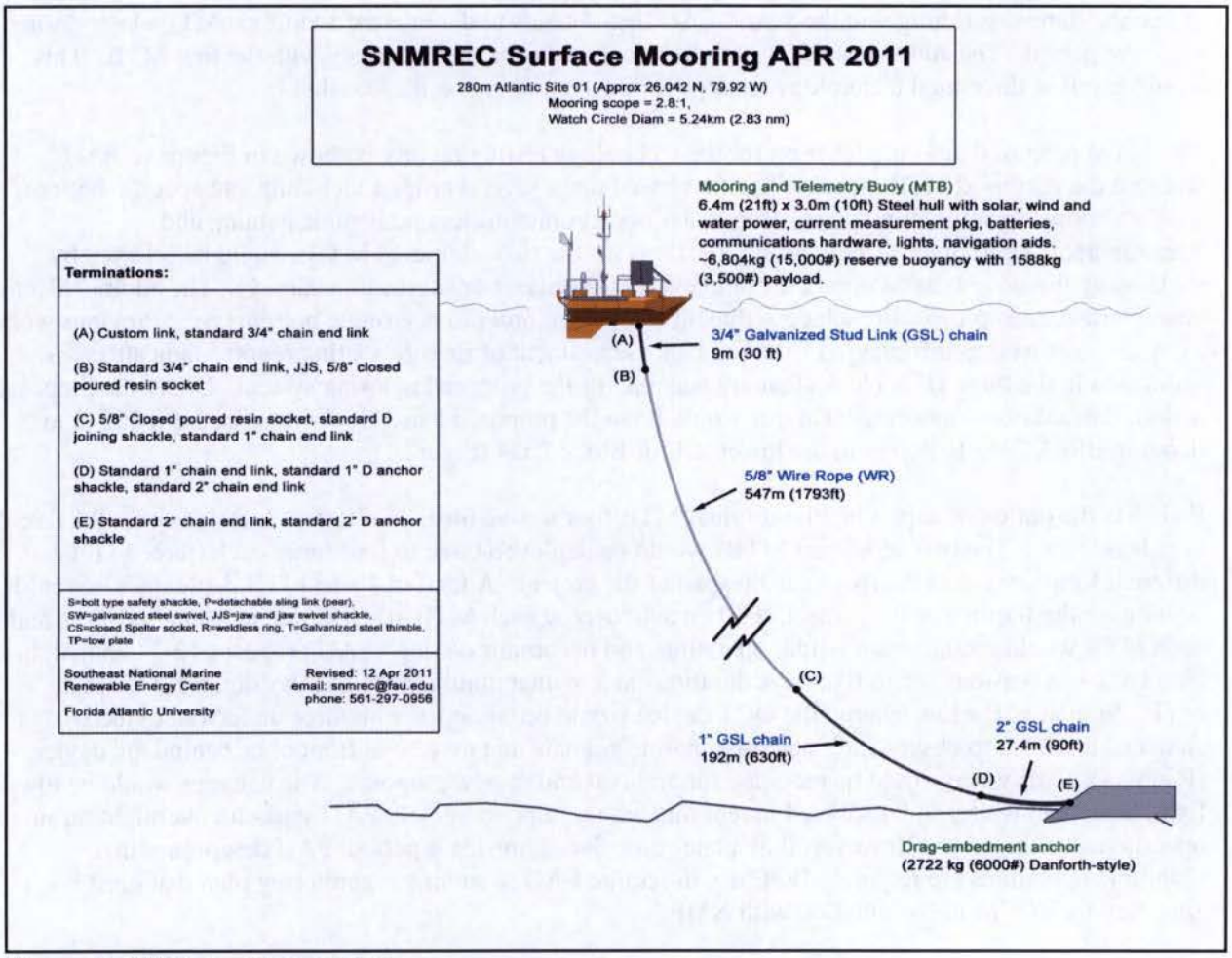

Figure 5. MTB mooring system.

