



UNITED STATES DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office

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St. Petersburg, Florida 33701-5505

<http://sero.nmfs.noaa.gov>

F/SER31:KBD

Jennifer Dixon-Herrity, Chief
Environmental Projects Branch
United States Nuclear Regulatory Commission
Division of New Nuclear Reactor Licensing
Mail Stop: TWFN 6C32
Washington, D.C. 20555-001

APR 26 2017

Colonel Alan Dodd, Commander
Department of the Army
Jacksonville District Corps of Engineers
9900 Southwest 107th Avenue, Suite 203
Miami, Florida 33176

Dear Ms. Dixon-Herrity and Colonel Dodd:

This letter responds to the Nuclear Regulatory Commission's request for consultation with us, the National Marine Fisheries Service (NMFS), pursuant to Section 7 of the Endangered Species Act (ESA) for the following action. The Jacksonville District of the United States Army Corps of Engineers (USACE) is a cooperating agency with the Nuclear Regulatory Commission (NRC) as the lead agency in the development of the Environmental Impact Statement for the proposed construction and operation of two new units at Turkey Point Nuclear Plant.

Applicant	SER Number	Project Type
Florida Power and Light Company (FPL)	SER-2015-16757	Expansion of Turkey Point Nuclear Plant, pile driving and dredging

Consultation History

We received NRC's letter and Biological Assessment (BA) on February 25, 2015 requesting consultation for the project referenced above. It was assigned to a Consultation Biologist on July 31, 2015. We requested additional information, and consultation was initiated on October 17, 2016, when the additional information was received.

Project Location

Address	Latitude/Longitude (North American Datum 1983)	Water body
Turkey Point Nuclear Plant, Units 6 and 7, Homestead, Miami-Dade County, Florida	25.437222°N, 80.326667°W	Biscayne Bay and Card Sound



Existing Site Conditions

The Turkey Point Nuclear Plant action area consists of 9,640 acres of land adjacent to Biscayne Bay and Card Sound with 5 existing power-generating stations comprised of pipelines, cooling towers, cooling canals, a barge slip, transmission lines, substations, heavy-haul roads, and other associated buildings and infrastructure. The project site contains dwarf mangrove islands, hypersaline mudflats, and open-water areas of Biscayne Bay Aquatic Preserve. The site for the proposed Units 6 and 7 (including associated cooling towers, a sub-station and associated facilities) is currently used to hold cooling water and is completely enclosed by earthen and concrete walls. This impounded area does not have any tidal connection to adjacent waters. According to the BA, no intertidal mangroves, corals, or ESA-listed seagrasses would be impacted or disturbed by construction or operation of the new units or any associated work. The project is not located in critical habitat.



Figure 1. Turkey Point Nuclear Plant on Biscayne Bay (©2016 Google)

Project Description

The NRC proposes to issue two combined construction permits and operating licenses to FPL for the construction and operation of Units 6 and 7 at the Turkey Point Nuclear Plant. Units 6 and 7 and associated facilities would be constructed entirely within an impounded area that does not have tidal or hydrologic connection to adjacent waters. Placement of the transmission lines and saltwater pipelines would be either in uplands or in impounded areas.

An existing equipment barge unloading area would be modified to support construction and future operations. The barge canal turning basin would be expanded to accommodate larger barges by excavating an area approximately 90 feet (ft) by 150 ft that contains very sparse non-ESA-listed seagrasses (shoal and widgeon grass). The dredging will occur using either small hydraulic or mechanical dredging methods. Dredged material would be placed in an upland disposal site. The turning basin expansion would involve temporary installation of 90 ft of 24-inch steel sheet piles

with an impact hammer. Pile installation would be conducted over a 2 week period concurrently with the dredging. Work would be conducted during daylight hours only.

