

# Appendix II

## Endangered Species Act Coordination

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# National Marine Fisheries Service Correspondence

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U.S. Department  
of Transportation

**Federal Railroad  
Administration**



1200 New Jersey Avenue, SE.  
Washington, D.C. 20590

August 22, 2014

Mr. Mark Murray-Brown  
NOAA Fisheries, Section 7 Coordinator  
Greater Atlantic Regional Fisheries Office  
Protected Resources Division  
55 Great Republic Drive  
Gloucester, MA 01930

RE: Federal Railroad Administration Northeast Corridor (NEC) FUTURE program,  
ecological resources impact assessment and coordination related to Section 7 of the  
Endangered Species Act

Dear Mr. Murray-Brown:

The Federal Railroad Administration (FRA) is developing a rail investment program for the Northeast Corridor (NEC), the rail spine that runs from Washington, D.C., through New York to Boston. Known as the NEC FUTURE program, this initiative includes the development of a Tier 1 Environmental Impact Statement (EIS) that will present the results of a broad environmental analysis of investment program alternatives, and a Service Development Plan (SDP) that will outline how future passenger rail service is to be provided on the NEC.

As part of the development of the Tier 1 EIS, we recently engaged in a discussion with William Barnhill and others within the U.S. Fish and Wildlife Service and National Marine Fisheries Service about:

- Our proposed methodology for documenting existing conditions and analyzing effects of the Tier 1 EIS Alternatives on ecological resources, which includes documentation of essential fish habitats, ecologically sensitive habitats, and federally listed threatened and endangered species within the NEC FUTURE Study Area. We provided a summary of our proposed impact assessment methodology.
- The applicability of consultation requirements under Section 7 of the Endangered Species Act (ESA) and how they relate to programmatic actions such as ours; specifically, we were interested in what would be required for the NEC FUTURE Tier 1 EIS Record of Decision (ROD).

Our discussion with Bill and his colleagues was very informative and productive, and we'd like to confirm the key discussion and decision points from that meeting, as listed below:

- In regards to conducting consultation under Section 7 of the ESA, we understand that (1) during the Tier 1 NEPA process for NEC Future the role for the USFWS and NOAA will be to provide technical assistance, and that (2) Section 7 consultation will be conducted during the Tier 2 NEPA process for individual projects.
- In terms of the information that the NEC FUTURE project team will seek, the USFWS and NOAA will provide technical assistance in confirming the accuracy of data sources, confirming the list of special status species and habitats that we identify as occurring within our project area, and concurring on findings regarding whether identified species/habitats are "Species/Area(s) of concern" or "Species/Area(s) that need no further evaluation" as described in the NEC FUTURE Ecological Resources Impact Assessment Methodology (attached).
- The NEC FUTURE team will await feedback from USFWS and NOAA for no less than 30-days before finalizing any documents.
- Communication to USFWS and NOAA will be directed to you (for all official correspondence) and William Barnhill (for routine technical correspondence).

FRA looks forward to working with your agency regarding the NEC FUTURE program. If you have any questions, please contact me ([rebecca.reyesalicea@dot.gov](mailto:rebecca.reyesalicea@dot.gov); 202-281-0194) or Amishi Castelli, the NEC FUTURE Environmental Lead ([Amishi.Castelli@dot.gov](mailto:Amishi.Castelli@dot.gov); 617-494-2822).

Sincerely,



Rebecca Reyes-Alicea  
NEC FUTURE Program Manager

Cc: William Barnhill, Fishery Biologist-Section 7, NOAA Fisheries  
Amishi Castelli, U.S. DOT Volpe Center, FRA NEC FUTURE Environmental Lead





UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
GREATER ATLANTIC REGIONAL FISHERIES OFFICE  
55 Great Republic Drive  
Gloucester, MA 01930-2276

JUL 20 2016

Rebecca Reyes-Alicea  
NEC FUTURE Program Manager  
USDOT – Federal Railroad Administration  
One Bowling Green, Suite 429  
New York, NY 10004

**Re: Federal Railroad Administration (FRA) Northeast Corridor (NEC) FUTURE program, ecological resources impact assessment and coordination related to section 7 of the Endangered Species Act (ESA)**

Dear Ms. Reyes-Alicea:

We have reviewed your letter, dated March 25, 2016, requesting that we confirm with you our approach for ESA section 7 consultation for the NEC FUTURE Tier 1 Environmental Impact Statement (EIS), consistent with our understanding of the Tier 1 and 2 National Environmental Policy Act (NEPA) processes for NEC FUTURE. Our confirmation is provided below.

Currently, we anticipate that any future required ESA section 7 consultation activities with us (beyond technical assistance) would include either informal (no adverse effects are anticipated) or formal (adverse effects and incidental take are anticipated) consultations, all of which should take place to the extent possible over the course of the Tier 2 phase as described in your March 2016 letter. As much of the planned rail improvement work will be on land, we only anticipate the potential need to consult with us on major river crossings where shortnose and Atlantic sturgeon may be present. Following from our original species list provided to you on December 19, 2014, we have since determined that shortnose and Atlantic sturgeon are the only two listed species under our jurisdiction which overlap with the action area for the preferred alternative.

Based on your March 2016 letter and our previous discussions over the past two years, we understand there to be a limited number of major river crossings in the action area where shortnose and Atlantic sturgeon are present. Therefore, we will continue to work with the FRA on the next stages of the NEC FUTURE program and NEPA process as you clarify which, if any, project specific activities may have effects on these species. Once identified and defined in the Tier 2 stage, we can then consult on Tier 2 projects either independently (i.e., on a project-by-project basis) or through a more inclusive “batching” process, which we have done in the past for similar suites of transportation and infrastructure projects. Since it is not yet known if the existing river crossings are to be improved/renovated versus demolished and rebuilt, we feel that this approach provides us with the maximum amount of consultation flexibility and oversight.



You indicated in your March 2016 letter that Tier 2 projects would be accompanied by their own environmental compliance process, even if they may be led by agencies other than the FRA. We are in support of that approach and will continue to support the FRA in identifying, within the Tier 1 Final EIS or elsewhere, the best management practices that a future Tier 2 project proponent can adopt to prevent or minimize adverse effects on shortnose and Atlantic sturgeon. We have also been working with the U.S. Army Corps of Engineers and Federal Highway Administration on a number of river crossing projects and programs in our region, and will assist either of those Federal agencies if one is designated as the lead action agency by the FRA for a Tier 2 project.

### **Proposed Listing of Critical Habitat for Atlantic Sturgeon**

As a supplement to the ESA-listed species information that we have already provided as technical assistance on December 19, 2014, there has been a recent proposed rule in the *Federal Register* to list critical habitat for Atlantic sturgeon, of which we want to make you aware.

On June 3, 2016, we issued two proposed rules to designate critical habitat for the five listed distinct population segments (DPSs) of Atlantic sturgeon found in U.S. waters (Gulf of Maine, New York Bight, and Chesapeake Bay DPSs: 81 FR 35701; Carolina and South Atlantic DPSs: 81 FR 36078). The proposed rules identified four essential physical and biological features necessary for the conservation of the species. The term “physical or biological features” is defined as the features that support the life-history needs of the species, including, but not limited to, water characteristics, soil type, geological features, sites, prey, vegetation, symbiotic species or other features. The four essential physical and biological features are:

- 1) Hard bottom substrate (e.g., rock, cobble, gravel, limestone, boulder, etc.) in low salinity waters (i.e., 0.0 to 0.5 parts per thousand range) for settlement of fertilized eggs, refuge, growth, and development of early life stages;
- 2) Aquatic habitat with a gradual downstream salinity gradient of 0.5 to 30 parts per thousand and soft substrate (e.g., sand, mud) downstream of spawning sites for juvenile foraging and physiological development;
- 3) Water of appropriate depth and absent physical barriers to passage (e.g., locks, dams, reservoirs, gear, etc.) between the river mouth and spawning sites necessary to support: (1) Unimpeded movement of adults to and from spawning sites; (2) seasonal and physiologically dependent movement of juvenile Atlantic sturgeon to appropriate salinity zones within the river estuary; and (3) staging, resting, or holding of subadults or spawning condition adults. Water depths in main river channels must also be deep enough (e.g.,  $\geq 1.2$  m) to ensure continuous flow in the main channel at all times when any sturgeon life stage would be in the river; and
- 4) Water, especially in the bottom meter of the water column, with the temperature, salinity, and oxygen values that, combined, support: (1) spawning; (2) annual and interannual adult, subadult, larval, and juvenile survival; and (3) larval, juvenile, and subadult growth, development, and recruitment (e.g., 13°C to 26°C for spawning habitat and no more than 30°C for juvenile rearing habitat, and 6 mg/L dissolved oxygen for juvenile rearing habitat).



Our office, the Greater Atlantic Regional Fisheries Office, has the lead for the rulemaking for the Gulf of Maine, New York Bight, and Chesapeake Bay DPSs, while the Southeast Regional Office has the lead for the Carolina and South Atlantic DPSs. We have requested public comment on the proposed rule for the critical habitat designation, which will run for 90 days unless extended. During the proposed rule period, action agencies are required to conference with us on any activities that could destroy or adversely modify the proposed critical habitat. “Destruction or adverse modification” is defined as a direct or indirect alteration that appreciably diminishes the value of critical habitat for the conservation of a listed species (50 CFR § 402.02).

In the Greater Atlantic Region, critical habitat for Atlantic sturgeon has been proposed within the following 14 river systems: (1) Penobscot, (2) Kennebec, (3) Androscoggin, (4) Piscataqua, (5) Merrimack, (6) Connecticut, (7) Housatonic, (8) Hudson, (9) Delaware, (10) Susquehanna, (11) Potomac, (12) Rappahannock, (13) York, and (14) James (Figure 1). The habitat containing the physical features essential to the conservation of the Gulf of Maine, New York Bight, and Chesapeake Bay DPSs and that may require special management or protection is aquatic habitat of main stem rivers flowing into a coastal estuary. Atlantic sturgeon typically cannot pass dams or natural features such as waterfalls and rapids found at the fall line of rivers from Maine through Virginia. Therefore, we defined each critical habitat unit for these three DPSs by an upriver landmark on the main stem river (e.g., the most downriver dam or a bridge immediately downriver of the fall line of that river) and all waters of the main stem downriver of that landmark to where the waters empty at its mouth into an identified water body (81 FR 35701).

Figure 1. Greater Atlantic Region rivers where Atlantic sturgeon critical habitat is proposed.



**Conclusion**

We appreciate the opportunity to provide these comments. We look forward to working with your staff further during the remainder of the Tier 1 Final EIS process and throughout the Tier 2 environmental review process. Should you have any questions about ESA listed species under our jurisdiction or about the section 7 consultation process we have laid out above, please contact William Barnhill of my staff at 978-282-8460 or by email at [William.Barnhill@noaa.gov](mailto:William.Barnhill@noaa.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Kimberly B. Randall", with a long horizontal flourish extending to the right.

Kimberly Damon-Randall  
Assistant Regional Administrator  
for Protected Resources

ec: Murray-Brown, Barnhill – F/GAR3  
Boelke, Greene – F/GAR4  
Castelli – USDOT  
G. Smith – USFWS

File Code: H:\Section 7 Team\Section 7\Non-Fisheries\Federal Railroad\Northeast Corridor (NEC FUTURE)



U.S. Department  
of Transportation

Federal Railroad  
Administration



1200 New Jersey Avenue, SE.  
Washington, D.C. 20590

November 3, 2014

Mr. Mark Murray-Brown  
NOAA Fisheries, Section 7 Coordinator  
Greater Atlantic Regional Fisheries Office  
Protected Resources Division  
55 Great Republic Drive  
Gloucester, MA 01930

RE: NEC FUTURE Program Tier 1 EIS - Ecological Resources Effects Assessment  
Coordination Relative to Section 7 of the Endangered Species Act

Dear Mr. Murray-Brown:

The Federal Railroad Administration (FRA) is submitting for your review a list of Threatened and Endangered species, critical habitats, and Essential Fish Habitat/species located within the NEC FUTURE Study Area. This information is being provided as per our correspondence of August 22, 2014, that documented discussions held in early August with representatives from the United States Fish and Wildlife Service (USFWS), as well as the National Marine Fisheries Service. Those discussions focused on Section 7 compliance requirements in support of the NEC FUTURE Tier 1 EIS documentation.

The NEC FUTURE Tier 1 EIS Action Alternatives are identified on Figure 1. Figures 2 and 3 provide a closer view of the Tier 1 EIS Action Alternatives. Figure 2 focuses on the representative alignments that run from Washington, D.C., to New York (south end) and Figure 3 focuses on New York to Boston. It should be noted that various routing options are being considered in the Tier 1 EIS for the area between New York and Boston. These options, referred to as the "North End Route Options," provide different scenarios to reach markets that are either underserved or not currently served by rail. The North End Route Options are identified on Figures 1 and 3.

Given the expansiveness of the NEC FUTURE program Study Area, the FRA has focused on a 3,000-foot swath centered on the Representative Route for each of the Tier 1 EIS Action Alternatives in which they will identify potential impacts on special-status species and habitats of concern. This 3,000 foot swath is referred to as the Affected Environment.

In order to establish the existing conditions for ecological resources, the FRA has gathered readily available information (species lists, maps, etc.) to identify federally-listed Threatened and Endangered species and critical habitats, ecologically sensitive habitats, and Essential Fish Habitats located within the Affected Environments of the NEC FUTURE program's Tier 1 EIS Action Alternatives. This information is

provided in the attached lists (Tables 1 and 2). Please note that as the North End Route Options are currently undergoing preliminary evaluations and therefore are not finalized, information on resources within the Affected Environment around these options is NOT included in Tables 1 and 2.

FRA requests your review of the attached species lists and maps. For ease of your review, the information is presented by Tier 1 EIS Action Alternative and then organized by state/county (from D.C. to Massachusetts). We are specifically interested in feedback with regard to the following:

(1) Confirmation that the list of federally-listed Threatened and Endangered species and critical habitats, ecologically sensitive habitats, and Essential Fish Habitats is consistent with your agency's information.

(2) Identification of other species, critical habitats, or areas of concern in relation to Tier 1 EIS Action Alternatives and North End Route Options as shown on the enclosed maps (Figures 1 to 3).

(3) Notification if there is a particular issue/concern based on the information provided.

If you have any questions or concern, please do not hesitate to contact me or Amishi Castelli (the FRA Environmental Lead for the project) at [Amishi.Castelli@dot.gov](mailto:Amishi.Castelli@dot.gov) or 617-494-2822. Thank you again for your continued participation in the NEC FUTURE program.

Sincerely,

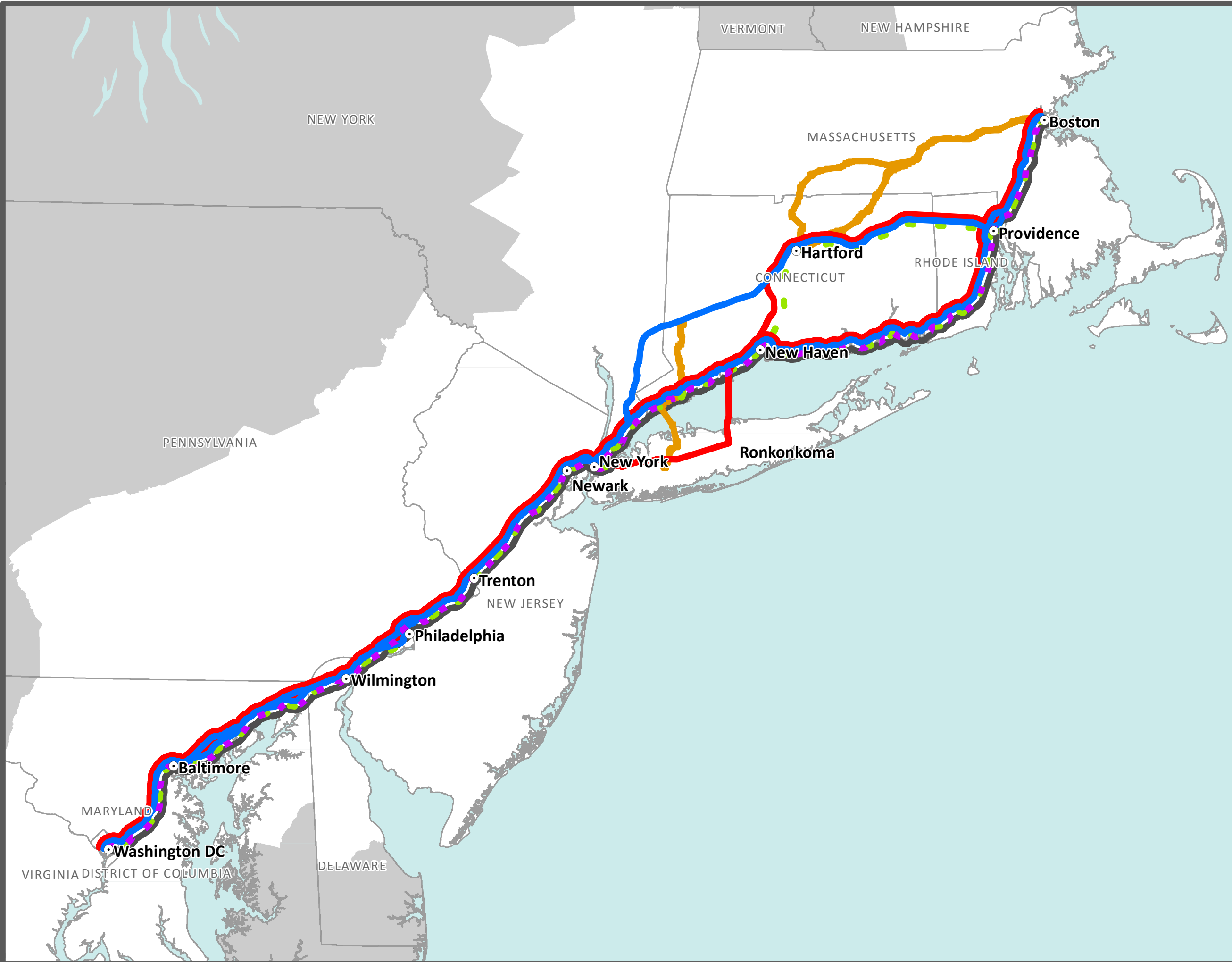


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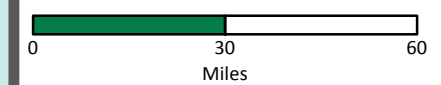
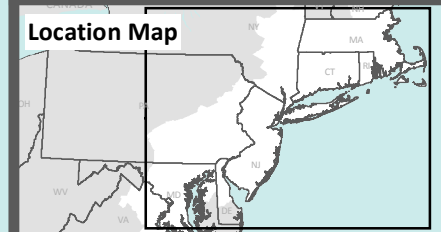
CC: William Barnhill, Fishery Biologist-Section 7, NOAA Fisheries  
Amishi Castelli, U.S. DOT Volpe Center, FRA NEC FUTURE Environmental Lead

Attachments: Figure 1: Study Area  
Figure 2: South End  
Figure 3: North End  
Table 1: Threatened & Endangered Species List  
Table 2: Essential Fish Habitat/Species List

**FIGURE 1**  
NEC FUTURE STUDY AREA



- Alternative 1
- Alternative 2
- Alternative 3.1
- Alternative 3.2
- North End Route Options
- Existing NEC
- State Boundary
- NEC FUTURE Study Area



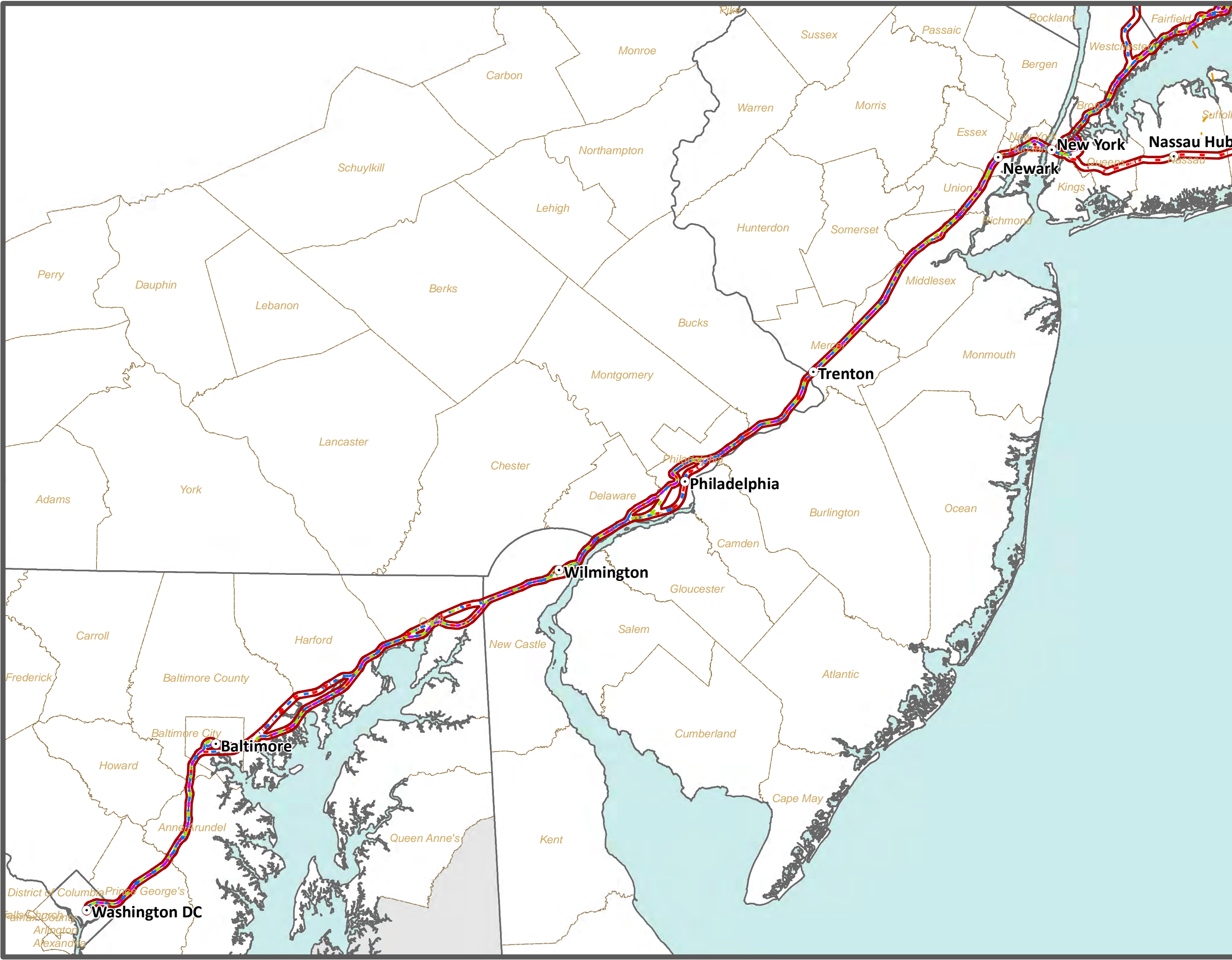
**DRAFT - FOR INTERNAL USE ONLY**

Source of Data: NEC FUTURE

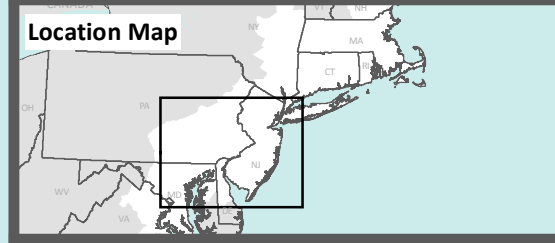
Notes: Conceptual routes of Tier 1 EIS Alternatives shown.