The anchor would be deployed by a vessel that would navigate to the precise deployment location and would then be released from the surface and allowed to fall to the bottom. The MTB would be towed behind the deployment vessel, the mooring line would be laid out to the rounded 200 m (656.2 ft) chain and anchor, and then upon reaching the deployment site, the anchor would be released, pulling the chain along with it and pulling the buoy along the surface until it becomes moored in location. Upon landing on the seafloor, the anchor would drag an estimated 15 m (49.2 ft); then the flukes of the anchor would embed under a layer of sediment, providing up to 20 times the weight of the anchor in holding power.[3] Given the weight of the anchor and chain, the entire mooring system would fall essentially vertically to the bottom and land in a close proximity (±~70.0 m [229.7 ft]) to the planned anchor location. Based upon adding the 15 m (49.2 ft) anchor drag distance and the rounded 200 m (629.9 ft) length of chain that could sweep the seafloor, the maximum north-south distance of actual seafloor disturbance is 215 m (705.4 ft). The area of actual seafloor disturbance is 12,877.2 m^2 (1.29 hectares). Design calculations indicate the MTB, support vessel, and the OCT would impose a drag force on the mooring of up to 10,000 lbs during maximum current and wave loads for operations, and mooring wire itself may add another 4,000 lbs in these conditions.[4] During installation of the mooring system, FAU will comply with the lease stipulations on page 26 of the draft EA in order to avoid impacts to archeological resources

[3] Naval Facilities Engineering Command. 2005. Unified Facilities Criteria, Design: Moorings, UFC 4-159-03.
[4] American Petroleum Institute. 2005. Design and Analysis of Station-Keeping Systems for Floating Structures, Recommended Practice 2SK, Third Edition. October 2005.

and/or sensitive benthic habitats. We decided not to include the mooring system lease stipulations herein because they are not germane to this consultation.

The proposed MTBs would act as both a sensor and measurement platform and as a mooring point for vessels. The steel-hulled MTB measures 6.4 m (21.0 ft) long by 3.0 m (10.0 ft) wide with an overall height above the mean water line of approximately 5.8 m (19.0 ft). The MTB has 6,804-kg (15,000 lb) reserve buoyancy with a 1,588-kg (3,500 lb) payload. The MTB contains solar, wind, and water-power devices as well as current measurement package, batteries, communications hardware, lights, and navigation aids. All MTBs deployed by FAU will contain three all-around yellow lights (with a visible range of at least 5.6 km [3.0 nm]) as markers on the line connecting the MTB and a moored testing vessel (or tender platform) located at 22.9, 45.7, and 68.6 m (75.0, 150.0, and 225.0 ft) aft of the MTB at a 1.8-m (6.0 ft) height above the mean water line.

Operation
The mooring would interact with, and remain fixed to, the seafloor due to the embedment of the anchor into the sediment layer, which consists primarily of sand. The chain would lay out from the anchor downstream, absorbing the mooring loads from the wire and buoy. The main mooring line itself is 1.6 cm (0.625 in) conventional galvanized wire rope common to most deep-water moorings with the upper half faired with hydrodynamic foils to reduce drag and anchor-line strum. Due to the high-current environment, a ratio of approximately 3:1 will be used to help minimize anchor size and line loading (draft EA, page 27). The line will typically be taut due to the drag loading on the MTB. However, because the current meanders in the vicinity of the mooring, the line loading may occasionally decrease such that the line lies on the bottom. To mitigate potential scouring of the bottom in this circumstance, approximately 16 cable floats spaced at 9 m will be placed along the mooring line at several locations to ensure that the line does not touch the seabed. The cable floats are made of syntactic foam, and are pressure resistant so that they retain their displacement and buoyancy, when submerged. The floats clamp onto the cable using a latching system. Each float provides approximately 75 pounds of buoyancy. The number of floats currently proposed provides additional buoyancy to ensure the cable end and acoustic release are floated to the surface. If the cable length needs to be increased, the number of floats will be adjusted accordingly. In the unforeseen event of a mooring line break, the flotation attached to the mooring line will keep it off the bottom, and when it is released, it will float to the surface. Since the bottom type is important to the mooring holding power, a level, sandy area is preferred over a rough, high slope type seafloor (draft EA, page 28). The mooring system would be the fixed component of the testing system, which also includes a support vessel and an axial flow turbine device.

Removal
A work vessel (anticipated to be a 96-ft vessel), along with a Remotely Operated Vehicle (ROV), will be used to recover the MTB and anchor. The work vessel would remain on the project site for three days in order to complete mooring system removal. The ROV, which may be deployed from a separate vessel, will dive to the anchor and attach recovery gear to it. The vessel used for anchor removal would not require anchors to hold position over the worksite, so no additional bottom disturbance would occur from the anchor recovery.