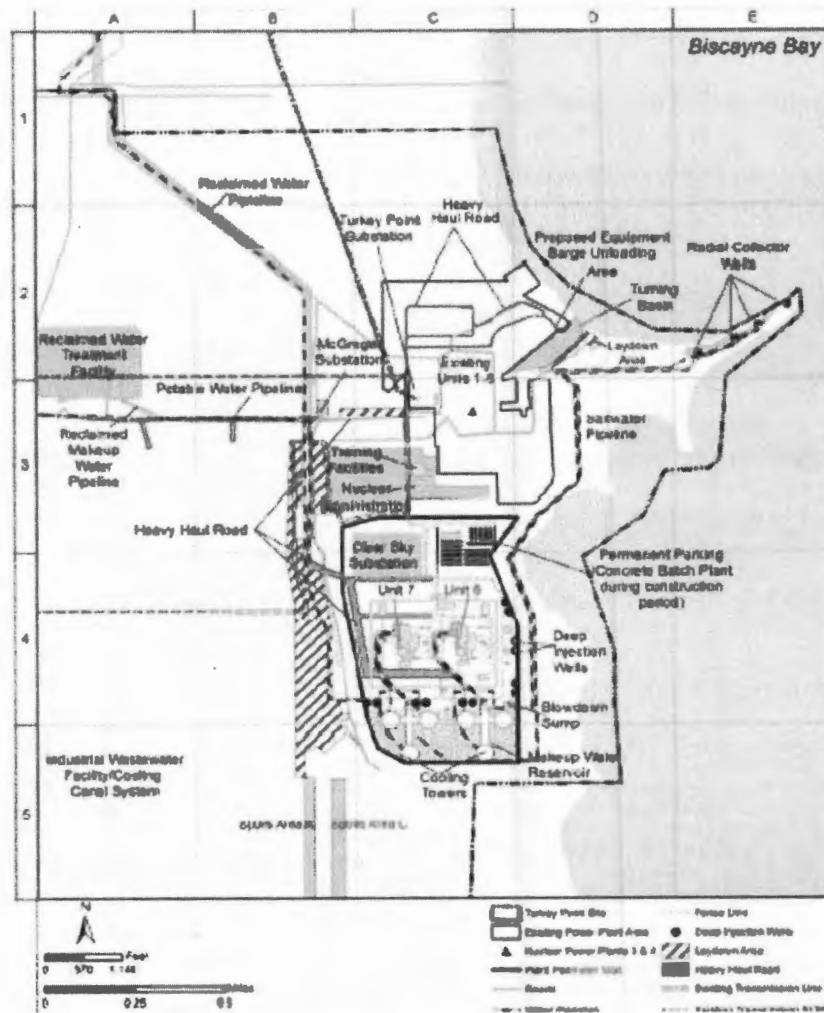


Figure 2. Site diagram of proposed location of Units 6 and 7, barge unloading area, and radial collector wells (FPL 2015).

Radial collector wells (RCWs) would be installed to augment the supply of cooling water from the Miami-Dade Water and Sewer system. The RCW will provide an alternate cooling water source when the quantity or quality of reclaimed water from the Miami-Dade system would not be available. The RCWs would be constructed of reinforced concrete caissons and installed laterally using microtunneling technology (i.e., horizontal directional drilling) approximately 25 to 40 feet (ft) below the bottom of Biscayne Bay. During the lateral drilling, best management practices would be used to reduce the potential for surface water or sediment disturbance.

Once constructed, the new units would use closed-cycle, wet-cooling towers that would primarily use reclaimed water from the Miami-Dade Water and Sewer Department. During operations, the use of the RCWs would be limited to no more than 60 days during a 12 month period. A portion of the used cooling water (i.e., blowdown water) would be discharged through deep injection wells located 2,800 to 3,500 ft underground.

Construction Conditions

Turbidity curtains would be used during dredging to contain any dredging related suspended sediments and prevent water quality degradation. FPL would follow NMFS's Sea Turtle and Smalltooth Sawfish Construction Conditions, dated March 23, 2006. They have also agreed to Florida Department of Environmental Protection's (FDEP) Conditions of Certification (State of Florida 2014-TN3637) as the preferred method for installation of the RCW in order to minimize pressure-induced fracturing and to provide South Florida Water Management District with complete drilling plans, contingencies for large storm events, and emergency response and mitigation plans in the event of a pressurized release of material. Unlike the oil and gas industry, the installation of the radial wells does not employ high pressure water injection during the construction of the well to fracture the rock and allow the escape of oil and natural gas. As a condition of FDEP's certification, a detailed monitoring plan for ecological and water quality resources in Biscayne Bay during construction of the RCWs is required for potential detection of pressure-induced fracturing. FPL does not expect pressure-induced releases of materials to occur during construction or operation of the RCWs.