**FIGURE 2**  
**SOUTH END AFFECTED ENVIRONMENT**



- Alternative 1
- Alternative 2
- Alternative 3.1
- Alternative 3.2
- North End Route Options
- Existing NEC
- State Boundary
- Affected Environment
- County Boundary



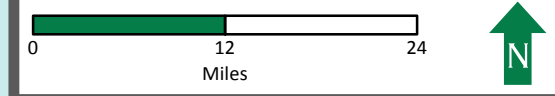
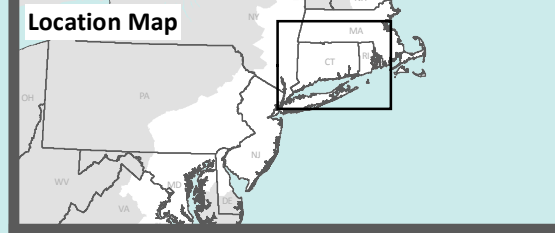
**DRAFT - FOR INTERNAL USE ONLY**

Source of Data: NEC FUTURE  
Notes: Conceptual routes of Tier 1 EIS Alternatives and their 1-mile Preliminary APE shown.



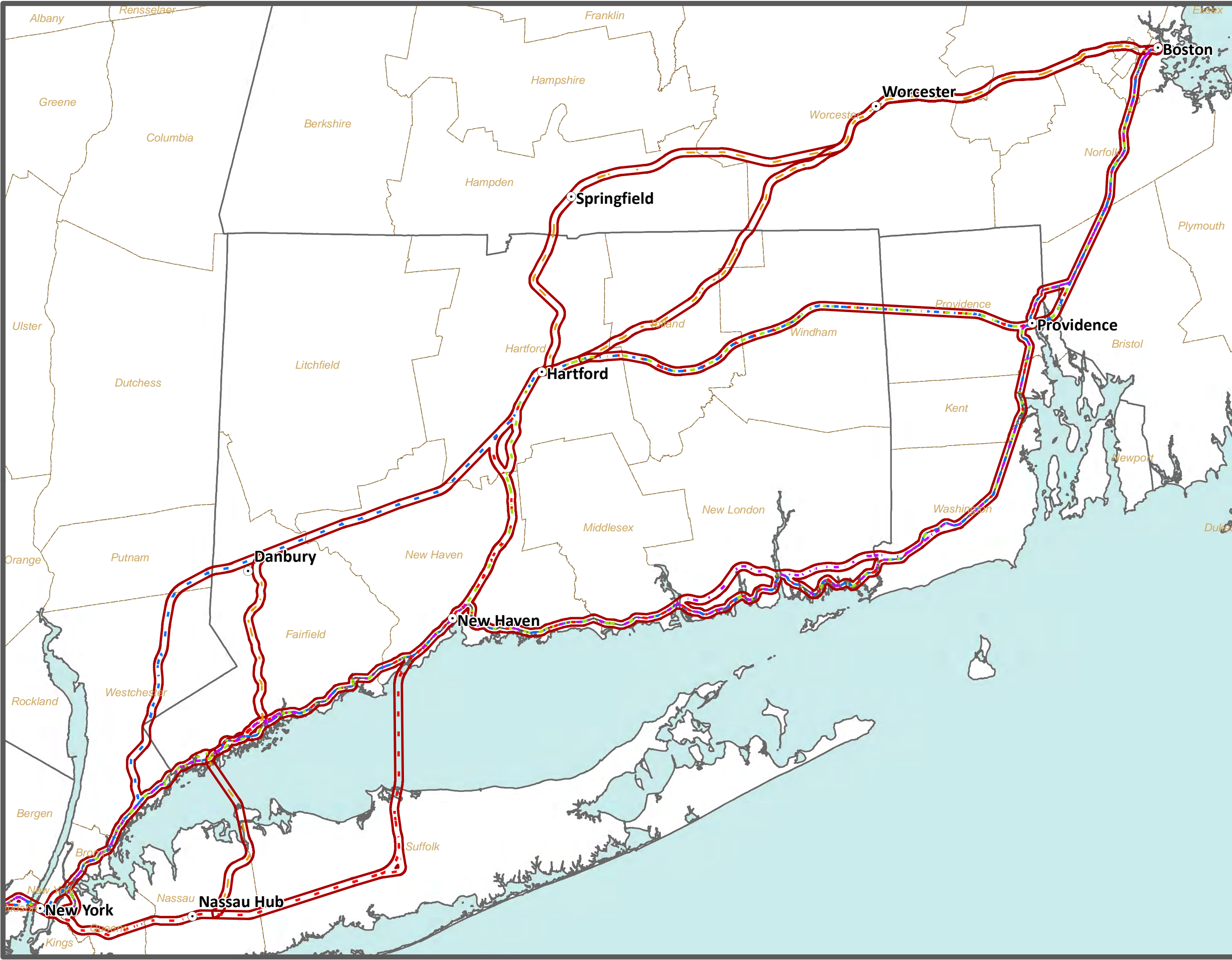
**FIGURE 3**  
**NORTH END AFFECTED ENVIRONMENT**

- Alternative 1
- Alternative 2
- Alternative 3.1
- Alternative 3.2
- North End Route Options
- Existing NEC
- State Boundary
- Affected Environment
- County Boundary



**DRAFT - FOR INTERNAL USE ONLY**

Source of Data: NEC FUTURE  
Notes: Conceptual routes of Tier 1 EIS Alternatives and their 1-mile Preliminary APE shown.



Alternative 1: Geography		Alternative Resource Information				Critical Habitat	
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE	
DC	District of Columbia						
Maryland	Prince George's County						
	Anne Arundel	Swamp Pink	Helonius bullata	Plant	T	No	
	Howard						
	Baltimore	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
	Baltimore City						
		Harford	Maryland Darter	Etheostoma sellare	Fish	E	Yes. Gasheys Run. Critical Habitat intersects with AE approximately 3,888 linear feet
			Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
			Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Cecil	Swamp Pink	Helonius bullata	Plant	T	No
			Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
Delaware	New Castle	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No	
Pennsylvania	Delaware	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
		Indiana Bat	Myotis sodalis	Mammal	E	No	
	Philadelphia	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No	
	Bucks	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
		Indiana Bat	Myotis sodalis	Mammal	E	No	
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No	
New Jersey	Salem						
	Gloucester						
	Camden						
	Burlington						
	Mercer	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
		Indiana Bat	Myotis sodalis	Mammal	E	No	
		Swamp Pink	Helonius bullata	Plant	T	No	
	Middlesex	Swamp Pink	Helonius bullata	Plant	T	No	
	Somerset	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
	Union	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
		Indiana Bat	Myotis sodalis	Mammal	E	No	
	Essex						
	Hudson	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No	
New York	New York	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No	
		Queens	Piping Plover	Charadrius melodus	Bird	T	No
			Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Seabeach Amaranth	Amaranthus pumilus	Plant	T	No	
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No	
	Kings						
	Bronx	Piping Plover	Charadrius melodus	Bird	T	No	
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No	
	Westchester	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
		Indiana Bat	Myotis sodalis	Mammal	E	No	
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
Nassau							
Suffolk							
Putnam							
Connecticut	Litchfield						
	Fairfield	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
		Piping Plover	Charadrius melodus	Bird	T	No	
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No	
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
	Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No		

Alternative 1: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
		Humpback Whale	Megaptera novaeangliae	Mammal	E	No
		Fin Whale	Balaenoptera musculus	Mammal	E	No
		Right Whale	Eubalaena glacialis	Mammal	E	No
	New Haven	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
		Humpback Whale	Megaptera novaeangliae	Mammal	E	No
		Fin Whale	Balaenoptera musculus	Mammal	E	No
		Right Whale	Eubalaena glacialis	Mammal	E	No
	Middlesex	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Puritan Tiger Beetle	Cicindela puritana	Insect	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
	New London	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Small-whorled Pogonia	Isotria medeoloides	Plant	T	No
		Sandplain Gerardia	Agalinis acuta	Plant	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
	Harford					
	Tolland					
	Windham					
Rhode Island	Washington	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Sandplain Gerardia	Agalinis acuta	Plant	E	No
	Kent	Sandplain Gerardia	Agalinis acuta	Plant	E	No
	Providence	Sandplain Gerardia	Agalinis acuta	Plant	E	No
		Small-whorled Pogonia	Isotria medeoloides	Plant	T	No
Massachusetts	Worcester					No
	Middlesex					No
	Bristol	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Plymouth Red-Bellied Cooter	Pseudemys rubriventris bangsi	Reptile	E	No
	Norfolk					
	Suffolk	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Additional species under consideration: The Rufus Red Knot, Northern long-eared bat, New England Cottontail, and Monarch butterfly are four species identified for continued monitoring of their ESA status and occurrence within the project area. The Red Knot has completed a final determination assessment and is listed as of January 2015. This species will be investigated for occurrence within the project area.				

Alternative 2: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
DC	District of Columbia					
Maryland	Prince George's County					
	Anne Arundel	Swamp Pink	Helonius bullata	Plant	T	No
	Howard					
	Baltimore	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
	Baltimore City					
	Harford	Maryland Darter	Etheostoma sellare	Fish	E	Yes. Gasheys Run. Critical Habitat intersects with AE approximately 3,888 linear feet
		Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
	Cecil	Swamp Pink	Helonius bullata	Plant	T	No
		Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
Delaware	New Castle	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
Pennsylvania	Delaware	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Philadelphia	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Bucks	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
New Jersey	Salem					
	Gloucester					
	Camden					
	Burlington					
	Mercer	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Swamp Pink	Helonius bullata	Plant	T	No
	Middlesex	Swamp Pink	Helonius bullata	Plant	T	No
	Somerset	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
	Union	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
	Essex					
	Hudson	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
New York	New York	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Queens	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Seabeach Amaranth	Amaranthus pumilus	Plant	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Kings	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Seabeach Amaranth	Amaranthus pumilus	Plant	T	No

Alternative 2: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Bronx	Piping Plover	Charadrius melodus	Bird	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Westchester	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
	Nassau					
	Suffolk					
	Putnam					
Connecticut	Litchfield					
	Fairfield	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
		Humpback Whale	Megaptera novaeangliae	Mammal	E	No
		Fin Whale	Balaenoptera musculus	Mammal	E	No
		Right Whale	Eubalaena glacialis	Mammal	E	No
	New Haven	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
		Humpback Whale	Megaptera novaeangliae	Mammal	E	No
		Fin Whale	Balaenoptera musculus	Mammal	E	No
		Right Whale	Eubalaena glacialis	Mammal	E	No
	Middlesex	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Puritan Tiger Beetle	Cicindela puritana	Insect	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
	New London	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Small-whorled Pogonia	Isotria medeoloides	Plant	T	No
		Sandplain Gerardia	Agalinis acuta	Plant	E	No

Alternative 2: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
	Harford					
	Tolland					
	Windham	Small-whorled Pogonia	Isotria medeoloides	Plant	T	No
Rhode Island	Washington	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Sandplain Gerardia	Agalinis acuta	Plant	E	No
	Kent	Sandplain Gerardia	Agalinis acuta	Plant	E	No
	Providence	Sandplain Gerardia	Agalinis acuta	Plant	E	No
		Small-whorled Pogonia	Isotria medeoloides	Plant	T	No
Massachusetts	Worcester					
	Middlesex					
	Bristol	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Plymouth Red-Bellied Cooter	Pseudemys rubriventris bangsi	Reptile	E	No
	Norfolk					
	Suffolk	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Additional species under consideration: The Rufus Red Knot, Northern long-eared bat, New England Cottontail, and Monarch butterfly are four species identified for continued monitoring of their ESA status and occurrence within the project area. The Red Knot has completed a final determination assessment and is listed as of January 2015. This species will be investigated for occurrence within the project area.					

Alternative 3.1: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
DC	District of Columbia					
Maryland	Prince George's County					
	Anne Arundel	Swamp Pink	Helonius bullata	Plant	T	No
	Howard					
	Baltimore	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
	Baltimore City					
	Harford	Maryland Darter	Etheostoma sellare	Fish	E	Yes. Gasheys Run. Critical Habitat intersects with AE approximately 3,888 linear feet
		Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
	Cecil	Swamp Pink	Helonius bullata	Plant	T	No
		Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
Delaware	New Castle	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
Pennsylvania	Delaware	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Philadelphia	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Bucks	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
New Jersey	Salem					
	Gloucester					
	Camden					
	Burlington					
	Mercer	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Swamp Pink	Helonius bullata	Plant	T	No
	Middlesex	Swamp Pink	Helonius bullata	Plant	T	No
	Somerset	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
	Union	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
	Essex					
	Hudson	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
New York	New York	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Queens	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Seabeach Amaranth	Amaranthus pumilus	Plant	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Kings	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Seabeach Amaranth	Amaranthus pumilus	Plant	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No

Alternative 3.1: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Bronx	Piping Plover	Charadrius melodus	Bird	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Westchester	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
	Nassau					
	Suffolk					
	Putnam	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
Connecticut	Litchfield					
	Fairfield	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
		Humpback Whale	Megaptera novaeangliae	Mammal	E	No
		Fin Whale	Balaenoptera musculus	Mammal	E	No
		Right Whale	Eubalaena glacialis	Mammal	E	No
	New Haven	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
		Humpback Whale	Megaptera novaeangliae	Mammal	E	No
		Fin Whale	Balaenoptera musculus	Mammal	E	No
		Right Whale	Eubalaena glacialis	Mammal	E	No
	Middlesex	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Puritan Tiger Beetle	Cicindela puritana	Insect	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
	New London	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Small-whorled Pogonia	Isotria medeoloides	Plant	T	No
		Sandplain Gerardia	Agalinis acuta	Plant	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No



Alternative 3.1: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
	Harford	Dwarf Wedgemussel	Alasmidonta heterodon	Mussel (freshwater)	E	No
	Tolland					
	Windham	Small-whorled Pogonia	Isotria medeoloides	Plant	T	No
Rhode Island	Washington	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Sandplain Gerardia	Agalinis acuta	Plant	E	No
	Kent	Sandplain Gerardia	Agalinis acuta	Plant	E	No
	Providence	Sandplain Gerardia	Agalinis acuta	Plant	E	No
		Small-whorled Pogonia	Isotria medeoloides	Plant	T	No
Massachusetts	Worcester					
	Middlesex					
	Bristol	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Plymouth Red-Bellied Cooter	Pseudemys rubriventris bangsi	Reptile	E	No
	Norfolk					
	Suffolk	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Additional species under consideration: The Rufus Red Knot, Northern long-eared bat, New England Cottontail, and Monarch butterfly are four species identified for continued monitoring of their ESA status and occurrence within the project area. The Red Knot has completed a final determination assessment and is listed as of January 2015. This species will be investigated for occurrence within the project area.				

Alternative 3.2: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
DC	District of Columbia					
Maryland	Prince George's County					
	Anne Arundel	Swamp Pink	Helonius bullata	Plant	T	No
	Howard					
	Baltimore	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
	Baltimore City					
	Harford	Maryland Darter	Etheostoma sellare	Fish	E	Yes. Gasheys Run. Critical Habitat intersects with AE approximately 3,888 linear feet
		Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
	Cecil	Swamp Pink	Helonius bullata	Plant	T	No
		Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
Delaware	New Castle	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
Pennsylvania	Delaware	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Philadelphia	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Bucks	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
New Jersey	Salem					
	Gloucester					
	Camden	Bog Turtle	Clemmys muhlenbergii	Reptile	T	
	Mercer	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Swamp Pink	Helonius bullata	Plant	T	No
	Middlesex	Swamp Pink	Helonius bullata	Plant	T	No
	Somerset	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
	Union	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
	Essex					
	Hudson	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
New York	New York	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Queens	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Seabeach Amaranth	Amaranthus pumilus	Plant	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Kings	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Seabeach Amaranth	Amaranthus pumilus	Plant	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Bronx	Piping Plover	Charadrius melodus	Bird	T	No
	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
	Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No	

Alternative 3.2: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
	Westchester	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
	Nassau	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Seabeach Amaranth	Amaranthus pumilus	Plant	T	No
		Sandplain Gerardia	Agalinis acuta	Plant	E	No
	Suffolk	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Seabeach Amaranth	Amaranthus pumilus	Plant	T	No
		Sandplain Gerardia	Agalinis acuta	Plant	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
		Humpback Whale	Megaptera novaeangliae	Mammal	E	No
		Fin Whale	Balaenoptera musculus	Mammal	E	No
		Right Whale	Eubalaena glacialis	Mammal	E	No
	Putnam					
Connecticut	Litchfield					
	Fairfield	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
		Humpback Whale	Megaptera novaeangliae	Mammal	E	No
		Fin Whale	Balaenoptera musculus	Mammal	E	No
		Right Whale	Eubalaena glacialis	Mammal	E	No
	New Haven	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
		Humpback Whale	Megaptera novaeangliae	Mammal	E	No
		Fin Whale	Balaenoptera musculus	Mammal	E	No
		Right Whale	Eubalaena glacialis	Mammal	E	No
	Middlesex	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Puritan Tiger Beetle	Cicindela puritana	Insect	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No

Alternative 3.2: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
		Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	Reptile	E	No
		Loggerhead Sea Turtle	<i>Caretta caretta</i>	Reptile	T	No
		Green Sea Turtle	<i>Chelonia mydas</i>	Reptile	T	No
	New London	Piping Plover	<i>Charadrius melodus</i>	Bird	T	No
		Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No
		Small-whorled Pogonia	<i>Isotria medeoloides</i>	Plant	T	No
		Sandplain Gerardia	<i>Agalinis acuta</i>	Plant	E	No
		Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	Fish	E	No
		Atlantic Sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	Fish	E	No
		Hawksbill Sea Turtle	<i>Eretmochelys imbricata</i>	Reptile	E	No
		Kemp's Ridley Sea Turtle	<i>Lepidochelys kempii</i>	Reptile	E	No
		Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	Reptile	E	No
		Loggerhead Sea Turtle	<i>Caretta caretta</i>	Reptile	T	No
		Green Sea Turtle	<i>Chelonia mydas</i>	Reptile	T	No
	Harford	Dwarf Wedgemussel	<i>Alasmidonta heterodon</i>	Mussel (freshwater)	E	No
	Tolland					
	Windham	Small-whorled Pogonia	<i>Isotria medeoloides</i>	Plant	T	No
Rhode Island	Washington	Piping Plover	<i>Charadrius melodus</i>	Bird	T	No
		Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No
		Sandplain Gerardia	<i>Agalinis acuta</i>	Plant	E	No
	Kent	Sandplain Gerardia	<i>Agalinis acuta</i>	Plant	E	No
	Providence	Sandplain Gerardia	<i>Agalinis acuta</i>	Plant	E	No
		Small-whorled Pogonia	<i>Isotria medeoloides</i>	Plant	T	No
Massachusetts	Worcester					
	Middlesex					
	Bristol	Piping Plover	<i>Charadrius melodus</i>	Bird	T	No
		Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No
		Plymouth Red-Bellied Cooter	<i>Pseudemys rubriventris bangsi</i>	Reptile	E	No
	Norfolk					
	Suffolk	Piping Plover	<i>Charadrius melodus</i>	Bird	T	No
		Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No
		Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	Fish	E	No
		Atlantic Sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	Fish	E	No
	Additional species under consideration: The Rufus Red Knot, Northern long-eared bat, New England Cottontail, and Monarch butterfly are four species identified for continued monitoring of their ESA status and occurrence within the project area. The Red Knot has completed a final determination assessment and is listed as of January 2015. This species will be investigated for occurrence within the project area.					