The MTB mooring is proposed to consist of several hundred meters of mooring wire, with a diameter of approximately ¾-inch, approximately 16 cable floats, an acoustic release, and up to eight shots (90 ft per shot) of various size chain connected to the anchor. In order to minimize the amount of bottom disturbance or potential effect on any biological resources, the MTB mooring is designed to be disconnected close to the seafloor by means of an acoustic release and then rises to the surface using floats attached to the bottom of the mooring wire. The acoustic release would be connected between the end of the mooring wire and a 30 m length of wire attached to the anchor chain and anchor. The acoustic release would be triggered by an acoustic signal from the surface, it would disconnect from the wire and

anchor chain near the seafloor, and the released end of the mooring wire would float to the surface (due to the cable floats installed just above the release). This results in the entire length of mooring wire, approximately 530 m, rising into the water column and floating with the current, with one end supported by the MTB and the other end supported by the cable floats. Meanwhile, a short length of wire, the anchor chain, and the anchor would remain on the seafloor. If for some reason the acoustic release does not operate, the purpose for the wire rope below the acoustic release and above the chain is so that it could be cut with an ROV; thereby, releasing the cable from the chain and anchor. At that point, the floats would raise the cable end and acoustic release to the surface. This procedure would reduce the amount of bottom disturbance from a linear distance of approximately 784 m to only 254 m. A support vessel would then recover the MTB and mooring cable, and the mooring wire could then be reused if still in good condition. In order to remove the anchor chain and anchor, an ROV would be used. A short length of wire rope (about five m each) would connect each length of chain on the anchor so that the ROV could cut the wire and then recover each segment of chain, reducing the weight of each recovery from a total chain weight of approximately 20,000 lbs to less than 4,000 lbs per lift. This would reduce the size of the recovery ship and equipment needed, and would reduce the amount of chain dragging on the seafloor since shorter length of chain could be removed instead of dragging the entire length to the ship during recovery. Recovery of the chain and anchor will depend on conditions (i.e., growth on these surfaces) observed at the time and on appropriate procedures in the regulations at the time.

Effects Analysis

We believe the following ESA-listed species may be present and may be affected by the proposed action: five species of sea turtles (the threatened Northwest Atlantic Distinct Population Segment of the loggerhead turtle, the endangered green turtle, the endangered hawksbill turtle, the endangered Kemp's ridley turtle, and the endangered leatherback turtle); eight species of endangered whales (North Atlantic right whale, sei whale, fin whale, humpback whale, Bryde's whale, blue whale, minke whale, and sperm whale); and the endangered smalltooth sawfish. For ease of analysis, we have divided this section into three parts: (1) potential effects from OCT tow testing, (2) potential effects from acoustic surveys, and (3) potential effects from the installation, operation, and decommissioning of the MTB.

OCT Tow Tests

We believe there are three potential routes of effects on ESA-listed species from the proposed OCT tow tests: (1) the risk of injury or death to sea turtles and whales from a vessel strike, (2) the risk of entanglement in the drogue chute during Phase 1 tow testing, and (3) the risk of a blade strike during Phase 2 tow testing. We believe sea turtles and whales may be injured or killed if they are struck by a vessel(s) associated with the proposed tow tests. However, BOEM will require FAU to comply with the vessel strike avoidance lease stipulations (page 14 of the draft EA) for all vessel activity under the proposed action. We believe the risk of a vessel strike is discountable with implementation of the following vessel strike avoidance lease stipulations:[5]

- The Lessee must ensure that vessel operators and crews maintain a vigilant watch for whales and sea turtles and must slow down or stop their vessel to avoid striking these protected species.
- The Lessee must ensure that all vessel operators are briefed to ensure they are familiar with the requirements specified herein.

[5] These stipulations are similar to those issued in BOEM's Notice To Lessees and Operators (NTL) of Federal Oil, Gas, and Sulphur Leases in the OCS, Gulf of Mexico OCS Region on *Vessel Strike Avoidance and Injured/Dead Protected Species Reporting* (NTL 2012-JOINT-G01) (http://www.bsee.gov/Regulations-and-Guidance/Notices-to-Lessees-and-Operators.aspx). The NTL is based on NMFS Southeast Region's February 2008 *Vessel Strike Avoidance Measures and Reporting for Mariners* (draft EA, page 14).