Effects Determination(s) for Species the Action Agency or NMFS Believes May Be Affected by the Proposed Action

Species	ESA Listing Status	Action Agency Effect Determination	NMFS Effect Determination
Sea Turtles			
Green (North Atlantic and South Atlantic DPSs)	T	NLAA	NLAA
Kemp's ridley	E	NLAA	NLAA
Leatherback	E	NLAA	NLAA
Loggerhead (Northwest Atlantic Ocean distinct population segment [DPS])	T	NLAA	NLAA
Hawksbill	E	NLAA	NLAA
Fish			
Smalltooth sawfish (U.S. DPS)	E	NLAA	NLAA
Nassau grouper	T	NLAA	NE
E = endangered; T = threatened; NLAA = may affect, not likely to adversely affect			

Analysis of Potential Routes of Effects to Species

We believe that 5 species of ESA-listed sea turtles and smalltooth sawfish may be present in the action area and may be affected by the project. The majority of the construction will occur in uplands or in areas that are hydrologically isolated from tidal waters and are therefore not accessible to sea turtles and smalltooth sawfish. However, activities associated with modification of the existing barge basin and associated pile installation and RCW installation have the potential to affect ESA-listed species. We do not expect Nassau grouper to be present in the action area because the species is associated with coral reef and other hard bottom features, which are not present in the action area.

We have identified the following potential effects to these species and concluded that the species are not likely to be adversely affected:

Effects to sea turtles and smalltooth sawfish include the risk of injury from the physical action of the pile driving, dredging in the basin, and potential for interactions with construction support vessels. However, due to the species' ability to move away from the basin area to avoid these impacts and the implementation of NMFS's *Sea Turtle and Smalltooth Sawfish Construction Guidelines*, we believe these effects are extremely unlikely to occur, and are, therefore, discountable.

Additionally, dredging may temporarily result in minor and localized increases in turbidity. Given the mobility of the species and the availability of similar habitat just outside the action area, animals can easily leave the areas affected by increased turbidity and resume their normal activities in the surrounding areas. Therefore, these effects are expected to be insignificant.

Effects to listed species as a result of noise created by construction activities can also physically injure animals in the affected areas or change animal behavior in the affected areas. Injurious effects can occur in 2 ways. First, effects can result from a single noise event's exceeding the threshold for direct physical injury to animals; this constitutes an immediate adverse effect on these animals. Second, effects can result from prolonged exposure to noise levels that exceed the daily cumulative exposure threshold for the animals. If animals are exposed to these noise levels for sufficient periods, such exposure can constitute adverse effects. Behavioral effects can be adverse if such effects prevent animals from conducting biologically important activities (e.g., migrating, feeding, resting, or reproducing). Our evaluation of effects to listed species from noise created by construction activities is based on the analysis and calculations in NMFS Biological Opinion for SAJ-82¹. The noise analysis in this consultation evaluates effects to ESA-listed fish and sea turtles identified by NMFS as potentially affected in the table above.

Installation of the RCWs has the potential to generate a maximum of 120 dB within 1 meter from the drill head; however, since the work would be occurring approximately 25 to 40 ft underground, the sound would be dampened as it moves upward through the limestone and would be below thresholds for causing auditory injury or behavioral changes to ESA-listed species.

Based on our calculations, installation of the 45 steel sheet piles could result in potential effects to ESA-listed species that may be present in the barge basin. Based on our noise calculations, installation steel sheet pile by impact hammer per day may result in single-strike or peak-pressure injury to sea turtles or ESA-listed fish at a radius of up to 30 ft (Figure 3). However, the area where the sheet pile driving will occur is deeper than the surrounding waters, so the noise is expected to be concentrated within the deeper areas within the basin. Due to their expected avoidance of project noise and activity, we would not expect a sea turtle or smalltooth sawfish to remain within the project area during the pile driving. The startup of the pile driving will most likely elicit a startle reaction, resulting in a short-term disruption of activity patterns or listed species. Although the pile driving site is located within a boat basin, animals would still have an adequate avenue to escape the noise by exiting the basin entrance. Even in the unlikely event an animal does not vacate the injurious impact zone, the radius of that area is within the 50-ft radius that will be visually monitored for listed species. Construction personnel will cease construction activities if an animal is sighted per NMFS's *Sea Turtle and Smalltooth Sawfish Construction Conditions*. In order to lessen the potential for

¹ NMFS. Biological Opinion on Regional General Permit SAJ-82 (SAJ-2007-01590), Florida Keys, Monroe County, Florida. June 10, 2014.

injurious noise impacts, the FPL has agreed to use a ramp-up start procedure when pile driving that will allow adequate time for animals to leave the project area.