Alternative 2		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
District of	Washington, DC		
Maryland	Prince George's		
	Anne Arundel		
	Howard		
	Baltimore County	Back River	Window Pane Flounder
		Gunpowder River	Bluefish Summer Flounder
	Baltimore City		
	Harford	Bush River	Window Pane Flounder
		Gunpowder River	Bluefish Summer Flounder
Cecil			
Delaware	New Castle	Christina River	Black Sea Bass
			Bluefish
			Scup
			Summer Flounder
Pennsylvania	Delaware		
	Philadelphia		
	Bucks		
New Jersey	Mercer		
	Middlesex	Raritan River	Summer Flounder
	Union		
	Essex	Passaic River	Summer Flounder
	Hudson	Hackensack River	Summer Flounder
		Hudson River	Summer Flounder
Passaic River		Summer Flounder	
New York	New York	East River	Summer Flounder
		Hudson River	Summer Flounder
	Queens	East River	Summer Flounder
	Kings		
	Bronx	Hutchinson River	Atlantic Herring
			Black Sea Bass
			Bluefish
			Little Skate
			Longfin Inshore Squid
			Pollock
Red Hake			
Scup			
Summer Flounder			
Window Pane Flounder			
Winter Flounder			
Winter Skate			
Westchester			
Nassau			
Suffolk			
Putnam			

Alternative 2		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
	Fairfield	CosCob Harbor	Atlantic Herring
			Black Sea Bass
			Bluefish
			Little Skate
			Pollock
			Red Hake
			Scup
			Summer Flounder
			Window Pane Flounder
			Winter Flounder
			Winter Skate
		Housatonic River	Atlantic Butterfish
			Black Sea Bass
			Bluefish
			Scup
			Summer Flounder
		Long Island Sound- Sherwood Millpond	Atlantic Butterfish
			Atlantic Herring
			Longfin Inshore Squid
			Ocean Pout
			Pollock
			Red Hake
			Window Pane Flounder
		Mill River	Winter Flounder
		Norwalk River	Atlantic Butterfish
			Black Sea Bass
			Bluefish
			Little Skate
			Scup
			Summer Flounder
			Winter Skate
		Pequonnock River	Black Sea Bass
			Bluefish
			Scup
			Summer Flounder
		Saugatuck River	Atlantic Butterfish
			Atlantic Herring
			Black Sea Bass
			Bluefish
			Little Skate
			Longfin Inshore Squid
			Ocean Pout
Pollock			
Red Hake			
Scup			
Summer Flounder			
Window Pane Flounder			
Winter Flounder			

Alternative 2		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
Connecticut	New Haven		Winter Skate
		Branford River	Atlantic Butterfish
		East River	Atlantic Butterfish
		Gulf Pond	Longfin Inshore Squid
		Housatonic River	Atlantic Butterfish
			Black Sea Bass
			Bluefish
			Scup
		Summer Flounder	
		Long Island Sound	Atlantic Butterfish
		Quinnipiac River	Atlantic Butterfish
			Black Sea Bass
			Bluefish
			Little Skate
	Scup		
	Summer Flounder		
	Winter Skate		
	West River	Atlantic Butterfish	
		Longfin Inshore Squid	
	Middlesex	Connecticut River	Atlantic Butterfish
			Atlantic Butterfish
			Black Sea Bass
			Black Sea Bass
			Bluefish
			Bluefish
			Longfin Inshore Squid
			Longfin Inshore Squid
			Scup
			Scup
		Summer Flounder	
Summer Flounder			
Hammonasset River	Atlantic Butterfish		
Menunketesuck River	Atlantic Butterfish		
	Connecticut River	Atlantic Butterfish	
		Black Sea Bass	
		Bluefish	
		Longfin Inshore Squid	
	Scup		
	Summer Flounder		
	Duck River	Longfin Inshore Squid	
	Fourmile River	Atlantic Herring	
Black Sea Bass			
Bluefish			
Longfin Inshore Squid			
Pollock			

Alternative 2		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
	New London	Paugusset River	Red Hake
			Scup
			Summer Flounder
			Window Pane Flounder
			Winter Flounder
		Jordan Cove	Atlantic Butterfish
			Atlantic Herring
			Atlantic Mackerel
			Black Sea Bass
			Bluefish
			Longfin Inshore Squid
			Scup
			Summer Flounder
		Lieutenant River	Atlantic Butterfish
		Long Island Sound- Stonington Harbor	Black Sea Bass
			Bluefish
			Little Skate
			Scup
			Summer Flounder
		Long Island Sound- Wequetequock Cove	Winter Skate
Black Sea Bass			
Bluefish			
Little Skate			
Scup			
Long Island Sound-Palmer Cove	Summer Flounder		
	Winter Skate		
	Atlantic Butterfish		
	Atlantic Herring		
Mumford Cove	Atlantic Mackerel		
	Longfin Inshore Squid		
	Atlantic Butterfish		
	Atlantic Herring		
	Atlantic Mackerel		
	Black Sea Bass		
	Bluefish		
	Little Skate		
	Longfin Inshore Squid		
	Scup		
Summer Flounder			
Mystic Harbor	Winter Skate		
	Atlantic Herring		
	Longfin Inshore Squid		
Niantic River	Longfin Inshore Squid		
Pattagansett River	Atlantic Butterfish		
	Atlantic Herring		
	Longfin Inshore Squid		
	Pollock		
	Red Hake		



Alternative 2		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
		Thames River	Window Pane Flounder
			Winter Flounder
			Black Sea Bass
			Bluefish
			Scup
			Summer Flounder
		Hartford	
Tolland			
Windham			
Washington			
Rhode Island	Kent	Apponaug Cove	Atlantic Herring
			Haddock
			Longfin Inshore Squid
			Red Hake
			Window Pane Flounder
Providence			
Massachusetts	Bristol		
	Norfolk		
	Suffolk		

Alternative 2		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
District of Columbia	Washington, DC		
Maryland	Prince George's		
	Anne Arundel		
	Howard		
	Baltimore County	Back River	Window Pane Flounder
		Gunpowder River	Bluefish Summer Flounder
	Baltimore City		
	Harford	Bush River	Window Pane Flounder
		Gunpowder River	Bluefish Summer Flounder
	Cecil		
Delaware	New Castle	Christina River	Black Sea Bass
			Bluefish
			Scup
			Summer Flounder
Pennsylvania	Delaware		
	Philadelphia		
	Bucks		
New Jersey	Mercer		
	Middlesex	Raritan River	Summer Flounder
	Union		
	Essex	Passaic River	Summer Flounder
	Hudson	Hackensack River	Summer Flounder
		Hudson River	Summer Flounder
		Passaic River	Summer Flounder
New York	New York	East River	Summer Flounder
		Hudson River	Summer Flounder
	Queens	East River	Summer Flounder
	Kings		
	Bronx	Hutchinson River	Atlantic Herring
			Black Sea Bass
			Bluefish
			Little Skate
			Longfin Inshore Squid
			Pollock
			Red Hake
Scup			
Summer Flounder			
Window Pane Flounder			
Winter Flounder			
Winter Skate			

Alternative 2		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
	Westchester	Byram River	Atlantic Butterfish
	Nassau		
	Suffolk		
	Putnam		
	Fairfield	Byram River	Atlantic Butterfish
		CosCob Harbor	Atlantic Herring
			Black Sea Bass
			Bluefish
			Little Skate
			Pollock
			Red Hake
			Scup
			Summer Flounder
			Window Pane Flounder
			Winter Flounder
		Winter Skate	
		Housatonic River	Atlantic Butterfish
			Black Sea Bass
			Bluefish
			Scup
			Summer Flounder
		Long Island Sound- Sherwood Mill	Atlantic Butterfish
			Atlantic Herring
			Longfin Inshore Squid
			Ocean Pout
			Pollock
			Red Hake
			Window Pane Flounder
		Winter Flounder	
		Mill River	Atlantic Butterfish
		Norwalk River	Atlantic Butterfish
			Black Sea Bass
Bluefish			
Little Skate			
Scup			
Summer Flounder			
Pequonnock River	Black Sea Bass		
	Bluefish		
	Scup		
	Summer Flounder		
Saugatuck River	Atlantic Butterfish		
	Atlantic Herring		
	Black Sea Bass		
	Bluefish		
	Little Skate		
	Longfin Inshore Squid		
Ocean Pout			

Alternative 2		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
Connecticut		Saugatuck River	Pollock
			Red Hake
			Scup
			Summer Flounder
			Window Pane Flounder
			Winter Flounder
			Winter Skate
	New Haven	Branford River	Atlantic Butterfish
		East River	Atlantic Butterfish
		Gulf Pond	Longfin Inshore Squid
		Housatonic River	Atlantic Butterfish
			Black Sea Bass
			Bluefish
			Scup
		Summer Flounder	
		Long Island Sound	Atlantic Butterfish
		Quinnipiac River	Atlantic Butterfish
	Black Sea Bass		
	Bluefish		
	Little Skate		
	Scup		
	Summer Flounder		
	Winter Skate		
	West River	Atlantic Butterfish	
		Longfin Inshore Squid	
	Middlesex	Connecticut River	Atlantic Butterfish
			Black Sea Bass
Bluefish			
Longfin Inshore Squid			
Scup			
Summer Flounder			
Hammonasset River	Atlantic Butterfish		
Menunketesuck River	Atlantic Butterfish		
	Connecticut River	Atlantic Butterfish	
		Black Sea Bass	
		Bluefish	
		Longfin Inshore Squid	
		Scup	
	Summer Flounder		
	Duck River	Longfin Inshore Squid	
	Fourmile River	Atlantic Herring	
		Black Sea Bass	
		Bluefish	
Longfin Inshore Squid			
Pollock			
Red Hake			

Alternative 2		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
	New London		Scup
			Summer Flounder
			Window Pane Flounder
			Winter Flounder
		Jordan Cove	Atlantic Butterfish
			Atlantic Herring
			Atlantic Mackerel
			Black Sea Bass
			Bluefish
			Longfin Inshore Squid
			Scup
			Summer Flounder
		Lieutenant River	Atlantic Butterfish
		Long Island Sound- Stonington Har	Black Sea Bass
			Bluefish
			Little Skate
			Scup
			Summer Flounder
			Winter Skate
		Long Island Sound- Wequetequock	Black Sea Bass
			Bluefish
			Little Skate
			Scup
			Summer Flounder
		Long Island Sound-Palmer Cove	Atlantic Butterfish
			Atlantic Herring
			Atlantic Mackerel
			Longfin Inshore Squid
Mumford Cove	Atlantic Butterfish		
	Atlantic Herring		
	Atlantic Mackerel		
	Black Sea Bass		
	Bluefish		
	Little Skate		
	Longfin Inshore Squid		
	Scup		
	Summer Flounder		
	Winter Skate		
Mystic Harbor	Atlantic Herring		
	Longfin Inshore Squid		
Niantic River	Longfin Inshore Squid		
Pattagansett River	Atlantic Butterfish		
	Atlantic Herring		
	Longfin Inshore Squid		
	Pollock		
	Red Hake		
	Window Pane Flounder		
	Winter Flounder		

Alternative 2		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
		Thames River	Black Sea Bass
			Bluefish
			Scup
			Summer Flounder
	Hartford	Connecticut River	Black Sea Bass
			Bluefish
			Scup
Tolland			
Windham			
Rhode Island	Kent	Apponaug Cove	Atlantic Herring
			Haddock
			Longfin Inshore Squid
			Red Hake
			Window Pane Flounder
			Winter Flounder
	Providence	Seekonk River	Black Sea Bass
Bluefish			
			Scup
			Summer Flounder
Massachusetts	Bristol		
	Norfolk		
	Suffolk		

Alternative 3.1		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
District of Columbia	Washington, DC		
Maryland	Prince George's		
	Anne Arundel		
	Howard		
	Baltimore County	Back River	Window Pane Flounder
		Gunpowder River	Bluefish Summer Flounder
	Baltimore City		
	Harford	Bush River	Window Pane Flounder
		Gunpowder River	Bluefish Summer Flounder
Cecil			
Delaware	New Castle	Christina River	Black Sea Bass Bluefish Scup Summer Flounder
Pennsylvania	Delaware		
	Philadelphia		
	Bucks		
New Jersey	Mercer		
	Middlesex	Raritan River	Summer Flounder
	Union		
	Essex	Passaic River	Summer Flounder
	Hudson	Hackensack River	Summer Flounder
		Hudson River	Summer Flounder
		Passaic River	Summer Flounder
New York	New York	East River	Summer Flounder
		Hudson River	Summer Flounder
	Queens	East River	Summer Flounder
	Kings		
	Bronx	Hutchinson River	Atlantic Herring
			Atlantic Herring
			Black Sea Bass
			Bluefish
			Little Skate
			Longfin Inshore Squid
Pollock			
Red Hake			
Scup			
Summer Flounder			
Window Pane Flounder			
Winter Flounder			
Winter Skate			
Westchester			
Nassau			
Suffolk			

Alternative 3.1		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
	Putnam		
	Fairfield	CosCob Harbor	Atlantic Herring
			Black Sea Bass
			Bluefish
			Little Skate
			Pollock
			Red Hake
			Scup
			Summer Flounder
			Window Pane Flounder
			Winter Flounder
			Winter Skate
		Housatonic River	Atlantic Butterfish
			Black Sea Bass
			Bluefish
			Scup
		Long Island Sound- Sherwood Millpond	Summer Flounder
			Atlantic Butterfish
			Atlantic Herring
			Longfin Inshore Squid
			Ocean Pout
			Pollock
			Red Hake
		Mill River	Window Pane Flounder
			Winter Flounder
		Norwalk River	Atlantic Butterfish
			Atlantic Butterfish
			Black Sea Bass
			Bluefish
			Little Skate
Scup			
Pequonnock River	Summer Flounder		
	Winter Skate		
	Black Sea Bass		
	Bluefish		
Saugatuck River	Scup		
	Summer Flounder		
	Atlantic Butterfish		
	Atlantic Herring		
	Black Sea Bass		
	Bluefish		
	Little Skate		
	Longfin Inshore Squid		
	Ocean Pout		
	Pollock		
	Red Hake		
	Scup		
	Summer Flounder		
Window Pane Flounder			
Winter Flounder			
Winter Skate			
		Branford River	Atlantic Butterfish
		East River	Atlantic Butterfish



Alternative 3.1		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
Connecticut	New Haven	East River	Atlantic Butterfish
		Gulf Pond	Longfin Inshore Squid
		Housatonic River	Atlantic Butterfish
			Black Sea Bass
			Bluefish
			Scup
		Summer Flounder	
		Long Island Sound	Atlantic Butterfish
		Quinnipiac River	Atlantic Butterfish
			Black Sea Bass
	Bluefish		
	Little Skate		
	Scup		
	Summer Flounder		
	West River	Winter Skate	
		Atlantic Butterfish	
	Middlesex	Connecticut River	Longfin Inshore Squid
			Atlantic Butterfish
			Black Sea Bass
			Bluefish
			Scup
			Summer Flounder
	Hammonasset River	Atlantic Butterfish	
Menunketesuck River	Atlantic Butterfish		
	Connecticut River	Atlantic Butterfish	
		Black Sea Bass	
		Bluefish	
		Longfin Inshore Squid	
		Scup	
	Summer Flounder		
	Duck River	Longfin Inshore Squid	
	Fourmile River	Atlantic Herring	
		Black Sea Bass	
		Bluefish	
		Longfin Inshore Squid	
		Pollock	
Red Hake			
Scup			
Summer Flounder			
Window Pane Flounder			
Winter Flounder			
Jordan Cove	Atlantic Butterfish		
	Atlantic Herring		
	Atlantic Mackerel		
	Black Sea Bass		
	Bluefish		
	Longfin Inshore Squid		
Scup			
Summer Flounder			
Lieutenant River	Atlantic Butterfish		

Alternative 3.1		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
New London	New London	Long Island Sound- Stonington Harbor	Black Sea Bass
			Bluefish
			Little Skate
			Scup
			Summer Flounder
			Winter Skate
		Long Island Sound- Wequetequock Cove	Black Sea Bass
			Bluefish
			Little Skate
			Scup
			Summer Flounder
			Winter Skate
	Long Island Sound-Palmer Cove	Atlantic Butterfish	
		Atlantic Herring	
		Atlantic Mackerel	
		Longfin Inshore Squid	
	Mumford Cove	Atlantic Butterfish	
		Atlantic Herring	
		Atlantic Mackerel	
		Black Sea Bass	
		Bluefish	
		Little Skate	
		Longfin Inshore Squid	
		Scup	
Mystic Harbor	Atlantic Herring		
	Longfin Inshore Squid		
Niantic River	Longfin Inshore Squid		
Pattagansett River	Atlantic Butterfish		
	Atlantic Herring		
	Longfin Inshore Squid		
	Pollock		
	Red Hake		
	Window Pane Flounder		
Thames River	Winter Flounder		
	Black Sea Bass		
	Bluefish		
	Scup		
Hartford	Summer Flounder		
	Black Sea Bass		
	Bluefish		
	Scup		
Connecticut River	Summer Flounder		
Tolland			
Windham			
Washington			
Rhode Island	Kent	Apponaug Cove	Atlantic Herring
			Haddock
			Longfin Inshore Squid
			Red Hake
			Window Pane Flounder
			Winter Flounder

Alternative 3.1		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
	Providence	Seekonk River	Black Sea Bass
			Bluefish
			Scup
			Summer Flounder
Massachusetts	Bristol		
	Norfolk		
	Suffolk		

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Alternative 3.2		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
District of Columbia	Washington, DC		
Maryland	Prince George's		
	Anne Arundel		
	Howard		
	Baltimore County	Back River	Window Pane Flounder
		Gunpowder River	Bluefish Summer Flounder
	Baltimore City		
	Harford	Bush River	Window Pane Flounder
Gunpowder River		Bluefish Summer Flounder	
Cecil			
Delaware	New Castle	Christina River	Black Sea Bass
			Bluefish
			Scup
			Summer Flounder
Pennsylvania	Delaware		
	Philadelphia		
	Bucks		
New Jersey	Mercer		
	Middlesex	Raritan River	Summer Flounder
	Union		
	Essex	Passaic River	Summer Flounder
	Hudson	Hackensack River	Summer Flounder
		Hudson River	Summer Flounder
New York	New York	East River	Summer Flounder
		Hudson River	Summer Flounder
	Queens	East River	Summer Flounder
	Kings		
	Bronx	Hutchinson River	Atlantic Herring
			Black Sea Bass
			Bluefish
			Little Skate
			Longfin Inshore Squid
			Pollock
			Red Hake
			Scup
			Summer Flounder
Window Pane Flounder			
Winter Flounder			
Winter Skate			
Westchester			
Nassau			
Suffolk	Long Island Sound	Atlantic Butterfish	
		Atlantic Herring	
		Black Sea Bass	
		Bluefish	
		Little Skate	
		Longfin Inshore Squid	
		Pollock	
		Red Hake	
		Scup	
		Silver Hake	
		Summer Flounder	
		Window Pane Flounder	
Winter Flounder			
Winter Skate			
Putnam			
			Atlantic Herring
			Black Sea Bass