- North Atlantic right whales
    - The Lessee must ensure all vessels maintain a separation distance of 500 m (1,640 ft) or greater from any sighted North Atlantic right whale in accordance with 50 CFR 224.103. The Lessee must ensure that the following avoidance measures are taken if a vessel comes within 500 m (1,640 ft) of a right whale(s):
        - The Lessee must ensure that while underway, any vessel must steer a course away from the right whale(s) at 10 knots (< 18.5 km/hour) or less until the minimum separation distance has been established.
        - The Lessee must ensure that when a North Atlantic right whale is sighted in a vessel's path, or within 100 m (328 ft) to an underway vessel, the underway vessel must reduce speed and shift the engine to neutral. The Lessee must not engage the engines until the right whale(s) has moved outside of the vessel's path and/or beyond 100 m (328 ft).
        - The Lessee must ensure that if a vessel is stationary, the vessel must not engage engines until the North Atlantic right whale(s) has moved beyond 100 m (328 ft).

- Endangered whales other than the North Atlantic right whale
    - The Lessee must ensure all vessels maintain a separation distance of 100 m (328 ft) or greater from any sighted non-delphinoid cetacean(s):
    - The Lessee must ensure that the following avoidance measures are taken if a vessel comes within 100 m (328 ft) of a non-delphinoid cetacean:
        - The Lessee must ensure that when a non-delphinoid cetacean(s) (other than a North Atlantic right whale) is sighted, the vessel underway must reduce speed and shift the engine to neutral, and must not engage the engines until the non-delphinoid cetacean(s) has moved outside of the vessel's path and/or the minimum separation distance has been established.
        - The Lessee must ensure that if a vessel is stationary, the vessel must not engage engines until the non-delphinoid cetacean(s) has moved out of the vessel's path and beyond 100 m (328 ft).
- Sea turtles and smalltooth sawfish
    - The Lessee must ensure all vessels maintain a separation distance of 50 m (164 ft) or greater from any sighted sea turtle or smalltooth sawfish.

We believe the other two potential routes of effects are the risk of entanglement in the OCT drogue chute during Phase 1 tow testing and the risk of a blade strike during Phase 2 of the OCT tow tests. We believe both of these pose a discountable risk to sea turtles, whales, and smalltooth sawfish based on the species' mobility and the speed and duration of each tow test (1-6 knots for approximately 5-10 minutes per tow speed, draft EA, Appendix B, page 151). If an interaction with a sea turtle or a whale were to occur, we would expect it to occur at or near the surface; thus, we believe the risk is further reduced by the proposed tow depths (between 30 to 100 ft). Furthermore, the OCT will be equipped with three underwater video cameras arranged to observe marine animals in the front and to the rear of the device. The lease stipulations require cessation of any moving equipment closer than 50 ft from a sea turtle, whale, or smalltooth sawfish. The ability to observe protected species underwater (and not just at the surface) will further reduce the risk of an interaction with the OCT. BOEM will require FAU to comply with the following lease stipulations[6] during all phases of the proposed activity (i.e., OCT tow testing and operations on the OCS, draft EA, page 29):

[6] Stipulations are based on NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions* (March 23, 2006).

- The Lessee shall instruct all personnel associated with the project of the potential presence of sea turtles and smalltooth sawfish and the need to avoid collisions with these species. All personnel are responsible for observing water-related activities for the presence of these species.
- At least one BOEM-approved protected species observer must be on watch during daylight hours to monitor and report any protected species sightings during OCT testing operations.
- If a North Atlantic right whale is within a 100-m (328-ft) radius of the active daily OCT testing/operation equipment, the OCT device must be shut down and all appropriate precautions shall be implemented to ensure the whale's protection. Activities may not resume until the exclusion zone (100 m/328 ft) between the North Atlantic right whale and the OCT testing/operation equipment has been recovered; and the exclusion zone has been clear of protected species for at least 30 minutes.
- If a protected species (other than a North Atlantic right whale) is within 100 m (328 ft) of the active daily OCT testing/operation equipment, all appropriate precautions shall be implemented to ensure the species' protection. These precautions shall include immediate cessation of operation of the OCT device if a protected species is seen within a 15.2-m (50-ft) radius of the equipment. Activities may not resume until (1) the protected species has moved at least 100 m (328 ft) away from the OCT testing/operation equipment of its own volition and the 100-m (328-ft) zone has been clear of protected species for at least 30 minutes, or (2) a determination is made by the protected species observer, after a minimum of 10 minutes of observation, that the protected species is remaining between 15.2 m (50 ft) and 100 m (328 ft) of the OCT testing/operation equipment of the animal's own volition.
- The lessee must not conduct OCT testing at any time when lighting or weather conditions (e.g., darkness, rain, fog, sea state) prevents visual monitoring of the exclusion zone.

