



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
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U.S. Nuclear Regulatory Commission
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OCT 25 2013

Received
11/13/2013

Re: PSEG Early Site Permit Application

Dear Mr. Lee,

This letter provides updated information on resources under the jurisdiction of NOAA's National Marine Fisheries Service (NMFS) located near the existing Hope Creek and Salem Nuclear Plants in Salem County, New Jersey. The U.S. Nuclear Regulatory Commission (NRC) is preparing an Environmental Impact Statement (EIS) regarding the effects of granting an Early Site Permit (ESP) for construction of a new nuclear power plant site on Artificial Island, New Jersey. PSEG currently has three operating nuclear reactors, Salem Units 1 and 2, and Hope Creek Unit 1. The proposed construction site will encompass approximately 819 acres immediately adjacent and to the north of the existing units at the Salem and Hope Creek Nuclear Generating Station (SHCNGS). We previously provided information on our trust resources to PSEG in 2009 and to NRC in 2010. Below, we provide updated information on trust resources and your consultation responsibilities.

Endangered Species Act

Several species listed by National Marine Fisheries Service (NMFS) occur in the Delaware River where the intake for a new unit would be located. Four species of sea turtles occur seasonally (May – November) in the Delaware River estuary, including the threatened Northwest Atlantic Distinct Population Segment (DPS) of loggerhead sea turtles (*Caretta caretta*), and endangered Kemp's ridley (*Lepidochelys kempi*), green (*Chelonia mydas*), and leatherback (*Dermochelys coriacea*) sea turtles. Additionally, a population of endangered shortnose sturgeon (*Acipenser brevirostrum*) occurs in the Delaware River. Individuals from any of the five listed DPSs of Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) also occur in the Delaware River. More information on these species is available on our website (<http://www.nero.noaa.gov/protected/section7/listing/index.html>).

As you know, consultation pursuant to Section 7 of the ESA between NRC and NMFS on the effects of the operation of the existing Salem and Hope Creek facilities has been ongoing since 1979. Most recently, a Biological Opinion was issued by us on May 14, 1993 concluding the ongoing operation was not likely to jeopardize shortnose sturgeon, Kemp's ridley, green or loggerhead sea turtles. This Opinion was amended by a letter dated January 21, 1999, which modified the Incidental Take Statement. A new Biological Opinion is currently in process and



drafts have been reviewed by PSEG and NRC staff. We expect the EIS being prepared for a new nuclear unit to consider effects of construction and operation on all NMFS listed species. Specifically, the EIS should consider the potential for impingement and entrainment of listed species and their prey, discharge of pollutants, including heated effluent, and effects of shoreline construction, including dredging.

As noted in your letter, the ESP will not authorize the construction or operation of a new nuclear unit. Section 7(a)(2) of the Endangered Species Act (ESA) of 1973, as amended, states that each Federal agency shall, in consultation with the Secretary, insure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of a listed species or result in the destruction or adverse modification of designated critical habitat. Any discretionary federal action that may affect a listed species must undergo Section 7 consultation. If you determine that the proposed action is “not likely to adversely affect” any listed species (i.e., when direct or indirect effects of the proposed project or its interdependent and/or interrelated actions on listed species are expected to be discountable, insignificant or completely beneficial), you should send us a letter documenting your determination, providing justification and requesting our concurrence. If we concur with this determination, we will reply in a letter that will convey the concurrence, thus completing Section 7 consultation. If you determine the project is “likely to adversely affect” any listed species (i.e., if any adverse effect to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effects are not: discountable, insignificant, or beneficial) or we do not concur with your “not likely to adversely affect” determination, then formal Section 7 consultation, resulting in the issuance of a Biological Opinion with an appropriate Incidental Take Statement, may be required. Any effects that amount to the take of a listed species (defined by the ESA as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct”) are not discountable, insignificant or entirely beneficial. Therefore, if any take is anticipated, formal consultation is required. NMFS staff is available to discuss the proposed project and assist you in determining the likely effects of the proposed action.

Magnuson Stevens Fishery Conservation and Management Act (MSA)

Section 305 (b)(2) of the 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act (MSA) requires all federal agencies to consult with us on any action, including those proposed by the NRC, that is authorized, funded, or undertaken by that agency and that may adversely affect EFH. Included in this consultation process is the preparation of a complete and appropriate EFH assessment to provide necessary information on which to consult. Our EFH regulation at 50 CFR 600.905 mandates the preparation of EFH assessments and generally outlines each agency's obligations in this consultation procedure.