Alternative 3.2		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
	Fairfield	CosCob Harbor	Bluefish
			Little Skate
			Pollock
			Red Hake
			Scup
			Summer Flounder
			Window Pane Flounder
			Winter Flounder
			Winter Skate
			Housatonic River
		Black Sea Bass	
		Bluefish	
		Scup	
		Summer Flounder	
		Long Island Sound	Atlantic Butterfish
			Atlantic Herring
			Black Sea Bass
			Bluefish
			Little Skate
			Longfin Inshore Squid
			Pollock
			Red Hake
			Scup
			Silver Hake
			Summer Flounder
			Window Pane Flounder
			Winter Flounder
		Winter Skate	
		Long Island Sound-Sherwood Millpond	Atlantic Butterfish
			Atlantic Herring
			Longfin Inshore Squid
			Ocean Pout
			Pollock
			Red Hake
			Window Pane Flounder
			Winter Flounder
		Mill River	Atlantic Butterfish
		Norwalk River	Atlantic Butterfish
			Black Sea Bass
			Bluefish
			Little Skate
			Scup
Summer Flounder			
Pequonnock River	Winter Skate		
	Black Sea Bass		
	Bluefish		
Saugatuck River	Scup		
	Summer Flounder		
	Atlantic Butterfish		
	Atlantic Herring		
	Black Sea Bass		
	Bluefish		
	Little Skate		
	Longfin Inshore Squid		
	Ocean Pout		
	Pollock		
	Red Hake		
	Scup		
	Summer Flounder		
Window Pane Flounder			
Winter Flounder			
Winter Skate			
	Branford River	Atlantic Butterfish	
	East River	Atlantic Butterfish	
		Atlantic Herring	
		Black Sea Bass	
		Bluefish	
		Longfin Inshore Squid	
		Longfin Inshore Squid	

Alternative 3.2		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
Connecticut	New Haven	Gulf Pond	Pollock
			Red Hake
			Scup
			Silver Hake
			Summer Flounder
			Window Pane Flounder
			Winter Flounder
		Housatonic River	Atlantic Butterfish
			Black Sea Bass
			Bluefish
			Scup
			Summer Flounder
		Long Island Sound	Atlantic Butterfish
			Atlantic Herring
			Black Sea Bass
			Bluefish
			Longfin Inshore Squid
			Pollock
			Red Hake
			Scup
			Silver Hake
	Summer Flounder		
	Quinnipiac River	Atlantic Butterfish	
		Black Sea Bass	
		Bluefish	
		Little Skate	
		Scup	
	West River	Atlantic Butterfish	
		Longfin Inshore Squid	
	Middlesex	Connecticut River	Atlantic Butterfish
			Black Sea Bass
			Bluefish
			Longfin Inshore Squid
			Scup
	Hammonasset River	Atlantic Butterfish	
	Menunketesuck River	Atlantic Butterfish	
		Connecticut River	Atlantic Butterfish
			Black Sea Bass
			Bluefish
			Longfin Inshore Squid
			Scup
		Duck River	Summer Flounder
			Longfin Inshore Squid
		Fourmile River	Atlantic Herring
			Black Sea Bass
Bluefish			
Longfin Inshore Squid			
Pollock			
Red Hake			
Scup			
Summer Flounder			
Jordan Cove		Window Pane Flounder	
		Winter Flounder	
		Atlantic Butterfish	
		Atlantic Herring	
	Atlantic Mackerel		
Lieutenant River	Black Sea Bass		
	Bluefish		
	Longfin Inshore Squid		
		Scup	
		Summer Flounder	

NEC FUTURE

Alternative 3.2		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
Connecticut	New London	Connecticut River	Atlantic Butterfish
		Long Island Sound-Stonington Harbor	Black Sea Bass
			Bluefish
			Little Skate
			Scup
			Summer Flounder
			Winter Skate
		Long Island Sound-Wequetequock Cove	Black Sea Bass
			Bluefish
			Little Skate
			Scup
			Summer Flounder
		Long Island Sound-Palmer Cove	Atlantic Butterfish
	Atlantic Herring		
	Atlantic Mackerel		
	Longfin Inshore Squid		
	Mumford Cove	Atlantic Butterfish	
		Atlantic Herring	
		Atlantic Mackerel	
		Black Sea Bass	
		Bluefish	
Little Skate			
Longfin Inshore Squid			
Scup			
Summer Flounder			
Mystic Harbor	Atlantic Herring		
	Longfin Inshore Squid		
Niantic River	Longfin Inshore Squid		
Pattagansett River	Atlantic Butterfish		
	Atlantic Herring		
	Longfin Inshore Squid		
	Pollock		
	Red Hake		
	Window Pane Flounder		
Thames River	Black Sea Bass		
	Bluefish		
	Scup		
	Summer Flounder		
Hartford	Connecticut River	Black Sea Bass	
		Bluefish	
		Scup	
Tolland			
	Windham		
Rhode Island	Kent	Apponaug Cove	Atlantic Herring
			Haddock
			Longfin Inshore Squid
			Red Hake
			Window Pane Flounder
	Providence	Seekonk River	Black Sea Bass
			Bluefish
			Scup
			Summer Flounder
Massachusetts	Bristol		
	Norfolk		
	Suffolk		



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
GREATER ATLANTIC REGIONAL FISHERIES OFFICE  
55 Great Republic Drive  
Gloucester, MA 01930-2276

DEC 19 2014

Rebecca Reyes-Alicea  
NEC FUTURE Program Manager  
USDOT – Federal Railroad Administration  
One Bowling Green, Suite 429  
New York, NY 10004

**Re: NEC FUTURE Program Tier 1 EIS – Ecological Resources Effects Assessment  
Coordination Relative to Section 7 of the Endangered Species Act**

Dear Ms. Reyes-Alicea:

We have reviewed your letter, dated November 3, 2014, listing threatened and endangered species, critical habitats, and essential fish habitat (EFH) located within the Northeast Corridor (NEC) FUTURE study area. The list corresponds to TIER 1 Environmental Impact Statement (EIS) Action Alternatives to evaluate potential passenger rail improvements along the NEC. The letter requested:

- (1) Confirmation that the list Federal Railroad Administration (FRA) provided of federally-listed threatened and endangered species and critical habitats, ecologically sensitive habitats, and essential fish habitats is consistent with National Marine Fisheries Service (NMFS) information.
- (2) Identification of other species, critical habitats, or areas of concern in relation to Tier 1 EIS Action Alternatives and North End Route Options as shown on the enclosed maps (Figures 1 to 3 in your letter).
- (3) Notification if there is a particular issue/concern based on the information provided.

At this point, you have not provided details on proposed construction activities; therefore, potential impacts to EFH, threatened or endangered species, or other resources are not clear. We offer the following information in an attempt to identify and address potential adverse impacts on EFH, listed species, and other trust resources within the project area for consideration in the Tier 1 EIS. We would also like to direct you to the guidance provided in our September 12, 2012 letter responding to your notice of intent to prepare the TIER 1 EIS. The following comments address the presence of Endangered Species Act (ESA) listed species and EFH species under NMFS jurisdiction within the project area. At this time, there are no designated critical habitats for ESA listed species under our jurisdiction in the project area.





### NMFS Listed Species in the Project Area

The following ESA listed species under our jurisdiction may occur in the vicinity of coastal waters included in the Affected Environment of the TIER 1 EIS Action Alternatives (including nearshore ocean waters, bays, sounds, estuaries, rivers, and watersheds):

<b>Common name</b>	<b>Scientific name</b>	<b>ESA Status</b>
North Atlantic right whale	<i>Eubalaena glacialis</i>	Endangered
Humpback whale	<i>Megaptera novaeangliae</i>	Endangered
Fin whale	<i>Balaenoptera physalus</i>	Endangered
Loggerhead sea turtle - NWA DPS <sup>1</sup>	<i>Caretta caretta</i>	Threatened
Leatherback sea turtle	<i>Dermochelys coriacea</i>	Endangered
Kemp's ridley sea turtle	<i>Lepidochelys kempii</i>	Endangered
Green sea turtle	<i>Chelonia mydas</i>	Endangered <sup>2</sup>
Shortnose sturgeon	<i>Acipenser brevirostrum</i>	Endangered
Atlantic sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	
Gulf of Maine DPS		Threatened
New York Bight DPS		Endangered
Chesapeake Bay DPS		Endangered
Carolina DPS		Endangered
South Atlantic DPS		Endangered

Occurrence maps for the above species in the Greater Atlantic Region can be found on our website at:

<http://www.greateratlantic.fisheries.noaa.gov/protected/section7/guidance/maps/index.html>.

These species maps are intended to aid Federal action agencies during their section 7 consultation responsibilities under the ESA and with their determination whether activities authorized, funded, or carried out by a Federal agency may affect species listed by NMFS under the ESA. Below we are including additional information on the occurrence of these species in the region.

Several species of endangered large whales occur in the waters of the Greater Atlantic Region. North Atlantic right whales, humpback whales, and fin whales may be found in both coastal and offshore waters of the region throughout the year. All three of these species follow a similar, general pattern of foraging at high latitudes (*e.g.*, southern New England and Canadian waters) in the spring and summer months and calving in lower latitudes (*i.e.*, off of Florida for right whales and in the West Indies for humpback whales) in the winter months. The portion of TIER 1 EIS Alternative 3.2 which crosses the Long Island Sound occurs in the vicinity of North Atlantic right whales, humpback whales, and fin whales' range. Sei whales, sperm whales, and blue whales are also present in the region, although are primarily found in offshore waters and thus are not expected to occur in coastal waters where TIER 1 EIS Action Alternatives may be taking place. You can find more information on listed large whales at:

<http://www.nmfs.noaa.gov/pr/species/mammals/>.

<sup>1</sup> NWA DPS = Northwest Atlantic distinct population segment, the only loggerhead DPS expected in the region

<sup>2</sup> Green sea turtles in U.S. waters are listed as threatened except for the Florida breeding population, which is listed as endangered. Due to the inability to distinguish between these populations away from the nesting beach, green sea turtles are considered endangered wherever they occur in U.S. waters.

Several species of threatened and endangered sea turtles occur seasonally in the waters of the Greater Atlantic Region. Sea turtles move north into these waters in the spring, arriving in more southern waters of the Greater Atlantic in April/May and in the Gulf of Maine in June. In the fall, this trend is reversed with the most sea turtles leaving Greater Atlantic waters by the end of November. Outside of these times, sea turtle presence in the region's waters is considered unlikely, although stranding events due to cold-stunning (*i.e.*, hypothermia) are known to occur during winter months. The sea turtles in coastal waters of the region are typically small juveniles with the most abundant being the federally threatened Northwest Atlantic Distinct Population Segment (DPS) of loggerhead sea turtles followed by the federally endangered Kemp's ridley sea turtle. Loggerhead sea turtles have been found to be relatively abundant from Nova Scotia, Canada, to Cape Hatteras, North Carolina, while Kemp's ridleys are most abundant from Cape Cod Bay and Long Island Sound south. Federally endangered leatherback sea turtles occur in Greater Atlantic waters during the warmer months as well up to as far north as Labrador, Canada. While leatherbacks are predominantly pelagic, they may occur close to shore, especially when pursuing their preferred jellyfish prey. Green sea turtles also occur in Greater Atlantic waters, but are most common in waters south of Cape Cod, Massachusetts. We noted that you included the hawksbill sea turtle on your list of threatened and endangered species; we do not expect this species to occur in the Affected Environment of the Tier 1 EIS Action Alternatives. You can find more information on listed sea turtles at: <http://www.nmfs.noaa.gov/pr/species/turtles/>.

The federally endangered shortnose sturgeon is an anadromous fish species found in rivers, estuaries, and coastal waters along the Atlantic coast of North America. Shortnose sturgeon are primarily benthic fish that mainly occupy the deep channel sections of large rivers. They are known to occur in 21 coastal ecosystems of the Greater Atlantic Region, from the northern Gulf of Maine to Chesapeake Bay. Migrating up and down the coast, shortnose sturgeon return to their natal (birthplace) rivers to spawn. In rivers of the Greater Atlantic, shortnose sturgeon migrate from overwintering locations upstream to spawning grounds during the spring. River/estuarine systems in the project area occupied by shortnose sturgeon include (from south to north): the Chesapeake Bay (Potomac and Susquehanna Rivers), Chesapeake and Delaware Canal, Delaware River, Hudson River, and Connecticut River. Shortnose sturgeon have also historically inhabited the Housatonic River, although the last documented capture occurred back in 1995 and spawning is not believed to occur there.. You can find more information on shortnose sturgeon at: <http://www.nmfs.noaa.gov/pr/species/fish/shortnosesturgeon.htm>.

Atlantic sturgeon also occur in estuarine and marine waters along the U.S. Atlantic coast and are present throughout the Greater Atlantic Region. The New York Bight, Chesapeake Bay, Carolina, and South Atlantic DPSs of Atlantic sturgeon are endangered while the Gulf of Maine DPS is threatened. Individuals originating from any of the five DPSs could occur in the Affected Environment of the TIER 1 EIS Action Alternatives, and warrant further distinction on your list of threatened and endangered species. Like shortnose sturgeon, Atlantic sturgeon are anadromous, with adults spawning in freshwater in the spring and early summer and then migrating into estuarine and marine waters where they spend most of their lives. Sub-adults and adults live in coastal waters and estuaries when not spawning, generally in shallow nearshore areas dominated by gravel and sand substrates. Long distance migrations away from spawning

rivers are common. You can find more information on Atlantic sturgeon at: <http://www.nmfs.noaa.gov/pr/species/fish/atlanticsturgeon.htm>.

### **Candidate Species**

Candidate species are those petitioned species that we are actively considering for listing as endangered or threatened under the ESA, as well as those species for which we has initiated an ESA status review that it has announced in the *Federal Register*. "Candidate" status does not carry any procedural or substantive protections under the ESA. Two candidate species, dusky shark and cusk, are likely to occur in coastal waters of the Greater Atlantic Region. You can find more information on these species on our region's website at <http://www.greateratlantic.fisheries.noaa.gov/protected/pcp/cs/index.html>.

### **Essential Fish Habitat (EFH)**

The Magnuson Stevens Fishery Conservation and Management Act (MSA) requires Federal agencies that fund, permit, or undertake activities that may adversely affect EFH to consult with us regarding the potential effects of their actions on EFH. EFH has been designated for various federally managed species throughout the marine, estuarine, and coastal areas of the Northeast Corridor project area. Species for which EFH has been designated within the study area include the following:

- Red hake (*Urophycis chuss*) – larvae, juveniles, and adults
- Winter flounder (*Pseudopleuronectes americanus*) – eggs, larvae, juveniles, adults and spawning adults
- Windowpane flounder (*Scophthalmus aquosus*) – eggs, larvae, juveniles, adults and spawning adults
- Atlantic sea herring (*Clupea harengus*) – larvae, juveniles, and adults
- Atlantic butterfish (*Peprilus triacanthus*) – larvae, juveniles, and adults
- Bluefish (*Pomatomus saltatrix*) – juveniles and adults
- Summer flounder (*Paralichthys dentatus*) – larvae, juveniles and adults
- Scup (*Stenotomus chrysops*) – juveniles and adults
- Atlantic mackerel (*Scomber scombrus*) – juveniles and adults
- Little skate (*Leucoraja erinacea*) – juveniles and adults
- Clearnose skate (*Raja eglanteria*) – juveniles and adults
- Winter skate (*Leucoraja ocellata*) – juveniles and adults
- King mackerel (*Scoberomorus cavalla*) – eggs, larvae, juveniles, and adults
- Spanish mackerel (*S. maculatus*) – eggs, larvae, juveniles, and adults
- Cobia (*Rachycentron canadum*) – eggs, larvae, juveniles, and adults

Habitat Areas of Particular Concern (HAPC) have been designated in some portions of the tidal waters of the project area, including submerged aquatic vegetation (SAV) for juvenile and adult summer flounder. HAPCs are subsets of EFH identified based on one or more of the following considerations: 1) the importance of the ecological function, 2) extent to which the habitat is sensitive to human-induced degradation, 3) whether and to what extent, development activities are stressing the habitat type, or 4) rarity of habitat type (50 CFR 600.815(a)(8)).

A complete list of species and life stages that have been designated for these areas can be found on our Habitat Conservation Division website at:  
[www.greateratlantic.fisheries.noaa.gov/hcd/webintro.html](http://www.greateratlantic.fisheries.noaa.gov/hcd/webintro.html).

### **Other Aquatic Resources of Concern**

The waterways within the study area provide habitat for a wide variety of other NOAA trust resources including alewife (*Alosa pseudoharengus*), blueback herring (*A. aestivalis*), American shad (*A. sapidissima*) and striped bass (*Morone saxatilis*), yellow perch (*Perca flavescens*), hickory shad (*Alosa mediocris*), hogchoker (*Trinectes maculatus*), banded killifish (*Fundulus diaphanus*) and mummichog (*Fundulus heteroclitus*), American eel (*Anguilla rostrata*), Atlantic herring (*Clupea harengus*), Atlantic menhaden (*Brevoortia tyrannus*), bay anchovy (*Anchoa mitchilli*), gizzard shad (*Dorosoma cepedianum*), white perch (*Morone americana*), Atlantic silverside (*Menidia menidia*), and many others.

Anadromous fish such as alewife, blueback herring, and American shad use the many of the waterways within the study area as spawning, nursery and forage habitat. Alewife and blueback herring spend most of their adult life at sea, but return to freshwater areas to spawn in the spring. Both species are believed to be repeat spawners, generally returning to their natal rivers (Collette and Klein-MacPhee 2002). In the Mid-Atlantic, landings have declined dramatically since the mid-1960s and have remained very low in recent years (ASMFC 2007). 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-1960s, they have been designated as species of concern by NMFS in a Federal Register Notice dated October 17, 2006 (71 FRN 61 022). "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. We are also currently working with the U.S. Fish and Wildlife Service on a status review of the American eel to determine if listed the American eel as endangered or threatened is warranted.

The wetlands within the study area provide nursery and forage habitat for a variety of species of concern to NMFS including alewife, Atlantic croaker (*Micropogonias undulatus*), Atlantic menhaden, spot (*Leiostomus xanthurus*), striped bass, as well as federally managed bluefish and summer flounder (Graff and Middleton undated). Important forage species such as mummichog, Atlantic silverside, inland silverside (*Menidia beryllina*), striped killifish (*Fundulus majalis*) and bay anchovy also use these areas. Mummichog, killifish, anchovies and other small fish and benthic organisms found in estuarine wetlands provide a valuable food source for many of the commercially and recreationally valuable species mentioned above including striped bass, summer flounder, weakfish, red hake, scup, and windowpane (Steimle *et al.* 2000).

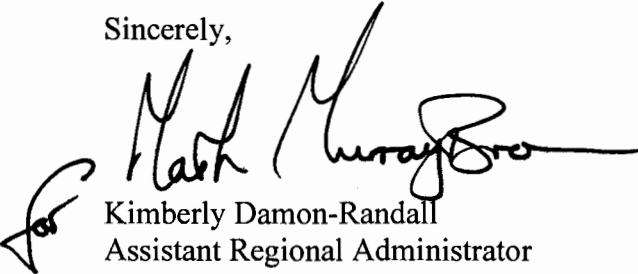
Wetlands also provide many other important ecological functions and services including fish and wildlife habitat, food chain support, surface water retention or detention, groundwater recharge, and nutrient transformation, sediment retention and atmospheric equilibrium. The primary production in wetlands forms the base of the food web that supports insects and forage fish that are then prey species for larger fish such as bluefish, summer flounder and other species that have been documented in the marsh creeks surrounding the project site. The water quality

services provided by these wetlands retain nutrients, sediments and contaminants and improve water quality. Wetlands may also help to moderate global climate change through carbon storage within the plant communities and soil.

### Conclusions

We appreciate the opportunity to provide these comments. We look forward to working with your staff further during the Tier 2 EIS and throughout the environmental review process. Should you have any questions about ESA listed species or about the ESA section 7 consultation process in general, please contact William Barnhill of my staff at 978-282-8460 or by email at William.Barnhill@noaa.gov. If you have any questions about EFH or other aquatic resources of concern, please contact Karen Greene of our Habitat Conservation Division at (732) 872-3023 or Karen.Greene@noaa.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Kimberly Damon-Randall". The signature is written in a cursive style with a large initial "K".

Kimberly Damon-Randall  
Assistant Regional Administrator  
for Protected Resources

ec: William Barnhill, GARFO PRD  
Karen Greene, GARFO HCD

File Code: H:\Section 7 Team\Section 7\Non-Fisheries\DOT\Federal Railroad\Northeast Corridor (NEC FUTURE)

**References Cited:**

- Atlantic States Marine Fisheries Commission. 2007. Species Profile: shad and river herring: Atlantic states seek to improve knowledge of stock status and protect populations coast wide. [www.asafc.org](http://www.asafc.org). Washington, DC.
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# U.S. Fish and Wildlife Service Correspondence

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U.S. Department  
of Transportation

Federal Railroad  
Administration



1200 New Jersey Avenue, SE.  
Washington, D.C. 20590

January 15, 2015

Mr. Martin Miller  
Chief, Division of Endangered Species  
Regional Endangered Species Program  
U.S. Fish and Wildlife Service  
Northeast Region Ecological Services  
300 Westgate Center Drive  
Hadley, Massachusetts 01035

RE: Federal Railroad Administration Northeast Corridor (NEC) FUTURE program,  
ecological resources impact assessment and coordination related to Section 7 of the  
Endangered Species Act

Dear Mr. Miller:

The Federal Railroad Administration (FRA) is developing a rail investment program for the Northeast Corridor (NEC), the rail spine that runs from Washington, D.C., through New York to Boston. Known as the NEC FUTURE program, this initiative includes the development of two products: (1) a Tier 1 Environmental Impact Statement (EIS) that will present the results of a broad environmental analysis of investment program alternatives, and (2) a Service Development Plan (SDP) that will outline how future passenger rail service is to be provided on the NEC.