Acoustic Surveys

BOEM will require FAU to comply with the following lease stipulations for acoustic surveys in which one or more active acoustic sound sources will be operating at frequencies below 200 kHz and broadband source levels not exceeding 226 dB (dB re 1 µPA at 1 m). Sound above 200 kHz is outside the hearing range for both sea turtles and cetaceans. Generally, side-scan and multibeam sonar operate at frequencies above 200 kHz. Side-scan sonars may have frequency settings at around 100 kHz, which is at the high end of the hearing range for odontocetes (in this case, sperm whales). Chirp sub-bottom profiling systems operate at frequencies between 500 Hz and 24 kHz, which are within the hearing range of mysticetes, odontocetes, and sea turtles. These stipulations were developed through previous ESA Section 7 consultations with NMFS and the U.S. Fish and Wildlife Service.[7] BOEM also recently published a draft programmatic Environmental Impact Statement for geological and geophysical activities in BOEM's Mid and South Atlantic OCS Planning Areas[8] that proposes a high-resolution geophysical survey protocol that is reflected in the lease stipulations. Any acoustic electromechanical survey instruments operating above the thresholds described in the lease stipulations must be approved by BOEM, in consultation with NMFS, prior to their use. The following stipulations are considered standard operating conditions for reducing acoustic disturbance to whales and sea turtles. In addition to sea turtles and whales, BOEM agreed to apply the following lease stipulations for acoustic surveys to smalltooth sawfish. With implementation of these lease stipulations for acoustic surveys, we believe effects on sea turtles, smalltooth sawfish, and whales would be insignificant:

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[7] The 2009 biological assessment for Wind Resource Data Collection on the Northeast Atlantic OCS and the *Commercial Wind Lease Issuance and Site Assessment Activities on the Atlantic OCS Offshore New Jersey, Delaware, Maryland, and Virginia* – Final EA (2011).

[8] U.S. Department of the Interior, BOEM, 2012. Atlantic OCS Proposed Geological and Geophysical Activities Mid-Atlantic and South Atlantic Planning Areas Draft Programmatic Environmental Impact Statement (EIS). OCS EIS/EA BOEM 2012-005.

