



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE

Habitat Conservation Division  
James J. Howard Marine Sciences Laboratory  
74 Magruder Road  
Highlands, NJ 07732

December 9, 2010

Gregory Hatchett, Branch Chief  
Environmental Project Branch 1  
Division of Site and Environmental Reviews  
Office of New Reactors  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Re: Notification and Request for Consultation and Participation in the Scoping Process for the PSEG  
Early Site Permit Application

Dear Mr. Hatchett:

The NOAA's National Marine Fisheries Service (NMFS), Northeast Region, Habitat Conservation Division is in receipt of your letter dated October 26, 2010 initiating consultation and seeking our involvement in the Scoping Process for the construction and operation of a new nuclear power plant, by PSEG Power, LLC and PSEG Nuclear, LLC (PSEG), on the southern part of Artificial Island and the east bank of the Delaware River in Lower Alloways Creek Township, Salem County, New Jersey.

A complimentary compact disc containing complementary documents and figures to PSEG's *Site Safety and Analysis Report (SSAR)* for the proposed facility, was also included in the Early Site Permit (ESP) application package for our review.

According to your letter, the Nuclear Regulatory Commission (NRC) is currently preparing an environmental impact statement (EIS) under the provisions of the National Environmental Policy Act of 1969 (NEPA), as amended. In addition, the NRC has requested a list of endangered, threatened and candidate species, and designated critical habitat under the jurisdiction of the NMFS, that may be in the vicinity of the PSEG site. Your letter further requests a list of federally-managed species that have designated essential fish habitat (EFH) in that area as well as any appropriate information under the provisions of the Fish and Wildlife Coordination Act of 1984, as amended.

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).

Impacts to the quality of surface waters and the alteration of river bottom sediments within the Delaware River and adjacent marsh creeks are expected as a result of the construction and operation of the proposed facility, and will include those associated with the development of shoreline features (intake structure, barge facility, heavy haul road), dredging of sediments from the near-shore area of the Delaware River to provide for water intake and discharge and to provide adequate draft for barge access during construction, and the filling of 9.5 acres of coastal tidal wetlands and shallow open water areas.



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 (~10 ft. 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 Clean Water Act 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 options mentioned in the NRC's ESP to offset the impacts to NOAA trust resources included 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, NMFS does 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.

#### **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 NOAA Fisheries 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 butterfish (*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](http://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

major prey species, either through direct harm or capture, or through adverse impacts to the prey 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, the NRC 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 5) an analysis of alternatives to the action that could avoid or minimize the adverse effects on EFH.

### **Fish and Wildlife Coordination Act**

Notwithstanding our mandates under the MSA, the NMFS also has 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 (*Acipenser oxyrinchus*), blueback herring (*Alosa aestivalis*), bluefish, hickory shad (*Alosa mediocris*), spot (*Leiostomus xanthurus*) tautog (*Tautoga onitis*), weakfish, white perch (*Morone americana*), yellow perch (*Perca flavescens*), striped bass (*Morone saxatilis*), hogchoker (*Trinectes maculatus*), killifish, bay anchovy, silversides, mummichog and may others.

Because 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, they have been designated as species of concern by NMFS in a Federal Register Notice dated October 17, 2006 (71 FRN 61022). "Species of concern" are those species about which NMFS has some concerns regarding status and threats, but for which insufficient information is available to indicate a need to list the species under the Endangered Species Act. 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 the 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 (*Morone 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 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*, *Najas flexillis*, *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 New Jersey Department of Environmental Protection, 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](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.

### **Endangered and Threatened Species**

The Atlantic sturgeon (*Acipenser oxyrinchus*) may be found in the Delaware River in the vicinity of the project area at certain times of the year. On October 6, 2010, NOAA issued a Federal Register Notice (75 FRN 61872). The notice identifies the Hudson River and Delaware River Atlantic sturgeon stocks as a distinct population segment (DPS) called the New York Bight DPS. This DPS has been proposed to be listed as endangered. The Atlantic Sturgeon Status Review Team (ASSRT) identified 15 different stressors that may impact the Atlantic sturgeon populations including poor water quality and habitat loss (2007). Dredging and vessel strikes are also considered to be important stressors on the populations of Atlantic sturgeon (75 FRN 61872 et seq.) According to the ASSRT (2007), Ryder (1888) suggested that juvenile Atlantic sturgeon used the tidal freshwater reach of the Delaware River as a nursery area and Lazzari et al. (1986) frequently captured juvenile Atlantic sturgeon from May - December in the upper tidal portion of the river below Trenton, New Jersey.

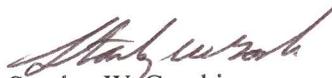
Shortnose sturgeon (*Acipenser brevirostrum*) typically occurs in deep water channels although they do occur in the shallower waters while foraging. The abundance of adult shortnose sturgeon is greatest in the tidal river from Trenton to Philadelphia (Hastings et al. 1987; O'Herron et al. 1993). In-water construction activities can affect shortnose and Atlantic sturgeon through direct injury or mortality, displacing species from the area, or by altering the habitat and destroying forage items.

Shortnose sturgeon (*Acipenser brevirostrum*) typically occurs in deep water channels although they do occur in the shallower waters similar to that of the project area while foraging. Any discretionary federal action, such as the approval or funding of a project by a Federal agency, that may affect a listed species

must undergo consultation pursuant to Section 7 of the Endangered Species Act (ESA) of 1973, as amended. The NRC should submit its determination of effects, along with justification for the determination and a request for concurrence, to the attention of the Endangered Species Coordinator, NMFS, Northeast Regional Office, Protected Resources Division, One Blackburn Drive, Gloucester, MA 01930. For additional information on the Section 7 consultation process or shortnose sturgeon, please contact Julie Crocker at (978) 282-8480 or [julie.crocker@noaa.gov](mailto:julie.crocker@noaa.gov).

We look forward to continued coordination with the NRC as it moves forward with the development of the EIS and the scoping process. Should you have any questions, need additional information or would like to arrange a meeting to discuss the EFH consultation process or impacts to resources of concern to the NMFS, please contact Brian May at (732) 872-3116 or Karen Greene at 732 872-3023.

Sincerely,



Stanley W. Gorski  
Field Offices Supervisor

cf: PRD - J. Crocker  
ACOE – Phila. District  
FWS – Pleasantville  
EPA- Region II  
NJDEP  
DRFWMC

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