As part of the development of the Tier 1 EIS, we engaged in a webinar discussion on January 7<sup>th</sup>, 2015, with Glenn Smith and others within the U.S. Fish and Wildlife Service about:

- Our proposed methodology for documenting existing conditions and analyzing effects of the Tier 1 EIS Alternatives on ecological resources, which includes documentation of essential fish habitats, ecologically sensitive habitats, and federally listed threatened and endangered species within the NEC FUTURE Study Area. We provided a summary of our proposed impact assessment methodology.
- The applicability of consultation requirements under Section 7 of the Endangered Species Act (ESA) and how they relate to programmatic actions such as ours; specifically, we were interested in what would be required for as part of the Tier 1 NEPA process.

As mentioned during the January 7<sup>th</sup> discussion with USFWS, the Tier 1 NEPA analysis for NEC FUTURE analyzes various programmatic alternatives that outline a different vision for the role that



rail may play in the Northeast over the coming decades; each alternative is comprised of a number of smaller-scale investments that will be implemented individually as Tier 2 projects. The implementation of Tier 2 projects is accompanied by its own environmental compliance process and may be led by agencies other than FRA. Thus, the examination of environmental effects in the Tier 1 EIS is at a broad scale and based on conceptual and representative information only; the goal of the ecological effects assessment is primarily to identify ecological resources to be considered more thoroughly during the Tier 2 planning processes. With this letter, we have attached a copy of the slide presentation to USFWS, which expands further on the Tier 1 EIS level of detail and environmental approach.

Our discussion with Glenn and his colleagues was informative. Based on that discussion, we understand the following:

- During the Tier 1 NEPA process, the USFWS will provide technical assistance with regard to the analysis of threatened and endangered species. This technical assistance will include confirming the accuracy of data sources, confirming the list of special status species and habitats that we identify as occurring within our project area, and concurring, as appropriate, on findings regarding whether identified species/habitats are “Species/Area(s) of concern” or “Species/Area(s) that need no further evaluation” as described in the NEC FUTURE Ecological Resources Impact Assessment Methodology (attached).
- The NEC FUTURE team will await feedback from USFWS for no less than 30-days before finalizing any documents that have been submitted to USFWS for review.
- Communication to USFWS will be directed to you (for all official correspondence) and Glenn Smith (for routine technical correspondence).

Our discussion on January 7th also addressed the appropriate timing of Section 7 consultation under the ESA. We proposed that Section 7 consultation (including any Biological Assessments and Biological Opinions) occur as part of the Tier 2 studies for individual projects, rather than in Tier 1. We understand that this issue remains under consideration within USFWS. We look forward to receiving further guidance from USFWS on the appropriate timing of Section 7 compliance.

FRA appreciates the technical assistance that USFWS has provided and looks forward to working with your agency regarding the NEC FUTURE program. If you have any questions, please contact me ([rebecca.reyesalicea@dot.gov](mailto:rebecca.reyesalicea@dot.gov); 202-281-0194) or Amishi Castelli, the NEC FUTURE Environmental Lead ([Amishi.Castelli@dot.gov](mailto:Amishi.Castelli@dot.gov); 617-494-2822).

Sincerely,



Rebecca Reyes-Alicea  
NEC FUTURE Program Manager

Cc: Glenn Smith, Regional Coordinator, Northeast Region, Endangered Species Program, USFWS  
Amishi Castelli, U.S. DOT Volpe Center, FRA NEC FUTURE Environmental Lead



U.S. Department  
of Transportation

Federal Railroad  
Administration



1200 New Jersey Avenue, SE.  
Washington, D.C. 20590

March 25, 2016

Mr. Martin Miller  
Chief, Division of Endangered Species  
Regional Endangered Species Program  
U.S. Fish and Wildlife Service  
Northeast Region Ecological Services  
300 Westgate Center Drive  
Hadley, Massachusetts 01035

Mr. Mark Murray-Brown  
NOAA Fisheries, Section 7 Coordinator  
Greater Atlantic Regional Fisheries Office  
Protected Resources Division  
55 Great Republic Drive  
Gloucester, MA 01930

RE: Federal Railroad Administration (FRA) Northeast Corridor (NEC) FUTURE program,  
ecological resources impact assessment and coordination related to Section 7 of the  
Endangered Species Act

Dear Mr. Miller and Mr. Murray-Brown:

As per our previous communications, FRA is developing a rail investment program for the NEC, the rail spine that runs from Washington, D.C. to Boston. Known as the NEC FUTURE program, this initiative includes the development of two products: (1) a Tier 1 Environmental Impact Statement (EIS) that will present the results of a broad environmental analysis of investment program alternatives, and (2) a Service Development Plan (SDP) that will outline how future passenger rail service is to be provided on the NEC.

As part of the development of the Tier 1 EIS, we have engaged with staff within the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) under the leadership of Glenn Smith and William Barnhill, respectively. For the Tier 1 Draft EIS, FRA consulted with FWS and NMFS in developing and applying the ecological effects assessment methodology to identify, at a programmatic level, potential effects to ecological resources. FWS and NMFS provided technical assistance in identifying protected species within the affected environment of the project alternatives. We have also coordinated with FWS and NMFS in determining how to comply with

Section 7 of the Endangered Species Act (Section 7) in a manner appropriate for the broad programmatic analysis FRA has performed as part of the NEC FUTURE Tier 1 NEPA process.

We recently hosted a webinar on March 15, 2016, with Glenn Smith, William Barnhill and others within the FWS and NMFS. During the webinar:

- FRA gave an overview of the comments received from FWS and NMFS, other agencies, and the public during the public comment period for the NEC FUTURE Tier 1 Draft EIS on ecological resources;
- FRA presented the deliberative preferred alternative;
- FRA discussed with FWS and NMFS the applicability of consultation requirements under Section 7 and how they relate to programmatic actions such as NEC FUTURE.

As mentioned during earlier discussions with FWS and NMFS, in the NEC FUTURE Tier 1 EIS, FRA's examination of environmental effects is at a broad scale and based on conceptual and representative information only. In the Tier 1 Draft EIS, FRA analyzed various programmatic alternatives that outline a different vision for the role that rail may play in the Northeast over the coming decades; each alternative is comprised of a number of smaller-scale investments that will be implemented individually as Tier 2 projects. The implementation of a Tier 2 project is accompanied by its own environmental compliance process and may be led by agencies other than FRA. Thus, the goal of the ecological effects assessment in the Tier 1 Draft EIS is to assist decision makers in selecting a preferred alternative, and in the Final EIS, to identify ecological resources to be considered more thoroughly during the Tier 2 planning processes.

As we discussed during our March 15 webinar, because of the programmatic level of detail and broad geographic scope of the analysis, FRA will implement the following approach to the ecological resource analysis and Section 7 process:

- As FRA finalizes the preferred alternative, FRA will narrow the list of protected species identified as potentially affected by the Tier 1 Draft EIS alternatives, to focus in on those species affected by the preferred alternative; FRA will continue to base information on the continuing technical assistance from FWS and NMFS.
- In the Tier 1 Final EIS, FRA will identify ecological resources that may be affected by the implementation of the preferred alternative. FRA will explain that complete identification of specific resources potentially impacted by implementation of the preferred alternative and examination of effects on those resources will occur on a project-by-project basis as part of the Tier 2 NEPA process. FRA will also identify, within the Tier 1 Final EIS, the types of mitigation that a future Tier 2 project proponent can adopt to prevent an adverse effect on protected species.
- In the Tier 1 Final EIS, FRA will present a framework for coordination with FWS and NMFS as part of the Section 7 compliance process at Tier 2. As part of that framework, FRA will identify the need for Tier 2 project proponents to comply with Section 7 and other federal requirements, including the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act.
- In the Tier 1 Final EIS, FRA will document the informal consultation FRA has conducted as part of NEC FUTURE with FWS and NMFS.

- FRA will not prepare a biological assessment as part of the Tier 1 NEPA process, nor will it request an incidental take statement or non-jeopardy determination from FWS and NMFS.

We look forward to your reply and request that in it you confirm that the approach outlined above is appropriate for the NEC FUTURE Tier 1 EIS and consistent with your understanding of the Tier 1 NEPA process for NEC FUTURE.

We appreciate the time you have taken to consult with us on NEC FUTURE and the technical assistance you have provided throughout this project. If you have any questions, please contact me ([rebecca.reyesalicea@dot.gov](mailto:rebecca.reyesalicea@dot.gov); 202-281-0194) or Amishi Castelli, the NEC FUTURE Environmental Lead ([amishi.castelli@dot.gov](mailto:amishi.castelli@dot.gov); 617-494-2822).

Sincerely,



Rebecca Reyes-Alicea  
NEC FUTURE Program Manager

Cc: Glenn Smith, Regional Coordinator, Northeast Region, Endangered Species Program, USFWS  
William Barnhill, Fishery Biologist-Section 7, NOAA Fisheries  
Amishi Castelli, U.S. DOT Volpe Center, FRA NEC FUTURE Environmental Lead



# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

300 Westgate Center Drive  
Hadley, MA 01035-9589

**AUG 11 2016**

In Reply Refer To:  
FWS/ Region 5/ES-TE

Rebecca Reyes-Alicea  
NEC FUTURE Program Manager  
USDOT – Federal Railroad Administration  
One Bowling Green, Suite 429  
New York, New York 10004

Dear Ms. Reyes-Alicea:

This letter responds to your March 25, 2016, letter regarding the Federal Railroad Administration's (FRA) Northeast Corridor (NEC) FUTURE program. Over the past year, the Fish and Wildlife Service (Service) has provided species information and technical assistance to assist FRA decision-makers in selecting a preferred alternative in your Tier 1, National Environmental Policy Act (NEPA) Environmental Impact Statement (EIS). Throughout this time period, we have discussed at what stage it would be appropriate and meaningful to engage in the consultation process pursuant to Section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). In your letter, you requested the Service confirm that the FRA's approach to section 7 consultation, summarized in your letter and discussed over the past several months, is appropriate.

It is the Service's understanding that the selected alternative will identify an investment program which will generally identify markets to be served and targeted service levels, but does not identify, authorize, fund, or carry out any specific alignments or service plans. Any and all such specific plans and alignments will be subsequently designed, developed, and implemented by a number of other agencies in addition to FRA (depending on scope, funding, and timing of project.) Based on the process outlined in your letter and through numerous communications over the last several months, the Service has gained a better understanding of what would comprise the Tier 1 selected alternative and has no basis to disagree with FRA's approach for consultation on Tier 2 projects.

The Service will continue to provide technical assistance to the FRA on the next stages of the NEC FUTURE program, any associated NEPA processes, and will participate in any informal or formal Section 7 consultations required at Tier 2. Please continue coordinating with Mr. Glenn Smith and the Regional Field Office contacts as Tier 2 projects are developed.

Sincerely,

A handwritten signature in blue ink, appearing to read "Martin Miller". The signature is fluid and cursive, with the first name "Martin" being more prominent than the last name "Miller".

**ACTING**

Martin Miller  
Chief, Division of Endangered Species  
Northeast Region



U.S. Department  
of Transportation

Federal Railroad  
Administration



1200 New Jersey Avenue, SE.  
Washington, D.C. 20590

January 13, 2015

Mr. Martin Miller  
Chief of Endangered Species Northeast Region  
U.S. Fish and Wildlife Service  
Northeast Region Ecological Services  
300 Westgate Center Drive  
Hadley, Massachusetts 01035

RE: NEC FUTURE Program Tier 1 EIS - Ecological Resources Effects Assessment  
Coordination Relative to Section 7 of the Endangered Species Act

Dear Mr. Miller:

The Federal Railroad Administration (FRA) is submitting for your review a list of Threatened and Endangered species, critical habitats, and Essential Fish Habitat/species located within the NEC FUTURE Study Area. This information is being provided per our conversation with representatives from the northeast regional and field offices of the United States Fish and Wildlife Service (USFWS) on January 7, 2015. That discussion focused on ecological resources assessment and Section 7 compliance requirements in support of the NEC FUTURE Tier 1 EIS documentation.

The NEC FUTURE Tier 1 EIS Action Alternatives are identified on Figure 1. Figures 2 and 3 provide a closer view of the Tier 1 EIS Action Alternatives. Figure 2 focuses on the representative alignments that run from Washington, D.C., to New York (south end) and Figure 3 focuses on New York to Boston. It should be noted that various routing options are being considered in the Tier 1 EIS for the area between New York and Boston. These options, referred to as the "North End Route Options," provide different scenarios to reach markets that are either underserved or not currently served by rail. The North End Route Options are identified on Figures 1 and 3.

Given the expansiveness of the NEC FUTURE program Study Area, the FRA has focused on a 3,000-foot swath centered on the Representative Route for each of the Tier 1 EIS Action Alternatives in which they will identify potential impacts on special-status species and habitats of concern. This 3,000 foot swath is referred to as the Affected Environment.

In order to establish the existing conditions for ecological resources, the FRA has gathered readily available information (species lists, maps, etc.) to identify federally-listed Threatened and Endangered species and critical habitats, ecologically sensitive habitats, and Essential Fish Habitats located within the Affected Environments of the NEC FUTURE program's Tier 1 EIS Action Alternatives. This information is provided in the attached lists (Tables 1 and 2). Please note that as the North End Route Options are



currently undergoing preliminary evaluations and therefore are not finalized, information on resources within the Affected Environment around these options is NOT included in Tables 1 and 2.

FRA requests your review of the attached species lists and maps. For ease of your review, the information is presented by Tier 1 EIS Action Alternative and then organized by state/county (from D.C. to Massachusetts). We are specifically interested in feedback with regard to the following:

(1) Confirmation that the list of federally-listed Threatened and Endangered species and critical habitats, ecologically sensitive habitats, and Essential Fish Habitats is consistent with your agency's information.

(2) Identification of other species, critical habitats, or areas of concern in relation to Tier 1 EIS Action Alternatives and North End Route Options as shown on the enclosed maps (Figures 1 to 3).

(3) Notification if there is a particular issue/concern based on the information provided.

If you have any questions or concern, please do not hesitate to contact me or Amishi Castelli (the FRA Environmental Lead for the project) at [Amishi.Castelli@dot.gov](mailto:Amishi.Castelli@dot.gov) or 617-494-2822. Thank you again for your continued participation in the NEC FUTURE program.

Sincerely,

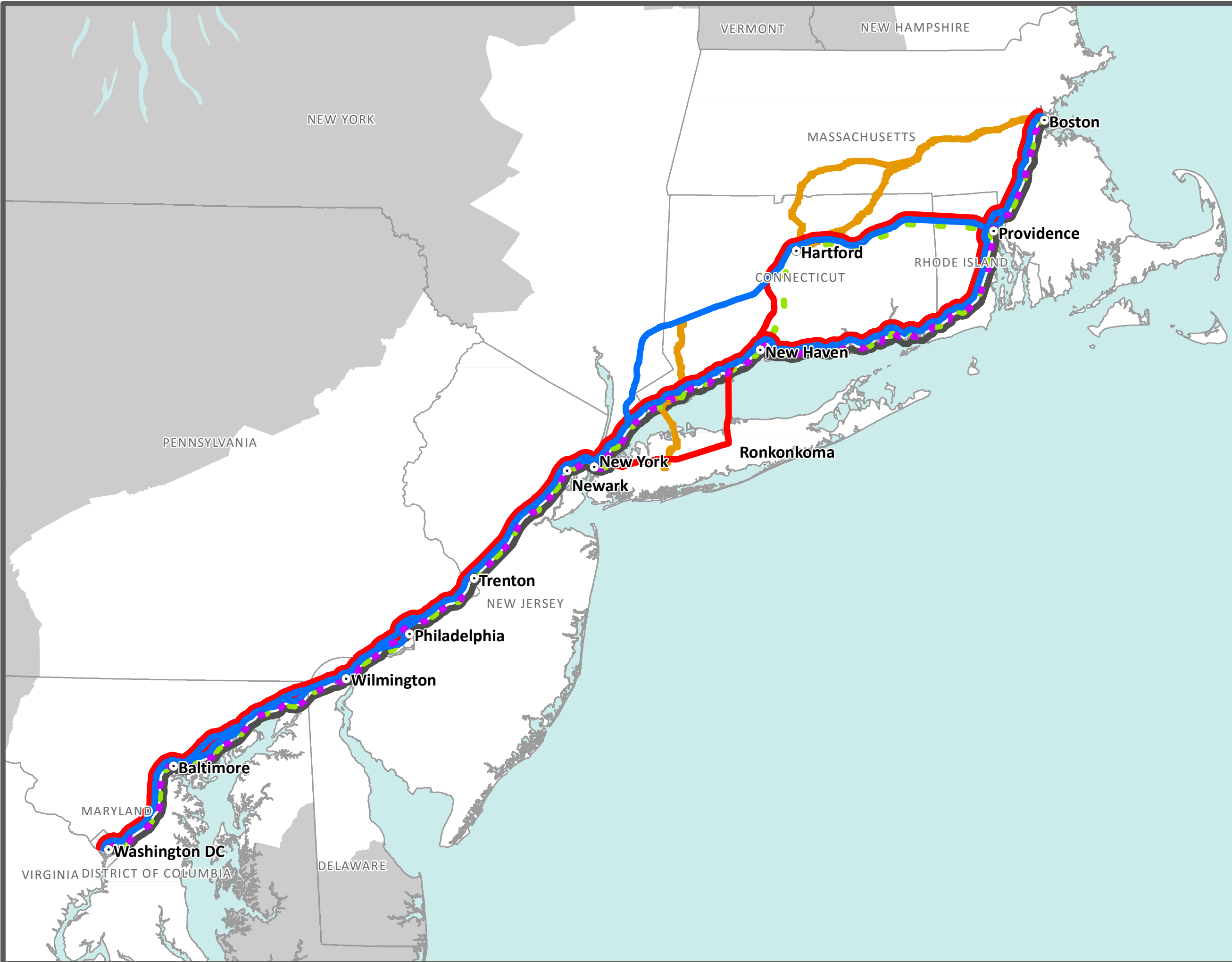


Rebecca Reyes-Alicea  
NEC FUTURE Program Manager  
USDOT – Federal Railroad Administration  
One Bowling Green, Suite 429  
New York, NY 10004  
202-281-0194  
[Rebecca.ReyesAlicea@dot.gov](mailto:Rebecca.ReyesAlicea@dot.gov)

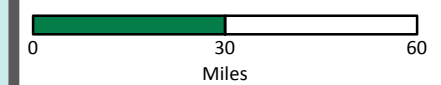
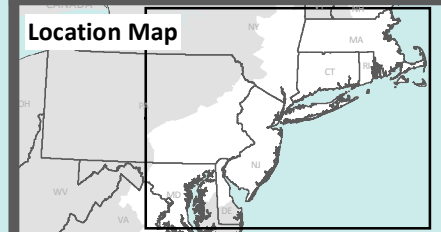
CC: Glenn Smith, Regional Coordinator, Northeast Region, Endangered Species Program, USFWS  
Amishi Castelli, U.S. DOT Volpe Center, FRA NEC FUTURE Environmental Lead

Attachments: Figure 1: Study Area  
Figure 2: South End  
Figure 3: North End  
Table 1: Threatened & Endangered Species List  
Table 2: Essential Fish Habitat/Species List

**FIGURE 1**  
NEC FUTURE STUDY AREA



- Alternative 1
- Alternative 2
- Alternative 3.1
- Alternative 3.2
- North End Route Options
- Existing NEC
- State Boundary
- NEC FUTURE Study Area