- Visibility. The Lessee must not conduct high-resolution geophysical (HRG) surveys at any time when lighting or weather conditions (e.g., darkness, rain, fog, sea state) prevents visual monitoring of the HRG survey exclusion zone.
- Protected Species Observer. The Lessee must ensure that the exclusion zone for all HRG surveys performed in support of a plan is monitored by a BOEM-approved protected species observer.
- Optical Device Availability. The Lessee must ensure that reticled binoculars or other suitable equipment are available to each observer to adequately perceive and monitor protected species within the exclusion zone during surveys conducted in support of a plan.
- HRG Surveys. Stipulations specific to HRG surveys (e.g. side-scan sonar, multibeam sonar, sub-bottom profilers, and depth sounder) operating at frequencies below 200 kHz and broadband source levels not exceeding 226 dB (dB re 1 μPA at 1 m) conducted in support of a plan are provided below:
- Establishment of Default Exclusion Zone. The Lessee must ensure a 500-m default exclusion zone for cetaceans and sea turtles. The Lessee must ensure that the exclusion zone will be monitored by a protected species observer around the electromechanical sound source survey equipment. The Lessee may not use HRG survey devices that emit sound levels that exceed 160 dB without approval by the Lessor. As a condition of approval, the Lessor may impose additional, relevant requirements on the Lessee, including but not limited to, an expansion of the exclusion zone.
- Modification of Exclusion Zone per Lessee Request. The Lessee may use the field-verification method described below to request modification of the exclusion zone for specific HRG survey equipment under consideration. Any new exclusion zone radius proposed by the Lessee must be based on the most conservative measurement of the 160-dB Level B harassment zone. This modified zone must be used for all subsequent use of field-verified equipment and may be periodically reevaluated based on the regular sound monitoring described below. The Lessee must obtain Lessor approval of any new exclusion zone before it may be implemented.
- Field Verification of Exclusion Zone. If the Lessee wishes to modify the existing exclusion zone, the Lessee must conduct field verification of the exclusion zone for specific HRG survey equipment. The results of the sound measurements from the survey equipment must be used to establish a new exclusion zone, which may be greater than or less than the existing exclusion zone depending on the results of the field tests. The Lessee must take acoustic measurements at a minimum of two reference locations. The first location must be at the exclusion zone boundary and the second location must be as close to the sound source as technically feasible. Sound measurements must be taken at the reference locations at two depths (i.e., a depth at mid-water and a depth at approximately 1 m above the seafloor). Sound pressure levels must be measured and reported in the field in dB re 1 μPa rms (impulse).
- Clearance of Exclusion Zone. The Lessee must ensure that active acoustic sound sources will not be activated until the protected species observer has reported the exclusion zone clear of all cetaceans, smalltooth sawfish, and sea turtles for 60 minutes.
- Electromechanical Survey Equipment Ramp-Up. The Lessee must ensure that when technically feasible, a ramp-up of the electromechanical sound source survey equipment occurs at the start or re-start of HRG survey activities. A ramp-up would begin with the power of the smallest acoustic equipment for the HRG survey at its lowest power output. The power output would be gradually turned up and other acoustic sources added in a way such that the source level would increase in steps not exceeding 6 dB per 5-minute period.
- Shut Down for Non-Delphinoid Cetaceans, Smalltooth Sawfish, and Sea Turtles. If a non-delphinoid cetacean, smalltooth sawfish, or sea turtle is sighted at or within the exclusion zone, an immediate shutdown of the electromechanical sound source survey equipment is required. The vessel operator must comply immediately with such a call by the observer. Any disagreement should be discussed only after shutdown. Subsequent restart of the electromechanical sound

source survey equipment must use the ramp-up provisions described above and may only occur following clearance of the exclusion zone of all cetaceans, smalltooth sawfish, and sea turtles for 60 minutes.

- Pauses in Electromechanical Survey Sound Source. The Lessee must ensure that if the electromechanical sound source shuts down for reasons other than encroachment into the exclusion zone by a non-delphinoid cetacean, smalltooth sawfish, or sea turtle, including, but not limited to, mechanical or electronic failure, resulting in the cessation of the sound source for a period greater than 20 minutes, then the Lessee must restart the electromechanical survey equipment using the full ramp-up procedures after the observer has confirmed that the exclusion zone is clear of all cetaceans, smalltooth sawfish, and sea turtles for 60 minutes. If the shut-down pause is less than 20 minutes, the equipment may be re-started as soon as practicable at its operational level as long as visual surveys were continued diligently throughout the silent period and the exclusion zone remained clear of cetaceans, smalltooth sawfish, and sea turtles. If visual surveys were not continued diligently during the shut-down pause of 20 minutes or less, the Lessee must restart the electromechanical survey equipment using the full ramp-up procedures after the observer has observed clearance of the exclusion zone of all cetaceans, smalltooth sawfish, and sea turtles for 60 minutes.

Activities on the OCS

As described in the Project Description section, FAU proposes to (1) install the mooring system (anchor, chain, mooring line, and mooring buoy) on the OCS, (2) simultaneously deploy up to three OCTs on the OCS for a period of five years, and (3) recover the mooring system at the end of the five-year lease term. We believe the only route of effect on sea turtles and whales from installation and recovery of the mooring system is the risk of injury or death from a vessel strike. However, we believe the risk is discountable with implementation of the vessel strike avoidance lease stipulations included herein (see *OCT Tow Tests*) and on page 14 of the draft EA.