The estuarine portions of the Delaware River and its tributaries including the estuarine areas of both Alloway and Hope Creeks have been designated as EFH for a wide variety of species including red hake (*Urophycis chuss*), winter flounder (*Pseudopleuronectes americanus*), windowpane flounder (*Scophthalmus aquosus*), bluefish (*Pomatomus saltatrix*), Atlantic butterflyfish (*Peprilus triacanthus*), scup (*Stenotomus chrysops*), summer flounder (*Paralichthys dentatus*), scup (*Stenotomus chrysops*), black sea bass (*Centropristis striata*), king mackerel (*Scomberomorus cavalla*), Spanish mackerel (*Scomberomorus maculatus*), cobia (*Rachycentron canadum*), little skate (*Leucoraja erinacea*), winter skate (*Leucoraja ocellata*) and clearnose skate (*Raja eglanteria*). A more detailed listing of

EFH and federally managed species and EFH consultation requirements can be found on our website at: www.nero.nmfs.gov/hcd.

The EFH final rule published in the Federal Register on January 17, 2002 defines an adverse effect as: "any impact which reduces the quality and/or quantity of EFH." The rule further states that:

"An adverse effect may include direct or indirect physical, chemical, or biological alterations of the waters or substrate and loss of, or injury to, benthic organisms, prey species and their habitat and other ecosystems components, if such modifications reduce the quality and/or quantity of EFH. Adverse effects to EFH may result from action occurring within EFH or outside EFH and may include site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions."

The rule also states:

"Loss of prey may be an adverse effect on EFH and managed species because the presence of prey makes waters and substrate function as feeding habitat and the definition of EFH includes waters and substrate necessary to fish for feeding. Therefore, actions that reduce the availability of a species' habitat that are known to cause a reduction in the population of the prey species, may be considered adverse effects on EFH if such actions reduce the quality of EFH."

In order to initiate consultation pursuant to the MSA, you must submit a full and complete EFH assessment that considers the individual and cumulative and the direct and indirect impacts of the proposed project on EFH, federal managed species and their prey recognizing the definition of adverse impact discussed above. The required contents of an EFH assessment includes: 1) a description of the action; 2) an analysis of the potential adverse effects of the action on EFH and the managed species; 3) the NRC's conclusions regarding the effects of the action on EFH; 4) proposed mitigation, if applicable. Given the scope of this project, other information that should be contained in the EFH assessment includes: 1) the results of on-site inspections to evaluate the habitat and site-specific effects; 2) the views of recognized experts on the habitat or the species that may be affected; 3) a review of pertinent literature and related information; and 4) an analysis of alternatives to the action that could avoid or minimize the adverse effects on EFH.

Fish and Wildlife Coordination Act

We also have responsibilities under the Fish and Wildlife Coordination Act (FWCA) to provide federal agencies such as the NRC with recommendations to avoid, minimize and to mitigate for direct, indirect and cumulative impacts to any and all NOAA trust resources that are present within the Delaware River Basin.

The Delaware Estuary including its tributaries provides habitat for a wide variety of NOAA trust resources including: alewife (*Alosa pseudoharengus*), American eel (*Anguilla rostrata*), American shad (*Alosa sapidissima*), Atlantic croaker (*Micropogonias undulatus*), Atlantic menhaden (*Brevoortia tyrannus*), Atlantic sturgeon, blueback herring (*Alosa aestivalis*), bluefish, hickory shad (*Alosa mediocris*), spot (*Leiostomus xanthurus*) tautog (*Tautoga onitis*), weakfish, white perch (*Marone americana*), yellow perch (*Perca flavescens*), striped bass (*Marone saxatilis*), hogchoker (*Trinectes maculatus*), killifish, bay anchovy, silversides, mummichog and many others.

Landing statistics and the number of fish observed on annual spawning runs indicate a drastic decline in alewife and blueback herring populations throughout much of their range since the mid-1960's. The shallow water environment in this section of the Delaware River provides valuable habitat for these species as well as striped bass and American shad.