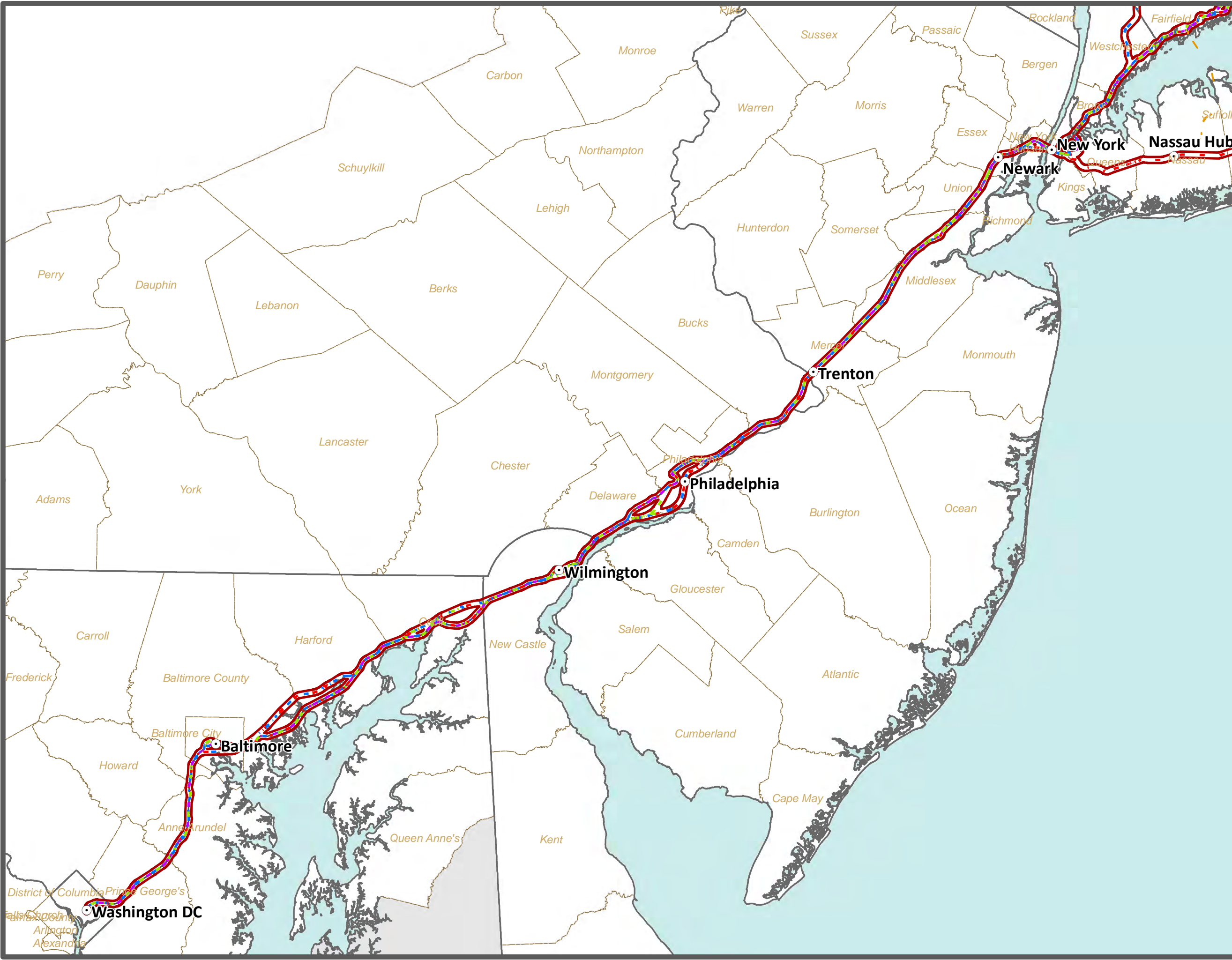


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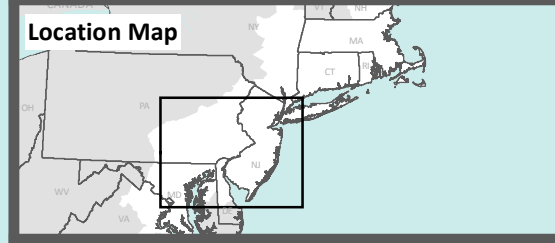
Source of Data: NEC FUTURE

Notes: Conceptual routes of Tier 1 EIS Alternatives shown.

**FIGURE 2**  
**SOUTH END AFFECTED ENVIRONMENT**



- - - Alternative 1
- - - Alternative 2
- - - Alternative 3.1
- - - Alternative 3.2
- - - North End Route Options
- Existing NEC
- State Boundary
- Affected Environment
- County Boundary



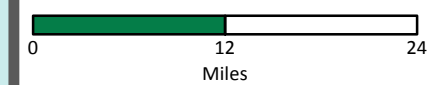
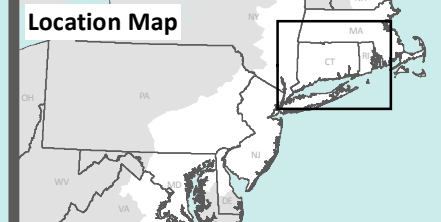
**DRAFT - FOR INTERNAL USE ONLY**

Source of Data: NEC FUTURE  
Notes: Conceptual routes of Tier 1 EIS Alternatives and their 1-mile Preliminary APE shown.



**FIGURE 3**  
**NORTH END AFFECTED ENVIRONMENT**

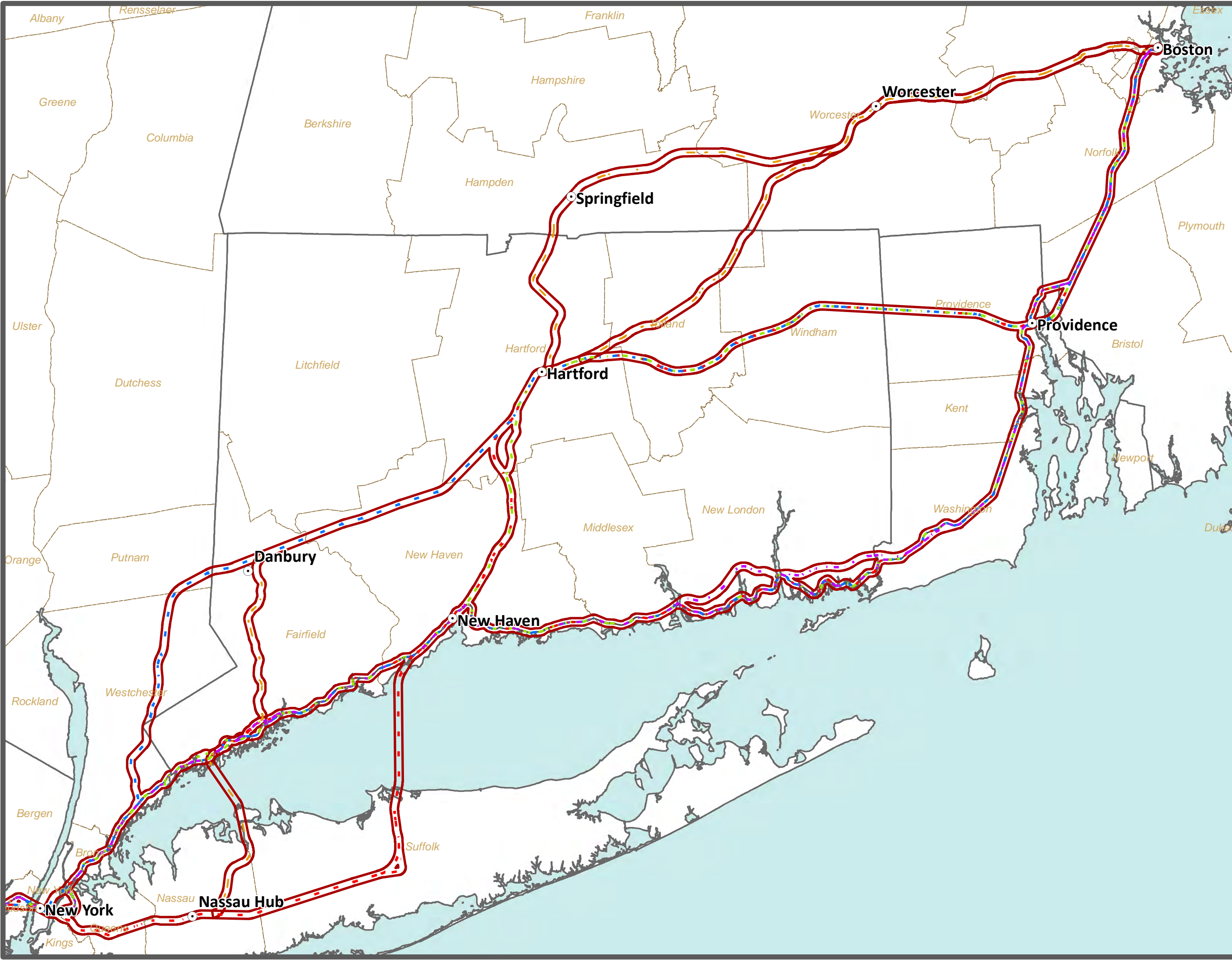
- Alternative 1
- Alternative 2
- Alternative 3.1
- Alternative 3.2
- North End Route Options
- Existing NEC
- State Boundary
- Affected Environment
- County Boundary



**DRAFT - FOR INTERNAL USE ONLY**

Source of Data: NEC FUTURE

Notes: Conceptual routes of Tier 1 EIS Alternatives and their 1-mile Preliminary APE shown.



NEC FUTURE

Alternative 1: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
DC	District of Columbia					
Maryland	Prince George's County					
	Anne Arundel	Swamp Pink	Helonius bullata	Plant	T	No
	Howard					
	Baltimore	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
	Baltimore City					
	Harford	Maryland Darter	Etheostoma sellare	Fish	E	Yes. Gasheys Run. Critical Habitat intersects with AE approximately 3,888 linear feet
		Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
	Cecil	Swamp Pink	Helonius bullata	Plant	T	No
		Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
Delaware	New Castle	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
Pennsylvania	Delaware	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
	Philadelphia	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Bucks	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
New Jersey	Salem					
	Gloucester					
	Camden					
	Burlington					
	Mercer	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Swamp Pink	Helonius bullata	Plant	T	No
	Middlesex	Swamp Pink	Helonius bullata	Plant	T	No
	Somerset	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
	Union	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
	Essex					
	Hudson	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
New York	New York	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Queens	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Seabeach Amaranth	Amaranthus pumilus	Plant	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Kings					
	Bronx	Piping Plover	Charadrius melodus	Bird	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Westchester	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No

Alternative 1: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
	Nassau					
	Suffolk					
	Putnam					
Connecticut	Litchfield					
	Fairfield	Bog Turtle	<i>Clemmys muhlenbergii</i>	Reptile	T	No
		Piping Plover	<i>Charadrius melodus</i>	Bird	T	No
		Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No
		Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	Fish	E	No
		Atlantic Sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	Fish	E	No

Alternative 1: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
		Humpback Whale	Megaptera novaeangliae	Mammal	E	No
		Fin Whale	Balaenoptera musculus	Mammal	E	No
		Right Whale	Eubalaena glacialis	Mammal	E	No
	New Haven	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
		Humpback Whale	Megaptera novaeangliae	Mammal	E	No
		Fin Whale	Balaenoptera musculus	Mammal	E	No
		Right Whale	Eubalaena glacialis	Mammal	E	No
	Middlesex	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Puritan Tiger Beetle	Cicindela puritana	Insect	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
	New London	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Small-whorled Pogonia	Isotria medeoloides	Plant	T	No
		Sandplain Gerardia	Agalinis acuta	Plant	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
	Harford					
	Tolland					
	Windham					
Rhode Island	Washington	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Sandplain Gerardia	Agalinis acuta	Plant	E	No
	Kent	Sandplain Gerardia	Agalinis acuta	Plant	E	No
	Providence	Sandplain Gerardia	Agalinis acuta	Plant	E	No
		Small-whorled Pogonia	Isotria medeoloides	Plant	T	No
Massachusetts	Worcester					No
	Middlesex					No
	Bristol	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Plymouth Red-Bellied Cooter	Pseudemys rubriventris bangsi	Reptile	E	No
	Norfolk					
	Suffolk	Piping Plover	Charadrius melodus	Bird	T	No

Alternative 1: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
		Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No
		Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	Fish	E	No
		Atlantic Sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	Fish	E	No
Additional species under consideration: The Rufus Red Knot, Northern long-eared bat, New England Cottontail, and Monarch butterfly are four species identified for continued monitoring of their ESA status and occurrence within the project area. The Red Knot has completed a final determination assessment and is listed as of January 2015. This species will be investigated for occurrence within the project area.						



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Alternative 2: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
DC	District of Columbia					
Maryland	Prince George's County					
	Anne Arundel	Swamp Pink	Helonius bullata	Plant	T	No
	Howard					
	Baltimore	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
	Baltimore City					
	Harford	Maryland Darter	Etheostoma sellare	Fish	E	Yes. Gasheys Run. Critical Habitat intersects with AE approximately 3,888 linear feet
		Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
	Cecil	Swamp Pink	Helonius bullata	Plant	T	No
		Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
Delaware	New Castle	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
Pennsylvania	Delaware	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Philadelphia	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Bucks	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
New Jersey	Salem					
	Gloucester					
	Camden					
	Burlington					
	Mercer	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Swamp Pink	Helonius bullata	Plant	T	No
	Middlesex	Swamp Pink	Helonius bullata	Plant	T	No
	Somerset	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
	Union	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
	Essex					
	Hudson	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
New York	New York	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Queens	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Seabeach Amaranth	Amaranthus pumilus	Plant	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Kings	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Seabeach Amaranth	Amaranthus pumilus	Plant	T	No

NEC FUTURE

Alternative 2: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Bronx	Piping Plover	Charadrius melodus	Bird	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Westchester	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
	Nassau					
	Suffolk					
	Putnam					
Connecticut	Litchfield					
	Fairfield	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
		Humpback Whale	Megaptera novaeangliae	Mammal	E	No
		Fin Whale	Balaenoptera musculus	Mammal	E	No
		Right Whale	Eubalaena glacialis	Mammal	E	No
	New Haven	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
		Humpback Whale	Megaptera novaeangliae	Mammal	E	No
		Fin Whale	Balaenoptera musculus	Mammal	E	No
		Right Whale	Eubalaena glacialis	Mammal	E	No
	Middlesex	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Puritan Tiger Beetle	Cicindela puritana	Insect	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
	New London	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Small-whorled Pogonia	Isotria medeoloides	Plant	T	No
		Sandplain Gerardia	Agalinis acuta	Plant	E	No

Alternative 2: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
	Harford					
	Tolland					
	Windham	Small-whorled Pogonia	Isotria medeoloides	Plant	T	No
Rhode Island	Washington	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Sandplain Gerardia	Agalinis acuta	Plant	E	No
	Kent	Sandplain Gerardia	Agalinis acuta	Plant	E	No
	Providence	Sandplain Gerardia	Agalinis acuta	Plant	E	No
		Small-whorled Pogonia	Isotria medeoloides	Plant	T	No
Massachusetts	Worcester					
	Middlesex					
	Bristol	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Plymouth Red-Bellied Cooter	Pseudemys rubriventris bangsi	Reptile	E	No
	Norfolk					
	Suffolk	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Additional species under consideration: The Rufus Red Knot, Northern long-eared bat, New England Cottontail, and Monarch butterfly are four species identified for continued monitoring of their ESA status and occurrence within the project area. The Red Knot has completed a final determination assessment and is listed as of January 2015. This species will be investigated for occurrence within the project area.					

NEC FUTURE

Alternative 3.1: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
DC	District of Columbia					
Maryland	Prince George's County					
	Anne Arundel	Swamp Pink	Helonius bullata	Plant	T	No
	Howard					
	Baltimore	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
	Baltimore City					
	Harford	Maryland Darter	Etheostoma sellare	Fish	E	Yes. Gasheys Run. Critical Habitat intersects with AE approximately 3,888 linear feet
		Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
	Cecil	Swamp Pink	Helonius bullata	Plant	T	No
		Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
Delaware	New Castle	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
Pennsylvania	Delaware	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Philadelphia	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Bucks	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
New Jersey	Salem					
	Gloucester					
	Camden					
	Burlington					
	Mercer	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Swamp Pink	Helonius bullata	Plant	T	No
	Middlesex	Swamp Pink	Helonius bullata	Plant	T	No
	Somerset	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
	Union	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
	Essex					
	Hudson	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
New York	New York	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Queens	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Seabeach Amaranth	Amaranthus pumilus	Plant	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Kings	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Seabeach Amaranth	Amaranthus pumilus	Plant	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No

Alternative 3.1: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Bronx	Piping Plover	Charadrius melodus	Bird	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Westchester	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
	Nassau					
	Suffolk					
	Putnam	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
Connecticut	Litchfield					
	Fairfield	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
		Humpback Whale	Megaptera novaeangliae	Mammal	E	No
		Fin Whale	Balaenoptera musculus	Mammal	E	No
		Right Whale	Eubalaena glacialis	Mammal	E	No
	New Haven	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
		Humpback Whale	Megaptera novaeangliae	Mammal	E	No
		Fin Whale	Balaenoptera musculus	Mammal	E	No
		Right Whale	Eubalaena glacialis	Mammal	E	No
	Middlesex	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Puritan Tiger Beetle	Cicindela puritana	Insect	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
	New London	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Small-whorled Pogonia	Isotria medeoloides	Plant	T	No
		Sandplain Gerardia	Agalinis acuta	Plant	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No

Alternative 3.1: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
		Hawksbill Sea Turtle	<i>Eretmochelys imbricata</i>	Reptile	E	No
		Kemp's Ridley Sea Turtle	<i>Lepidochelys kempii</i>	Reptile	E	No
		Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	Reptile	E	No
		Loggerhead Sea Turtle	<i>Caretta caretta</i>	Reptile	T	No
		Green Sea Turtle	<i>Chelonia mydas</i>	Reptile	T	No
	Harford	Dwarf Wedgemussel	<i>Alasmidonta heterodon</i>	Mussel (freshwater)	E	No
	Tolland					
	Windham	Small-whorled Pogonia	<i>Isotria medeoloides</i>	Plant	T	No
Rhode Island	Washington	Piping Plover	<i>Charadrius melodus</i>	Bird	T	No
		Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No
		Sandplain Gerardia	<i>Agalinis acuta</i>	Plant	E	No
	Kent	Sandplain Gerardia	<i>Agalinis acuta</i>	Plant	E	No
	Providence	Sandplain Gerardia	<i>Agalinis acuta</i>	Plant	E	No
		Small-whorled Pogonia	<i>Isotria medeoloides</i>	Plant	T	No
Massachusetts	Worcester					
	Middlesex					
	Bristol	Piping Plover	<i>Charadrius melodus</i>	Bird	T	No
		Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No
		Plymouth Red-Bellied Cooter	<i>Pseudemys rubriventris bangsi</i>	Reptile	E	No
	Norfolk					
	Suffolk	Piping Plover	<i>Charadrius melodus</i>	Bird	T	No
		Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No
		Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	Fish	E	No
		Atlantic Sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	Fish	E	No
		Additional species under consideration: The Rufus Red Knot, Northern long-eared bat, New England Cottontail, and Monarch butterfly are four species identified for continued monitoring of their ESA status and occurrence within the project area. The Red Knot has completed a final determination assessment and is listed as of January 2015. This species will be investigated for occurrence within the project area.				