For the operational phase, we believe the effects on sea turtles, whales, and smalltooth sawfish would be the same as the effects analyzed in the previous section (see *OCT Tow Tests*) for the Phase 2 OCT tow tests. We believe the only potential route of effect is the risk of a blade strike; however, we believe this poses a discountable risk to sea turtles, whales, and smalltooth sawfish based on the species' mobility and the speed and duration of each tow test (1-6 knots for approximately 5-10 minutes per tow). If an interaction with a sea turtle or a whale were to occur, we would expect it to occur at or near the surface; thus, we believe the risk is further reduced by the proposed tow depths (between 16.4 and 164 ft). Furthermore, the OCT will be equipped with three underwater video cameras arranged to observe marine animals in the front and to the rear of the device. The lease stipulations require cessation of any moving equipment closer than 50 ft from a sea turtle, whale, or smalltooth sawfish. The ability to observe protected species underwater (and not just at the surface) will further reduce the risk of an interaction with the OCT. BOEM will require FAU to comply with the OCT testing/operation lease stipulations included herein (see *OCT Tow Tests*) and on page 30 of the draft EA.

Conclusion

We concur with your determination that the proposed action may affect, but is not likely to adversely affect five species of sea turtles (all endangered with the exception of the threatened loggerhead sea turtle) and eight species of endangered whales (North Atlantic right whale, sei whale, fin whale, humpback whale, Bryde's whale, blue whale, minke whale, and sperm whale). In addition, we believe the proposed action may affect, but is not likely to adversely affect the endangered smalltooth sawfish.

This concludes your consultation responsibilities under the ESA for species under NMFS's purview. Consultation must be reinitiated if a take occurs or new information reveals effects of the action not previously considered, or the identified action is subsequently modified in a manner that causes an effect

to the listed species or critical habitat in a manner or to an extent not previously considered, or if a new species is listed or critical habitat designated that may be affected by the identified action.

Additional relevant information is enclosed for your review. We look forward to further cooperation with you on other projects to ensure the conservation of our threatened and endangered marine species. If you have any questions on this consultation, please contact Audra Livergood, consultation biologist, at (786) 351-2225, or by e-mail at Audra.Livergood@noaa.gov.

Sincerely,

Miles M. Croom

for Roy E. Crabtree, Ph.D.
Regional Administrator

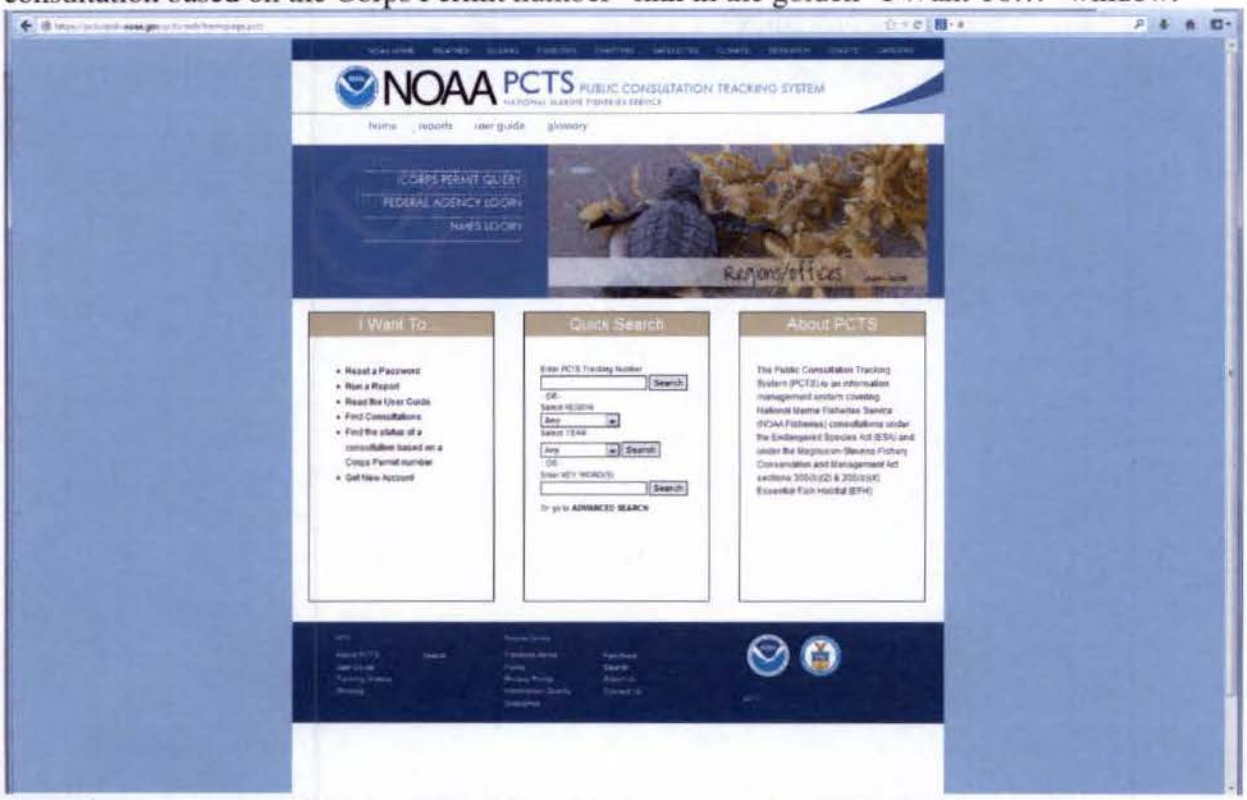
Enc.: *PCTS Access and Additional Considerations for ESA Section 7 Consultations* (Revised June 11, 2013)