The cumulative sound exposure level (cSEL) of multiple pile strikes over the course of a day may cause injury to ESA-listed fishes and sea turtles at a radius of up to 2,815 ft. Due to the mobility of sea turtles and ESA-listed fish species, we expect them to move away from noise disturbances. Because we anticipate the animal will move away, we believe that an animal's suffering physical injury from noise is extremely unlikely to occur. Thus, we believe the likelihood of injurious cSEL effects is discountable. An animal's movement away from the injurious impact zone is a behavioral response, with the same effects discussed below.

Based on our noise calculations, impact hammer pile installation could result in behavioral responses at radii of 2,815 ft for ESA-listed fishes and 607 ft for sea turtles. Due to the mobility of sea turtles and ESA-listed fish species, we expect them to move away from noise disturbances. If an individual chooses to remain within the behavioral response zone, it could be exposed to behavioral noise impacts during pile installation. Since installation will occur only during the day, these species will be able to resume normal activities during quiet periods between pile installations and at night. Therefore, we anticipate any behavioral effects will be insignificant.

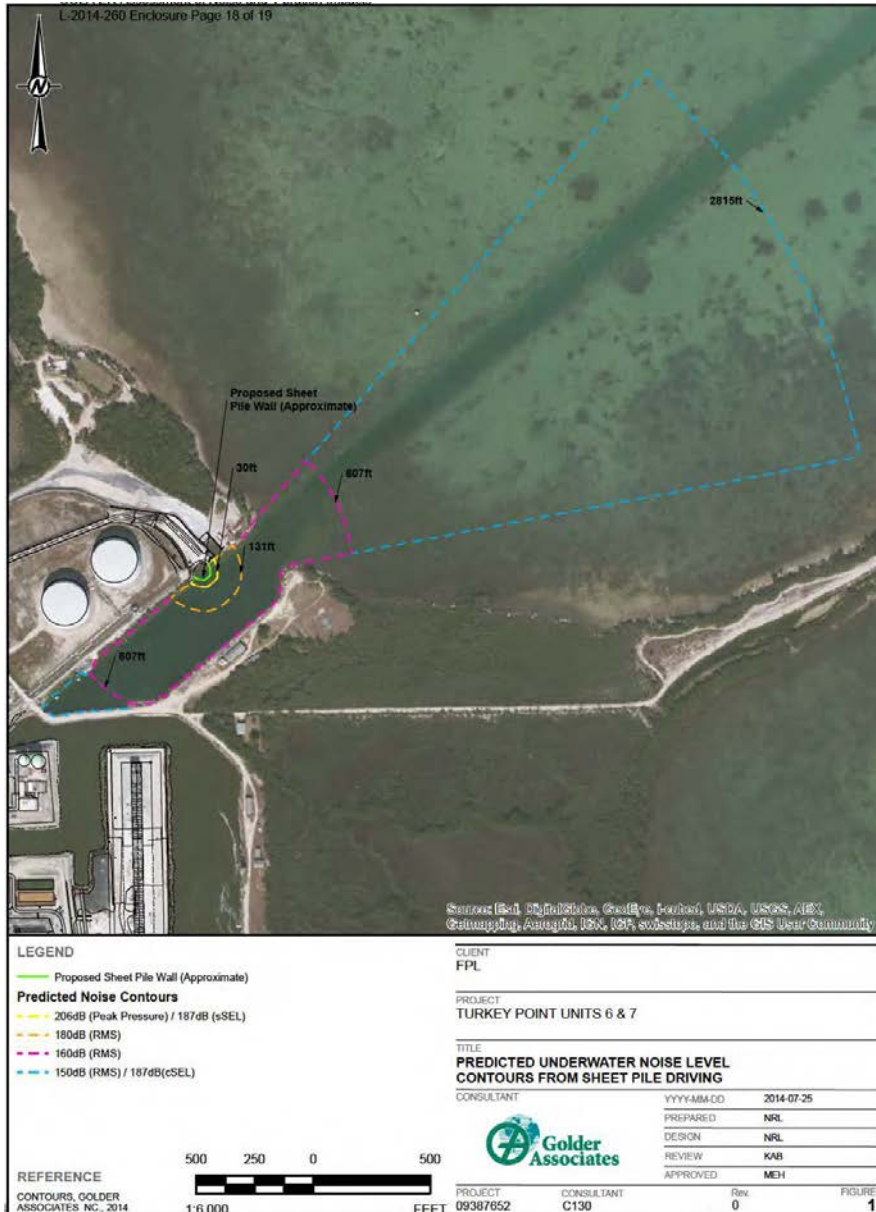


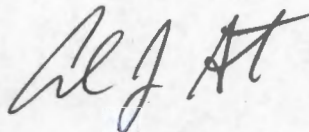
Figure 3. Predicted Underwater Noise Level Contours from Sheet Pile Driving within the Barge Basin (Golder Associates 2014).