NEC FUTURE

Alternative 3.2: Geography		Alternative Resource Information				Critical Habitat	
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE	
DC	District of Columbia						
Maryland	Prince George's County						
	Anne Arundel	Swamp Pink	Helonius bullata	Plant	T	No	
	Howard						
	Baltimore	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
	Baltimore City						
	Harford	Maryland Darter	Etheostoma sellare	Fish	E	Yes. Gasheys Run. Critical Habitat intersects with AE approximately 3,888 linear feet	
		Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
	Cecil	Swamp Pink	Helonius bullata	Plant	T	No	
		Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
Delaware	New Castle	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No	
Pennsylvania	Delaware	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
		Indiana Bat	Myotis sodalis	Mammal	E	No	
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
			Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Philadelphia	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No	
		Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
	Bucks	Indiana Bat	Myotis sodalis	Mammal	E	No	
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No	
New Jersey	Salem						
		Gloucester					
	Camden	Bog Turtle	Clemmys muhlenbergii	Reptile	T		
	Mercer	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
		Indiana Bat	Myotis sodalis	Mammal	E	No	
			Swamp Pink	Helonius bullata	Plant	T	No
	Middlesex	Swamp Pink	Helonius bullata	Plant	T	No	
	Somerset	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
	Union	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
		Indiana Bat	Myotis sodalis	Mammal	E	No	
	Essex						
	Hudson	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No	
	New York	New York	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
			Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
Queens		Piping Plover	Charadrius melodus	Bird	T	No	
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No	
		Seabeach Amaranth	Amaranthus pumilus	Plant	T	No	
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No	
Kings		Piping Plover	Charadrius melodus	Bird	T	No	
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No	
		Seabeach Amaranth	Amaranthus pumilus	Plant	T	No	
	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No		
	Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No		
Bronx	Piping Plover	Charadrius melodus	Bird	T	No		
	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No		
	Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No		

Alternative 3.2: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
	Westchester	Bog Turtle	<i>Clemmys muhlenbergii</i>	Reptile	T	No
		Indiana Bat	<i>Myotis sodalis</i>	Mammal	E	No
		Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	Fish	E	No
	Nassau	Piping Plover	<i>Charadrius melodus</i>	Bird	T	No
		Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No
		Seabeach Amaranth	<i>Amaranthus pumilus</i>	Plant	T	No
		Sandplain Gerardia	<i>Agalinis acuta</i>	Plant	E	No
	Suffolk	Piping Plover	<i>Charadrius melodus</i>	Bird	T	No
		Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No
		Seabeach Amaranth	<i>Amaranthus pumilus</i>	Plant	T	No
		Sandplain Gerardia	<i>Agalinis acuta</i>	Plant	E	No
		Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	Fish	E	No
		Atlantic Sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	Fish	E	No
		Hawksbill Sea Turtle	<i>Eretmochelys imbricata</i>	Reptile	E	No
		Kemp's Ridley Sea Turtle	<i>Lepidochelys kempii</i>	Reptile	E	No
		Leatherback Sea Turtle	<i>Dermodochelys coriacea</i>	Reptile	E	No
		Loggerhead Sea Turtle	<i>Caretta caretta</i>	Reptile	T	No
		Green Sea Turtle	<i>Chelonia mydas</i>	Reptile	T	No
		Humpback Whale	<i>Megaptera novaeangliae</i>	Mammal	E	No
		Fin Whale	<i>Balaenoptera musculus</i>	Mammal	E	No
		Right Whale	<i>Eubalaena glacialis</i>	Mammal	E	No
	Putnam					
Connecticut	Litchfield					
	Fairfield	Bog Turtle	<i>Clemmys muhlenbergii</i>	Reptile	T	No
		Piping Plover	<i>Charadrius melodus</i>	Bird	T	No
		Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No
		Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	Fish	E	No
		Atlantic Sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	Fish	E	No
		Hawksbill Sea Turtle	<i>Eretmochelys imbricata</i>	Reptile	E	No
		Kemp's Ridley Sea Turtle	<i>Lepidochelys kempii</i>	Reptile	E	No
		Leatherback Sea Turtle	<i>Dermodochelys coriacea</i>	Reptile	E	No
		Loggerhead Sea Turtle	<i>Caretta caretta</i>	Reptile	T	No
		Green Sea Turtle	<i>Chelonia mydas</i>	Reptile	T	No
		Humpback Whale	<i>Megaptera novaeangliae</i>	Mammal	E	No
		Fin Whale	<i>Balaenoptera musculus</i>	Mammal	E	No
		Right Whale	<i>Eubalaena glacialis</i>	Mammal	E	No
	New Haven	Piping Plover	<i>Charadrius melodus</i>	Bird	T	No
		Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No
		Indiana Bat	<i>Myotis sodalis</i>	Mammal	E	No
		Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	Fish	E	No
		Atlantic Sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	Fish	E	No
		Hawksbill Sea Turtle	<i>Eretmochelys imbricata</i>	Reptile	E	No
		Kemp's Ridley Sea Turtle	<i>Lepidochelys kempii</i>	Reptile	E	No
		Leatherback Sea Turtle	<i>Dermodochelys coriacea</i>	Reptile	E	No
		Loggerhead Sea Turtle	<i>Caretta caretta</i>	Reptile	T	No
		Green Sea Turtle	<i>Chelonia mydas</i>	Reptile	T	No
		Humpback Whale	<i>Megaptera novaeangliae</i>	Mammal	E	No
		Fin Whale	<i>Balaenoptera musculus</i>	Mammal	E	No
		Right Whale	<i>Eubalaena glacialis</i>	Mammal	E	No
	Middlesex	Piping Plover	<i>Charadrius melodus</i>	Bird	T	No
		Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No
		Puritan Tiger Beetle	<i>Cicindela puritana</i>	Insect	T	No
		Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	Fish	E	No
		Atlantic Sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	Fish	E	No
		Hawksbill Sea Turtle	<i>Eretmochelys imbricata</i>	Reptile	E	No
		Kemp's Ridley Sea Turtle	<i>Lepidochelys kempii</i>	Reptile	E	No



Alternative 3.2: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
		Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	Reptile	E	No
		Loggerhead Sea Turtle	<i>Caretta caretta</i>	Reptile	T	No
		Green Sea Turtle	<i>Chelonia mydas</i>	Reptile	T	No
	New London	Piping Plover	<i>Charadrius melodus</i>	Bird	T	No
		Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No
		Small-whorled Pogonia	<i>Isotria medeoloides</i>	Plant	T	No
		Sandplain Gerardia	<i>Agalinis acuta</i>	Plant	E	No
		Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	Fish	E	No
		Atlantic Sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	Fish	E	No
		Hawksbill Sea Turtle	<i>Eretmochelys imbricata</i>	Reptile	E	No
		Kemp's Ridley Sea Turtle	<i>Lepidochelys kempii</i>	Reptile	E	No
		Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	Reptile	E	No
		Loggerhead Sea Turtle	<i>Caretta caretta</i>	Reptile	T	No
		Green Sea Turtle	<i>Chelonia mydas</i>	Reptile	T	No
	Harford	Dwarf Wedgemussel	<i>Alasmidonta heterodon</i>	Mussel (freshwater)	E	No
	Tolland					
	Windham	Small-whorled Pogonia	<i>Isotria medeoloides</i>	Plant	T	No
Rhode Island	Washington	Piping Plover	<i>Charadrius melodus</i>	Bird	T	No
		Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No
		Sandplain Gerardia	<i>Agalinis acuta</i>	Plant	E	No
	Kent	Sandplain Gerardia	<i>Agalinis acuta</i>	Plant	E	No
	Providence	Sandplain Gerardia	<i>Agalinis acuta</i>	Plant	E	No
		Small-whorled Pogonia	<i>Isotria medeoloides</i>	Plant	T	No
Massachusetts	Worcester					
	Middlesex					
	Bristol	Piping Plover	<i>Charadrius melodus</i>	Bird	T	No
		Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No
		Plymouth Red-Bellied Cooter	<i>Pseudemys rubriventris bangsi</i>	Reptile	E	No
	Norfolk					
	Suffolk	Piping Plover	<i>Charadrius melodus</i>	Bird	T	No
		Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No
		Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	Fish	E	No
		Atlantic Sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	Fish	E	No
	Additional species under consideration: The Rufus Red Knot, Northern long-eared bat, New England Cottontail, and Monarch butterfly are four species identified for continued monitoring of their ESA status and occurrence within the project area. The Red Knot has completed a final determination assessment and is listed as of January 2015. This species will be investigated for occurrence within the project area.					

Alternative 1		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
District of	Washington, DC		
Maryland	Prince George's		
	Anne Arundel		
	Howard		
	Baltimore County	Back River	Window Pane Flounder
		Gunpowder River	Bluefish Summer Flounder
	Baltimore City		
	Harford	Bush River	Window Pane Flounder
		Gunpowder River	Bluefish Summer Flounder
Cecil			
Delaware	New Castle	Christina River	Black Sea Bass
			Bluefish
			Scup
			Summer Flounder
Pennsylvania	Delaware		
	Philadelphia		
	Bucks		
New Jersey	Mercer		
	Middlesex	Raritan River	Summer Flounder
	Union		
	Essex	Passaic River	Summer Flounder
	Hudson	Hackensack River	Summer Flounder
		Hudson River	Summer Flounder
Passaic River		Summer Flounder	
New York	New York	East River	Summer Flounder
		Hudson River	Summer Flounder
	Queens	East River	Summer Flounder
	Kings		
	Bronx	Hutchinson River	Atlantic Herring
			Black Sea Bass
			Bluefish
			Little Skate
			Longfin Inshore Squid
			Pollock
Red Hake			
Scup			
Summer Flounder			
Window Pane Flounder			
Winter Flounder			
Winter Skate			
Westchester			
Nassau			
Suffolk			
Putnam			

Alternative 1		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
	Fairfield	CosCob Harbor	Atlantic Herring
			Black Sea Bass
			Bluefish
			Little Skate
			Pollock
			Red Hake
			Scup
			Summer Flounder
			Window Pane Flounder
			Winter Flounder
			Winter Skate
		Housatonic River	Atlantic Butterfish
			Black Sea Bass
			Bluefish
			Scup
			Summer Flounder
		Long Island Sound- Sherwood Millpond	Atlantic Butterfish
			Atlantic Herring
			Longfin Inshore Squid
			Ocean Pout
			Pollock
			Red Hake
			Window Pane Flounder
		Winter Flounder	
		Mill River	Atlantic Butterfish
		Norwalk River	Atlantic Butterfish
			Black Sea Bass
			Bluefish
			Little Skate
			Scup
			Summer Flounder
			Winter Skate
		Pequonnock River	Black Sea Bass
			Bluefish
			Scup
			Summer Flounder
		Saugatuck River	Atlantic Butterfish
			Atlantic Herring
			Black Sea Bass
			Bluefish
			Little Skate
			Longfin Inshore Squid
Ocean Pout			
Pollock			
Red Hake			
Scup			
Summer Flounder			
Window Pane Flounder			
Winter Flounder			

Alternative 1		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
Connecticut	New Haven		Winter Skate
		Branford River	Atlantic Butterfish
		East River	Atlantic Butterfish
		Gulf Pond	Longfin Inshore Squid
		Housatonic River	Atlantic Butterfish
			Black Sea Bass
			Bluefish
			Scup
			Summer Flounder
		Long Island Sound	Atlantic Butterfish
		Quinnipiac River	Atlantic Butterfish
			Black Sea Bass
			Bluefish
			Little Skate
	Scup		
	Summer Flounder		
	West River	Winter Skate	
		Atlantic Butterfish	
		Longfin Inshore Squid	
	Middlesex	Connecticut River	Atlantic Butterfish
			Atlantic Butterfish
			Black Sea Bass
			Black Sea Bass
			Bluefish
			Bluefish
			Longfin Inshore Squid
			Longfin Inshore Squid
			Scup
			Scup
		Summer Flounder	
		Summer Flounder	
		Hammonasset River	Atlantic Butterfish
Menunketesuck River		Atlantic Butterfish	
Connecticut River	Atlantic Butterfish		
	Black Sea Bass		
	Bluefish		
	Longfin Inshore Squid		
	Scup		
	Summer Flounder		
	Duck River	Longfin Inshore Squid	
	Fourmile River	Atlantic Herring	
Black Sea Bass			
Bluefish			
Longfin Inshore Squid			
	Pollock		

Alternative 1		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
	New London	Pauguette River	Red Hake
			Scup
			Summer Flounder
			Window Pane Flounder
			Winter Flounder
		Jordan Cove	Atlantic Butterfish
			Atlantic Herring
			Atlantic Mackerel
			Black Sea Bass
			Bluefish
			Longfin Inshore Squid
			Scup
			Summer Flounder
		Lieutenant River	Atlantic Butterfish
		Long Island Sound- Stonington Harbor	Black Sea Bass
			Bluefish
			Little Skate
			Scup
			Summer Flounder
		Long Island Sound- Wequetequock Cove	Winter Skate
Black Sea Bass			
Bluefish			
Little Skate			
Scup			
Long Island Sound-Palmer Cove	Summer Flounder		
	Winter Skate		
	Atlantic Butterfish		
	Atlantic Herring		
Mumford Cove	Atlantic Mackerel		
	Longfin Inshore Squid		
	Atlantic Butterfish		
	Atlantic Herring		
	Atlantic Mackerel		
	Black Sea Bass		
	Bluefish		
	Little Skate		
	Longfin Inshore Squid		
	Scup		
Summer Flounder			
Mystic Harbor	Winter Skate		
	Atlantic Herring		
	Longfin Inshore Squid		
Niantic River	Longfin Inshore Squid		
Pattagansett River	Atlantic Butterfish		
	Atlantic Herring		
	Longfin Inshore Squid		
	Pollock		
	Red Hake		

Alternative 1		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
		Thames River	Window Pane Flounder
			Winter Flounder
			Black Sea Bass
			Bluefish
			Scup
			Summer Flounder
		Hartford	
Tolland			
Windham			
	Washington		
Rhode Island	Kent	Apponaug Cove	Atlantic Herring
			Haddock
			Longfin Inshore Squid
			Red Hake
			Window Pane Flounder
Providence			
Massachusetts	Bristol		
	Norfolk		
	Suffolk		

Alternative 2		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
District of Columbia	Washington, DC		
Maryland	Prince George's		
	Anne Arundel		
	Howard		
	Baltimore County	Back River	Window Pane Flounder
		Gunpowder River	Bluefish Summer Flounder
	Baltimore City		
	Harford	Bush River	Window Pane Flounder
		Gunpowder River	Bluefish Summer Flounder
	Cecil		
Delaware	New Castle	Christina River	Black Sea Bass
			Bluefish
			Scup
			Summer Flounder
Pennsylvania	Delaware		
	Philadelphia		
	Bucks		
New Jersey	Mercer		
	Middlesex	Raritan River	Summer Flounder
	Union		
	Essex	Passaic River	Summer Flounder
	Hudson	Hackensack River	Summer Flounder
		Hudson River	Summer Flounder
		Passaic River	Summer Flounder
New York	New York	East River	Summer Flounder
		Hudson River	Summer Flounder
	Queens	East River	Summer Flounder
	Kings		
	Bronx	Hutchinson River	Atlantic Herring
			Black Sea Bass
			Bluefish
			Little Skate
			Longfin Inshore Squid
			Pollock
			Red Hake
			Scup
			Summer Flounder
Window Pane Flounder			
Winter Flounder			
Winter Skate			

Alternative 2		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
	Westchester	Byram River	Atlantic Butterfish
	Nassau		
	Suffolk		
	Putnam		
	Fairfield	Byram River	Atlantic Butterfish
		CosCob Harbor	Atlantic Herring
			Black Sea Bass
			Bluefish
			Little Skate
			Pollock
			Red Hake
			Scup
			Summer Flounder
			Window Pane Flounder
			Winter Flounder
		Winter Skate	
		Housatonic River	Atlantic Butterfish
			Black Sea Bass
			Bluefish
			Scup
			Summer Flounder
		Long Island Sound- Sherwood Mill	Atlantic Butterfish
			Atlantic Herring
			Longfin Inshore Squid
			Ocean Pout
			Pollock
			Red Hake
		Window Pane Flounder	
		Winter Flounder	
		Mill River	Atlantic Butterfish
		Norwalk River	Atlantic Butterfish
			Black Sea Bass
Bluefish			
Little Skate			
Scup			
Summer Flounder			
Winter Skate			
Pequonnock River	Black Sea Bass		
	Bluefish		
	Scup		
	Summer Flounder		
Saugatuck River	Atlantic Butterfish		
	Atlantic Herring		
	Black Sea Bass		
	Bluefish		
	Little Skate		
	Longfin Inshore Squid		
Ocean Pout			



Alternative 2		Waterbody Crossed by Alternative		
State	County	Waterbody	Species	
Connecticut		Saugatuck River	Pollock	
			Red Hake	
			Scup	
			Summer Flounder	
			Window Pane Flounder	
			Winter Flounder	
			Winter Skate	
	New Haven	New Haven	Branford River	Atlantic Butterfish
			East River	Atlantic Butterfish
			Gulf Pond	Longfin Inshore Squid
			Housatonic River	Atlantic Butterfish
				Black Sea Bass
				Bluefish
				Scup
			Summer Flounder	
			Long Island Sound	Atlantic Butterfish
			Quinnipiac River	Atlantic Butterfish
	Black Sea Bass			
	Bluefish			
	Little Skate			
	Scup			
	Summer Flounder			
	Winter Skate			
	West River	Atlantic Butterfish		
		Longfin Inshore Squid		
	Middlesex	Middlesex	Connecticut River	Atlantic Butterfish
				Black Sea Bass
Bluefish				
Longfin Inshore Squid				
Scup				
Summer Flounder				
Hammonasset River				Atlantic Butterfish
Menunketesuck River	Atlantic Butterfish			
		Connecticut River	Atlantic Butterfish	
			Black Sea Bass	
			Bluefish	
			Longfin Inshore Squid	
			Scup	
	Summer Flounder			
	Duck River	Longfin Inshore Squid		
	Fourmile River	Fourmile River	Fourmile River	Atlantic Herring
				Black Sea Bass
				Bluefish
Longfin Inshore Squid				
Pollock				
Red Hake				

Alternative 2		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
	New London		Scup
			Summer Flounder
			Window Pane Flounder
			Winter Flounder
		Jordan Cove	Atlantic Butterfish
			Atlantic Herring
			Atlantic Mackerel
			Black Sea Bass
			Bluefish
			Longfin Inshore Squid
			Scup
			Summer Flounder
		Lieutenant River	Atlantic Butterfish
		Long Island Sound- Stonington Har	Black Sea Bass
			Bluefish
			Little Skate
			Scup
			Summer Flounder
			Winter Skate
		Long Island Sound- Wequetequock	Black Sea Bass
			Bluefish
			Little Skate
			Scup
			Summer Flounder
		Long Island Sound-Palmer Cove	Atlantic Butterfish
			Atlantic Herring
			Atlantic Mackerel
			Longfin Inshore Squid
		Mumford Cove	Atlantic Butterfish
			Atlantic Herring
Atlantic Mackerel			
Black Sea Bass			
Bluefish			
Little Skate			
Longfin Inshore Squid			
Scup			
Summer Flounder			
Winter Skate			
Mystic Harbor	Atlantic Herring		
	Longfin Inshore Squid		
Niantic River	Longfin Inshore Squid		
Pattagansett River	Atlantic Butterfish		
	Atlantic Herring		
	Longfin Inshore Squid		
	Pollock		
	Red Hake		
	Window Pane Flounder		
	Winter Flounder		

Alternative 2		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
		Thames River	Black Sea Bass
			Bluefish
			Scup
			Summer Flounder
	Hartford	Connecticut River	Black Sea Bass
			Bluefish
			Scup
Tolland			
Windham			
Rhode Island	Washington		
	Kent	Apponaug Cove	Atlantic Herring
			Haddock
			Longfin Inshore Squid
			Red Hake
			Window Pane Flounder
	Winter Flounder		
Providence	Seekonk River	Black Sea Bass	
		Bluefish	
		Scup	
Massachusetts	Bristol		
	Norfolk		
	Suffolk		

Alternative 3.1		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
District of Columbia	Washington, DC		
Maryland	Prince George's		
	Anne Arundel		
	Howard		
	Baltimore County	Back River	Window Pane Flounder
		Gunpowder River	Bluefish Summer Flounder
	Baltimore City		
	Harford	Bush River	Window Pane Flounder
		Gunpowder River	Bluefish Summer Flounder
Cecil			
Delaware	New Castle	Christina River	Black Sea Bass Bluefish Scup Summer Flounder
Pennsylvania	Delaware		
	Philadelphia		
	Bucks		
New Jersey	Mercer		
	Middlesex	Raritan River	Summer Flounder
	Union		
	Essex	Passaic River	Summer Flounder
	Hudson	Hackensack River	Summer Flounder
		Hudson River	Summer Flounder
		Passaic River	Summer Flounder
New York	New York	East River	Summer Flounder
		Hudson River	Summer Flounder
	Queens	East River	Summer Flounder
	Kings		
	Bronx	Hutchinson River	Atlantic Herring
			Atlantic Herring
			Black Sea Bass
			Bluefish
			Little Skate
			Longfin Inshore Squid
Pollock			
Red Hake			
Scup			
Summer Flounder			
Window Pane Flounder			
Winter Flounder			
Winter Skate			
Westchester			
Nassau			
Suffolk			

Alternative 3.1		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
	Putnam		
	Fairfield	CosCob Harbor	Atlantic Herring
			Black Sea Bass
			Bluefish
			Little Skate
			Pollock
			Red Hake
			Scup
			Summer Flounder
			Window Pane Flounder
			Winter Flounder
			Winter Skate
		Housatonic River	Atlantic Butterfish
			Black Sea Bass
			Bluefish
			Scup
		Long Island Sound- Sherwood Millpond	Summer Flounder
			Atlantic Butterfish
			Atlantic Herring
			Longfin Inshore Squid
			Ocean Pout
			Pollock
		Mill River	Red Hake
			Window Pane Flounder
			Winter Flounder
			Atlantic Butterfish
		Norwalk River	Atlantic Butterfish
			Black Sea Bass
Bluefish			
Little Skate			
Scup			
Summer Flounder			
Pequonnock River	Winter Skate		
	Black Sea Bass		
	Bluefish		
	Scup		
Saugatuck River	Summer Flounder		
	Atlantic Butterfish		
	Atlantic Herring		
	Black Sea Bass		
	Bluefish		
	Little Skate		
	Longfin Inshore Squid		
	Ocean Pout		
	Pollock		
	Red Hake		
	Scup		
	Summer Flounder		
	Window Pane Flounder		
Winter Flounder			
Winter Skate			
		Branford River	Atlantic Butterfish
		East River	Atlantic Butterfish