The New Jersey Department of Environmental Protection (NJDEP) also has sampled the Delaware River and Bay in the project area for nearly 30 years since 1980. This long-term survey documents the use of this portion of the river by a wide variety of species including: blueback herring, alewife, American shad (*Alosa sapidissima*), American eel (*Anguilla rostrata*), Atlantic herring (*Clupea harengus*), Atlantic menhaden (*Brevoortia tyrannus*), bay anchovy, (*Anchoa mitchilli*), blueback herring, gizzard shad (*Dorosoma cepedianum*), hogchoker (*Trinectes maculatus*), striped bass, yellow perch (*Perca flavescens*), white perch (*Marone americana*), Atlantic silverside (*Menidia menidia*), and many others (NJDEP 2010). Many of these species are both commercially and recreationally important and managed by the ASFMC or are valuable prey species for ASFMC or federally managed fish.

Buckel and Conover (1997) in Fahey et al. (1999) reports that diet items of juvenile bluefish include *Alosa* species such as American shad, blueback herring and alewife as well as bay anchovy, silversides and other fish species. We note that the NJDEP survey data show that federally managed bluefish are present in the project area. This indicates that both the prey species and the predator are present in the Delaware River in and around the project area. Juvenile *Alosa* species have all been identified as prey species for windowpane (*Scophthalmus aquosus*) and summer flounder (*Paralichthys dentatus*) in Steimle et al. (2000). Windowpane and summer flounder are federally managed species whose EFH has been designated in the mixing zone of the Delaware River

Submerged aquatic vegetation (SAV) has historically been absent from Delaware Bay. However, to date, there has been no comprehensive mapping of SAV in the Delaware Estuary to verify its presence or absence. Several species have been observed though in the tidal river since 1970, including: *Vallisneria americana*, *Myriophyllum spicatum*, *Elodea nuttallii*, *Najasjlexillis*, *Potamogeton sp.* and others (Schuyler, 1988). Wild celery (*Vallisneria americana*) has been documented in some areas of the Delaware River and its tributaries. SAV provides valuable nursery, forage and refuge habitat for a variety of fish including striped bass, American shad, alewife, and blueback herring. It is also an important food source for waterfowl. As water quality in the Delaware River continues to improve, more areas of SAV may be found within the River.

Native eastern oysters (*Crassostrea virginica*) are an ecologically important species. According to the NJDEP, an expansive area of oyster habitat has been identified near the SHCNGS. In recent years, efforts have been made to restore oyster beds in Delaware Bay. Since 2004, the Army Corps of Engineers has worked with the States of New Jersey and Delaware to plant shell in portions of natural oyster beds in Delaware Bay (http://www.delawareestuary.org/science_projects_oyster_restoration.asp).

Blue crab (*Callinectes sapidus*) can also be found in the vicinity of the SHCNGS. The crabs can generally be found in the lower salinity areas of the estuary in the summer and higher salinities in the winter. Following mating in the summer, which typically occurs in lower salinity waters, the

females move to high salinity waters found in the Delaware Bay to spawn. After spawning, the larvae move toward the lower salinity areas in the Delaware River Estuary to mature.

Other Comments from NMFS Habitat Conservation Division

The construction of the new intake structure and the new barge unloading facility and mooring area will result in the deepening of the existing river bottom (10ft. MLLW) by an average of 4.5 ft. over an area of 31 acres (volume of 150,000 cubic yards), and an area of 61 acres, (a volume of 440,000 cubic yards), respectively. The total area to be dredged is 92 acres extending riverward 1700 ft. from the shoreline. Dredging techniques may include both mechanical and hydraulic dredging methods and the material removed as part of this construction activity will be transported to and placed in an on-site or other approved upland disposal facility.

Increases in turbidity through the resuspension of sediments into the water column from dredging and port operations will degrade water quality, lower dissolved oxygen levels, and potentially release chemical contaminants bound to the fine-grained estuarine/marine sediments.

Sedimentation and wave patterns in the area may be altered as a result of vessels entering and exiting the proposed mooring area also resulting in increased turbidity. Suspended sediments mask pheromones used by migratory fishes, and can smother immobile benthic organisms and demersal newly-settle juvenile fish (Auld and Schubel 1978; Breitburg 1988; Newcombe and MacDonald 1991; Burton 1993; Nelson and Wheeler 1997). As supported above, the project area provides important habitat for striped bass including valuable spawning grounds and nursery habitat.