File: 1514-22.J

PCTS Access and Additional Considerations for ESA Section 7 Consultations
(Revised 6-11-2013)

Public Consultation Tracking System (PCTS) Guidance: PCTS is a Web-based query system at **https://pcts.nmfs.noaa.gov/** that allows all federal agencies (e.g., U.S. Army Corps of Engineers - USACE), project managers, permit applicants, consultants, and the general public to find the current status of NMFS's Endangered Species Act (ESA) and Essential Fish Habitat (EFH) consultations which are being conducted (or have been completed) pursuant to ESA Section 7 and the Magnuson-Stevens Fishery Conservation and Management Act's (MSA) Sections 305(b)2 and 305(b)(4). Basic information including access to documents is available to all.

The PCTS Home Page is shown below. For USACE-permitted projects, the easiest and quickest way to look up a project's status, or review completed ESA/EFH consultations, is to click on either the "Corps Permit Query" link (top left); or, below it, click the "Find the status of a consultation based on the Corps Permit number" link in the golden "I Want To..." window.



Then, from the "Corps District Office" list pick the appropriate USACE district. In the "Corps Permit #" box, type in the 9-digit USACE permit number identifier, with no hyphens or letters. Simply enter the year and the permit number, joined together, using preceding zeros if necessary after the year to obtain the necessary 9-digit (no more, no less) number. For example, the USACE Jacksonville District's issued permit number SAJ-2013-0235 (LP-CMW) must be typed in as 201300235 for PCTS to run a proper search and provide complete and accurate results. For querying permit applications submitted for ESA/EFH consultation by other USACE districts, the procedure is the same. For example, an inquiry on Mobile District's permit MVN201301412 is entered as 201301412 after selecting the Mobile District from the "Corps District Office" list. PCTS questions should be directed to Eric Hawk at Eric.Hawk@noaa.gov or (727) 551-5773.

EFH Recommendations: In addition to its protected species/critical habitat consultation requirements with NMFS' Protected Resources Division pursuant to Section 7 of the ESA, prior to proceeding with the proposed action the action agency must also consult with NMFS' Habitat Conservation Division (HCD) pursuant to the MSA requirements for EFH consultation (16 U.S.C. 1855 (b)(2) and 50 CFR 600.905-.930, subpart K). The action agency should also ensure that the applicant understands the ESA and EFH processes; that ESA and EFH consultations are separate, distinct, and guided by different statutes, goals, and time lines for responding to the action agency; and that the action agency will (and the applicant may) receive separate consultation correspondence on NMFS letterhead from HCD regarding their concerns and/or finalizing EFH consultation.

Marine Mammal Protection Act (MMPA) Recommendations: The ESA Section 7 process does not authorize incidental takes of listed or non-listed marine mammals. If such takes may occur an incidental take authorization under MMPA Section 101 (a)(5) is necessary. Please contact NMFS' Permits, Conservation, and Education Division at (301) 713-2322 for more information regarding MMPA permitting procedures.