Conclusion

Because all potential project effects to listed species were found to be discountable or insignificant, we conclude that the proposed action is not likely to adversely affect listed species under NMFS's purview. This concludes the NRC's and USACE's 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 actions are 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. NMFS's findings on the project's potential effects are based on the project description in this response. Any changes to the proposed action may negate the findings of this consultation and may require reinitiation of consultation with NMFS.

We have enclosed additional relevant information 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 and designated critical habitat. If you have any questions on this consultation, please contact Kay Davy, Consultation Biologist, at (727) 415-9271, or by email at kay.davy@noaa.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Roy E. Crabtree". The signature is fluid and cursive, with the first name "Roy" being the most prominent.

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

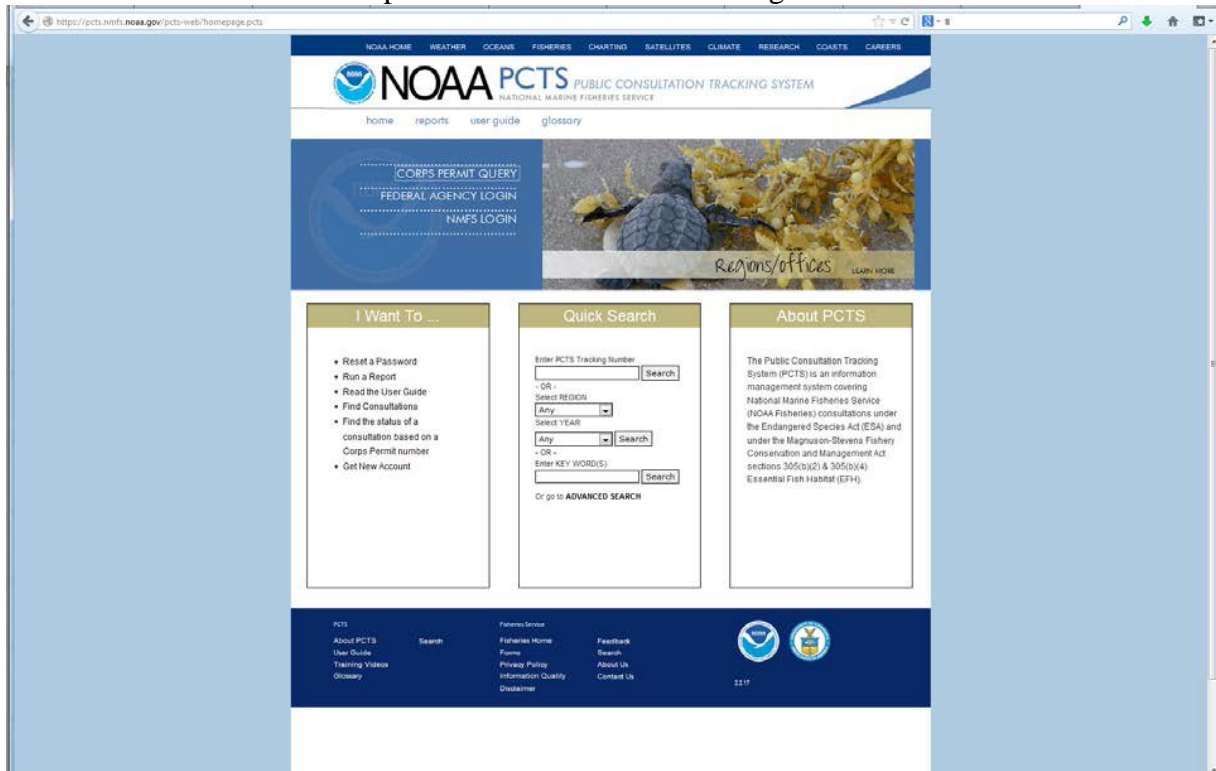
Enc.: *PCTS Access and Additional Considerations for ESA Section 7 Consultations*
(Revised March 10, 2015)

File: 1514-22.4

PCTS Access and Additional Considerations for ESA Section 7 Consultations (Revised 03-10-2015)

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 Kelly Shotts at Kelly.Shotts@noaa.gov or (727) 551-5603.

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.