Increases in turbidity will adversely affect striped bass larvae's ability to capture prey (Fay et al. 1983 in Able and Fahay 1998). The decrease in water circulation can also adversely affect striped bass survival as strong current is needed to keep the eggs suspended in the water column and prevent them from being smothered by silt (Bigelow and Schroeder 1953).

Guidelines under Section 404(b)(1) of the federal Clean Water Act require that actions proposed within "waters of the United States," especially those that are not water-dependent, are required to demonstrate that they have considered all appropriate reasonable and prudent measures to avoid and minimize impacts to waters. If all measures to avoid and minimize wetland impacts have been considered and employed to the extent practicable and result in unavoidable impacts, a compensatory mitigation plan should be developed and implemented.

The applicant should undertake a complete analysis of alternatives that complies fully with the Section 404 (b)(1) Guidelines that documents avoidance, minimization and mitigation for all impacts. Alternate locations as well as a documentation of purpose and need should be provided as part of this analysis. For any unavoidable impacts, a compensatory mitigation plan to offset all of the projects impacts to aquatic resources including EFH should be developed in accordance with the federal standards and criteria for compensatory mitigation for losses of aquatic resources published in the Federal Register on April 10, 2008 (vol. 73 No. 70). This plan should be developed as early in the permit process as possible and in consultation with the applicable federal, state and local resource agencies and will be implemented on and in the immediate area of the PSEG Site to the extent practicable.

In the State of NJ, coastal wetlands are regulated by the state under the Wetlands Act of 1970. Development in coastal wetlands requires authorization of permits from the NJDEP, and requires

separate processes to determine a project's value. However, such processes usually fit in within a federal process.

After reasonable measures have been explored to avoid and minimize impacts to wetlands, PSEG will compensate for unavoidable adverse impacts to wetlands by implementing approved wetland restoration and/or rehabilitation measures. PSEG, through their Ecosystem Enhancement Program, has extensive experience and demonstrated success implementing coastal saltmarsh and freshwater wetland restoration and rehabilitation programs. This familiarity with local wetland systems was used to identify appropriate candidate mitigation sites and will be used in developing and implementing the final approved mitigation plan.

Mitigation measures mentioned in the ESP to offset impacts to NOAA trust resources include the following considerations:

- Minimization of encroachment on coastal wetlands
- Use of previously developed sediment disposal basins for plant development (both PSEG's permitted disposal facility and the USACE's CDF)
- Refinement of the Site Utilization Plan to avoid various wetland areas throughout the PSEG Site

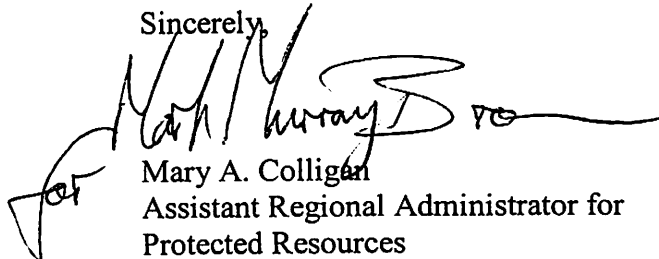
Opportunities for mitigating unavoidable impacts to wetland ecosystems include restoration of natural habitats temporarily disturbed by construction, creation of new habitat types in previously disturbed areas, and enhancement of undisturbed natural habitats.

In general, we do not accept the conversion of one type of aquatic habitat into another habitat as compensatory mitigation when the existing habitat has value to aquatic life. Candidate mitigation areas include portions of the existing PSEG Site, Mannington Meadow, Mason's Point, and additional areas of the PSEG Alloway Creek Watershed restoration site.

Conclusions

My staff looks forward to working with PSEG as you move forward with the ESP process. Should you have any questions regarding this correspondence or would like to arrange a meeting to discuss the effects of the proposed action on NMFS trust resources, please contact Julie Crocker in the Protected Resources Division ((978)282-8480 or Julie.Crocker@noaa.gov) and Karen Greene in the Habitat Conservation Division ((732)872-3023 or Karen.Greene@noaa.gov).

Sincerely,



Mary A. Colligan
Assistant Regional Administrator for
Protected Resources

EC: Crocker, F/NER3

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File Code: Sec 7 NRC PSEG Early Site Permit Artificial Island