Alternative 3.1		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
Connecticut	New Haven	East River	Atlantic Butterfish
		Gulf Pond	Longfin Inshore Squid
		Housatonic River	Atlantic Butterfish
			Black Sea Bass
			Bluefish
			Scup
		Summer Flounder	
		Long Island Sound	Atlantic Butterfish
		Quinnipiac River	Atlantic Butterfish
			Black Sea Bass
	Bluefish		
	Little Skate		
	Scup		
	Summer Flounder		
	West River	Winter Skate	
		Atlantic Butterfish	
	Middlesex	Connecticut River	Longfin Inshore Squid
			Atlantic Butterfish
			Black Sea Bass
			Bluefish
			Scup
			Summer Flounder
	Hammonasset River	Atlantic Butterfish	
	Menunketesuck River	Atlantic Butterfish	
	Connecticut River	Atlantic Butterfish	
		Black Sea Bass	
		Bluefish	
		Longfin Inshore Squid	
		Scup	
	Summer Flounder		
	Duck River	Longfin Inshore Squid	
	Fourmile River	Atlantic Herring	
		Black Sea Bass	
		Bluefish	
		Longfin Inshore Squid	
		Pollock	
		Red Hake	
Scup			
Summer Flounder			
Window Pane Flounder			
Winter Flounder			
Jordan Cove	Atlantic Butterfish		
	Atlantic Herring		
	Atlantic Mackerel		
	Black Sea Bass		
	Bluefish		
	Longfin Inshore Squid		
Scup			
Summer Flounder			
Lieutenant River	Atlantic Butterfish		

Alternative 3.1		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
New London	New London	Long Island Sound- Stonington Harbor	Black Sea Bass
			Bluefish
			Little Skate
			Scup
			Summer Flounder
			Winter Skate
		Long Island Sound- Wequetequock Cove	Black Sea Bass
			Bluefish
			Little Skate
			Scup
			Summer Flounder
			Winter Skate
		Long Island Sound-Palmer Cove	Atlantic Butterfish
			Atlantic Herring
			Atlantic Mackerel
			Longfin Inshore Squid
		Mumford Cove	Atlantic Butterfish
			Atlantic Herring
			Atlantic Mackerel
			Black Sea Bass
			Bluefish
			Little Skate
			Longfin Inshore Squid
			Scup
Mystic Harbor	Atlantic Herring		
	Longfin Inshore Squid		
Niantic River	Longfin Inshore Squid		
Pattagansett River	Atlantic Butterfish		
	Atlantic Herring		
	Longfin Inshore Squid		
	Pollock		
	Red Hake		
	Window Pane Flounder		
Thames River	Winter Flounder		
	Black Sea Bass		
	Bluefish		
	Scup		
Connecticut River	Summer Flounder		
	Black Sea Bass		
	Bluefish		
	Scup		
Hartford	Summer Flounder		
	Summer Flounder		
Tolland			
Windham			
Washington			
Rhode Island	Kent	Apponaug Cove	Atlantic Herring
			Haddock
			Longfin Inshore Squid
			Red Hake
			Window Pane Flounder
			Winter Flounder

Alternative 3.1		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
	Providence	Seekonk River	Black Sea Bass
			Bluefish
			Scup
			Summer Flounder
Massachusetts	Bristol		
	Norfolk		
	Suffolk		



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Alternative 3.2		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
District of Columbia	Washington, DC		
Maryland	Prince George's		
	Anne Arundel		
	Howard		
	Baltimore County	Back River	Window Pane Flounder
		Gunpowder River	Bluefish Summer Flounder
	Baltimore City		
	Harford	Bush River	Window Pane Flounder
		Gunpowder River	Bluefish Summer Flounder
Cecil			
Delaware	New Castle	Christina River	Black Sea Bass
			Bluefish
			Scup
			Summer Flounder
Pennsylvania	Delaware		
	Philadelphia		
	Bucks		
New Jersey	Mercer		
	Middlesex	Raritan River	Summer Flounder
	Union		
	Essex	Passaic River	Summer Flounder
	Hudson	Hackensack River	Summer Flounder
		Hudson River	Summer Flounder
		Passaic River	Summer Flounder
New York	New York	East River	Summer Flounder
		Hudson River	Summer Flounder
	Queens	East River	Summer Flounder
	Kings		
	Bronx	Hutchinson River	Atlantic Herring
			Black Sea Bass
			Bluefish
			Little Skate
			Longfin Inshore Squid
			Pollock
			Red Hake
			Scup
			Summer Flounder
			Window Pane Flounder
	Winter Flounder		
Winter Skate			
Westchester			
Nassau			
Suffolk	Long Island Sound	Atlantic Butterfish	
		Atlantic Herring	
		Black Sea Bass	
		Bluefish	
		Little Skate	
		Longfin Inshore Squid	
		Pollock	
		Red Hake	
		Scup	
		Silver Hake	
		Summer Flounder	
		Window Pane Flounder	
Winter Flounder			
Winter Skate			
Putnam			
			Atlantic Herring
			Black Sea Bass

Alternative 3.2		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
	Fairfield	CosCob Harbor	Bluefish
			Little Skate
			Pollock
			Red Hake
			Scup
			Summer Flounder
			Window Pane Flounder
			Winter Flounder
			Winter Skate
			Housatonic River
		Black Sea Bass	
		Bluefish	
		Scup	
		Summer Flounder	
		Long Island Sound	Atlantic Butterfish
			Atlantic Herring
			Black Sea Bass
			Bluefish
			Little Skate
			Longfin Inshore Squid
			Pollock
			Red Hake
			Scup
			Silver Hake
			Summer Flounder
			Window Pane Flounder
			Winter Flounder
		Winter Skate	
		Long Island Sound-Sherwood Millpond	Atlantic Butterfish
			Atlantic Herring
			Longfin Inshore Squid
			Ocean Pout
			Pollock
			Red Hake
			Window Pane Flounder
			Winter Flounder
		Mill River	Atlantic Butterfish
		Norwalk River	Atlantic Butterfish
			Black Sea Bass
			Bluefish
			Little Skate
			Scup
Summer Flounder			
Pequonnock River	Winter Skate		
	Black Sea Bass		
	Bluefish		
Saugatuck River	Scup		
	Summer Flounder		
	Atlantic Butterfish		
	Atlantic Herring		
	Black Sea Bass		
	Bluefish		
	Little Skate		
	Longfin Inshore Squid		
	Ocean Pout		
	Pollock		
	Red Hake		
	Scup		
	Summer Flounder		
	Window Pane Flounder		
Winter Flounder			
Winter Skate			
Branford River	Atlantic Butterfish		
	Atlantic Herring		
East River	Black Sea Bass		
	Bluefish		
	Longfin Inshore Squid		
	Longfin Inshore Squid		

Alternative 3.2		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
Connecticut	New Haven	Gulf Pond	Pollock
			Red Hake
			Scup
			Silver Hake
			Summer Flounder
			Window Pane Flounder
			Winter Flounder
		Housatonic River	Atlantic Butterfish
			Black Sea Bass
			Bluefish
			Scup
			Summer Flounder
		Long Island Sound	Atlantic Butterfish
			Atlantic Herring
			Black Sea Bass
			Bluefish
			Longfin Inshore Squid
			Pollock
			Red Hake
			Scup
			Silver Hake
	Summer Flounder		
	Quinnipiac River	Atlantic Butterfish	
		Black Sea Bass	
		Bluefish	
		Little Skate	
		Scup	
	West River	Atlantic Butterfish	
		Longfin Inshore Squid	
	Middlesex	Connecticut River	Atlantic Butterfish
			Black Sea Bass
			Bluefish
			Longfin Inshore Squid
			Scup
	Hammonasset River	Atlantic Butterfish	
		Menunketesuck River	Atlantic Butterfish
		Connecticut River	Atlantic Butterfish
			Black Sea Bass
			Bluefish
			Longfin Inshore Squid
			Scup
		Duck River	Summer Flounder
			Longfin Inshore Squid
		Fourmile River	Atlantic Herring
			Black Sea Bass
Bluefish			
Longfin Inshore Squid			
Pollock			
Red Hake			
Scup			
Jordan Cove		Summer Flounder	
		Window Pane Flounder	
		Winter Flounder	
		Atlantic Butterfish	
	Atlantic Herring		
Lieutenant River	Atlantic Mackerel		
	Black Sea Bass		
	Lieutenant River	Bluefish	
		Longfin Inshore Squid	
		Scup	
		Summer Flounder	
		Atlantic Butterfish	

NEC FUTURE

Alternative 3.2		Waterbody Crossed by Alternative	
State	County	Waterbody	Species
Connecticut	New London	Connecticut River	Atlantic Butterfish
		Long Island Sound-Stonington Harbor	Black Sea Bass
			Bluefish
			Little Skate
			Scup
			Summer Flounder
			Winter Skate
		Long Island Sound-Wequetequock Cove	Black Sea Bass
			Bluefish
			Little Skate
			Scup
			Summer Flounder
		Long Island Sound-Palmer Cove	Atlantic Butterfish
	Atlantic Herring		
	Atlantic Mackerel		
	Longfin Inshore Squid		
	Mumford Cove	Atlantic Butterfish	
		Atlantic Herring	
		Atlantic Mackerel	
		Black Sea Bass	
		Bluefish	
Little Skate			
Longfin Inshore Squid			
Scup			
Summer Flounder			
Mystic Harbor	Atlantic Herring		
	Longfin Inshore Squid		
Niantic River	Longfin Inshore Squid		
Pattagansett River	Atlantic Butterfish		
	Atlantic Herring		
	Longfin Inshore Squid		
	Pollock		
	Red Hake		
	Window Pane Flounder		
Thames River	Black Sea Bass		
	Bluefish		
	Scup		
	Summer Flounder		
Hartford	Connecticut River	Black Sea Bass	
		Bluefish	
		Scup	
Tolland		Summer Flounder	
	Windham		
	Washington		
Rhode Island	Kent	Apponaug Cove	Atlantic Herring
			Haddock
			Longfin Inshore Squid
			Red Hake
			Window Pane Flounder
	Winter Flounder		
	Providence	Seekonk River	Black Sea Bass
		Bluefish	
		Scup	
		Summer Flounder	
Massachusetts	Bristol		
	Norfolk		
	Suffolk		



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Pennsylvania Field Office  
110 Radnor Road, Suite 101  
State College, Pennsylvania 16801-4850

February 9, 2015

Rebecca Reyes-Alicea  
NEC FUTURE Program Manager  
USDOT – Federal Railroad Administration  
One Bowling Green, Suite 429  
New York, NY 10004

RE: NEC FUTURE Program Tier 1 EIS - Ecological Resources Effects Assessment  
USFWS Project #2015-0202

Dear Ms. Reyes-Alicea:

Thank you for your letter of January 13, 2015, requesting information about federally protected species within the area being considered for the referenced project. The Federal Railroad Administration (FRA) is proposing to construct a 457 mile rail along the Northeast Corridor (NEC) between Washington, D.C. and Boston. A portion of the proposed rail is located in Delaware, Philadelphia, and Bucks Counties, Pennsylvania. According to the January 7, 2015, webinar presentation, four alternatives are being evaluated and include: 1) No Action Alternative, 2) Alternative 1: *Maintain role of the rail* which would result in no new construction in Pennsylvania, 3) Alternative 2: *Grow role of the rail* which would include several new sections of rail in Pennsylvania, and, 4) Alternative 3: *Transform role of the rail* which would include a new section of rail in Pennsylvania located roughly adjacent to the existing rail line. The following comments are provided pursuant to the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*), Migratory Bird Treaty Act (16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755, as amended), the Bald and Golden Eagle Protection Act (54 Stat. 250, as amended; 16 U.S.C. 668-668d), and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*) to ensure protection of fish and wildlife resources. This information is being provided to assist you in making an informed decision regarding project construction and compliance with applicable laws.

## **Threatened and Endangered Species**

A compilation of federal status species in Pennsylvania is enclosed for your information. Specifically, the proposed project is within the range of the endangered Indiana bat (*Myotis sodalis*), the proposed endangered northern long-eared bat (*Myotis septentrionalis*), and the threatened bog turtle (*Clemmys muhlenbergii*). Development of this project area should be evaluated with respect to these species, based on the information provided below. Please note

that the project is also within the range of the endangered Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*) and the endangered shortnose sturgeon (*Acipenser brevirostrum*) which are under the jurisdiction of the National Marine Fisheries Service. We recommend you contact that agency (Northeast Regional Office, 1 Blackburn Drive, Gloucester, MA 01930) for any comments they may have related to these species.

## **Indiana Bat**

Indiana bats hibernate in caves and abandoned mines during the winter months (November through March), and use a variety of upland, wetland and riparian habitats during the spring, summer and fall. Indiana bats usually roost in dead or living trees with exfoliating bark, crevices or cavities. Female Indiana bats form nursery colonies under the exfoliating bark of dead or living trees, such as shagbark hickory, black birch, red oak, white oak, and sugar maple, in upland or riparian areas.

Land-clearing, especially of forested areas, may adversely affect Indiana bats by killing, injuring or harassing roosting bats, and by removing or reducing the quality of foraging and roosting habitat. Due to the potential for Indiana bats to occur within the project area, the U.S. Fish and Wildlife Service (Service) recommends that measures be implemented to avoid killing or injuring them. This can be accomplished by clearing trees between November 15 and March 31. This seasonal restriction on tree cutting applies to trees that are greater than or equal to five inches in diameter at breast height (DBH). Where possible, retain shagbark hickory trees, dead and dying trees, and large diameter trees (>12 inches DBH) to serve as roost trees for bats. Where possible, also retain forested riparian corridors and forested wetlands.

If you are unable to adopt the tree-cutting restrictions detailed above, we recommend a summer bat survey of the project area by a Service-approved biologist (see enclosed list) be conducted to determine presence or absence of summering Indiana bats by following the *2014 Range-wide Indiana Bat Summer Survey Guidelines* (or future version). The guidelines are available at: <http://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html>

Survey results should be submitted to our office for review and comment. Should Indiana bats be found during the survey, further consultation with the Service will be necessary. Please advise this office as to whether you intend to conduct bat surveys, or assume bats are present and implement a seasonal restriction on tree-cutting.

## **Northern Long-eared Bat**

The northern long-eared bat was proposed for listing as an endangered species on October 2, 2013. Species proposed for listing are not afforded protection under the Endangered Species Act; however, as soon as a listing becomes effective, the prohibition against jeopardizing its continued existence and “take”<sup>1</sup> applies, regardless of an action’s stage of completion.

<sup>1</sup> As defined in the Act, take means “... to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct.” “Harm” in the definition of take means an act which kills or injures wildlife. Such act may include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering (50 CFR part 17.3). “Harass” means an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering.

Therefore, to avoid significant project delays we recommend that the effect of the project on northern long-eared bats, and their habitat, be considered during the project planning and design. Additional information about northern long-eared bats, including ecology, habitat descriptions, listing status updates, and conservation measures may be found at:

[www.fws.gov/midwest/endangered/mammals/nlba/index.html](http://www.fws.gov/midwest/endangered/mammals/nlba/index.html) (click on *Northern Long-eared Bat Interim Conference and Planning Guidance*).

Similar to Indiana bats, northern long-eared bats hibernate in caves and abandoned mines during the winter months (November through March). During the spring, summer, and fall, northern long-eared bats roost singly or in colonies in cavities, underneath bark, crevices, or hollows of both live and dead trees (typically  $\geq 3$  inches DBH). We recommend similar conservation measures noted above under Indiana bat (*i.e.*, seasonal tree clearing or a summer bat survey).

If you choose to conduct a survey, please submit results to our office for review and comment. Should northern long-eared bats be found during the survey, further consultation with the Service will be necessary.

Please advise this office as to whether you intend to conduct bat surveys, or assume bats are present and implement a seasonal restriction on tree-cutting.

### **Bog Turtle**

Bog turtles inhabit shallow, spring-fed fens, sphagnum bogs, swamps, marshy meadows, and pastures characterized by soft, muddy bottoms; clear, cool, slow-flowing water, often forming a network of rivulets; high humidity; and an open canopy. Bog turtles usually occur in small, discrete populations occupying suitable wetland habitat dispersed along a watershed. The occupied "intermediate successional stage" wetland habitat is usually a mosaic of micro-habitats ranging from dry pockets, to areas that are saturated with water, to areas that are periodically flooded. Some wetlands occupied by bog turtles are located in agricultural areas and are subject to grazing by livestock.

To determine the potential effects of the proposed project on bog turtles and their habitat, begin by identifying all wetlands in, and within 300 feet of, the project area. The project area includes all areas that will be permanently or temporarily affected by any and all project features, including buildings, roads, staging areas, utility lines, outfall and intake structures, wells, stormwater retention or detention basins, parking lots, driveways, lawns, etc. The area of investigation should be expanded when project effects might extend more than 300 feet from the project footprint. For example, the hydrological effects of some projects (*e.g.*, large residential or commercial developments; golf courses; community water supply wells) might extend well beyond the project footprint due to the effects that impervious surfaces or groundwater pumping may have on the hydrology of nearby groundwater-dependent wetlands. Wetlands should be included on a map showing existing as well as proposed project features.

*If someone qualified to identify and delineate wetlands has, through a field investigation, determined that no wetlands are located in or within 300 feet of the project area (or within the expanded investigation area, as described above), it is not likely that your project will adversely*

*affect the bog turtle. If this is the case, we would appreciate receiving a courtesy copy of the wetland investigator's findings for our files.*

If wetlands have been identified in or within 300 feet of the project area (or in an expanded investigation area, as described above), assess their potential suitability as bog turtle habitat, as described under “*Bog Turtle Habitat Survey*” (Phase 1 survey) of the *Guidelines for Bog Turtle Surveys* (revised April 2006). Survey results should be submitted to the Service for review and concurrence. The survey guidelines, as well as a Phase 1 field form and report template, are available from the Service upon request.

Due to the skill required to correctly identify potential bog turtle habitat, we recommend that the Phase 1 survey be done by a qualified surveyor (see enclosed list). If the Phase 1 survey is done by someone who is not on this list, it is likely that a site visit by a Service biologist will be necessary to verify their findings. *Due to the limited availability of staff from this office, such a visit may not be possible for some time. Use of a qualified surveyor will expedite our review of the survey results.*

If potential bog turtle habitat is found in or near the project area, efforts should be made to avoid any direct or indirect impacts to those wetlands (see enclosed *Bog Turtle Conservation Zones*). Avoidance of direct and indirect effects means no disturbance to or encroachment into the wetlands (*e.g.*, filling, ditching or draining) for any project-associated features or activities. Adverse effects may also be anticipated to occur when lot lines include portions of the wetland; when an adequate upland buffer is not retained around the wetland (see *Bog Turtle Conservation Zones*); or when roads, stormwater/sedimentation basins, impervious surfaces, or wells affect the hydrology of the wetland.

If potential habitat is found, submit (along with your Phase 1 survey results) a detailed project description and detailed project plans documenting how direct and indirect impacts to the wetlands will be avoided. If adverse effects to these wetlands cannot be avoided, a more detailed and thorough survey should be done, as described under “*Bog Turtle Survey*” (Phase 2 survey) of the *Guidelines*. The Phase 2 survey should be conducted by a qualified biologist with bog turtle field survey experience (see enclosed list of qualified surveyors). Submit survey results to the Service for review and concurrence.

### **Assessment of Risks to Migratory Birds and Eagles**

The Service is the principal Federal agency charged with protecting and enhancing populations and habitat of migratory bird species. The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. While the MBTA has no provision for authorizing incidental take, the Service recognizes that some birds may be killed even if all reasonable measures to avoid take are implemented.

The potential exists for avian mortality from habitat destruction and alteration within the project boundaries. Site-specific factors that should be considered in project siting to avoid and minimize the risk to birds include avian abundance; the quality, quantity and type of habitat;



geographic location; type and extent of bird use (e.g. breeding, foraging, migrating, etc.); and landscape features. Please review the enclosed information for general recommendations for avoiding and minimizing impacts to migratory birds within and around the project area. Please be aware that since these are general guidelines, some of them may not be applicable to the current project design or they may have already been included in the project design.

The project is in the vicinity of several bald eagle nests and it is possible that project activities may disturb bald eagles, which is a form of “take” under the Bald and Golden Eagle Protection Act (BGEPA) and may require a permit. Under BGEPA, “take” means to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb. “Disturb” means to agitate or bother an eagle to a degree that causes, or is likely to cause, injury to an eagle or either a decrease in its productivity or nest abandonment due to interference with breeding, feeding, or sheltering. For more information regarding eagle biology and take, please visit: <http://www.fws.gov/northeast/EcologicalServices/eagle.html>

The Service has developed a project screening form to help you determine which specific measures may be necessary to avoid disturbing bald eagles and their nests, based on the type and scope of your proposed project and its distance from a bald eagle nest. Complete the *Bald Eagle Project Screening Form* (see [http://www.fws.gov/northeast/pafo/bald\\_eagle.html](http://www.fws.gov/northeast/pafo/bald_eagle.html)) and implement the measures identified on that form. Submit a copy of the completed Screening Form to the appropriate Federal or State permitting agencies

### **John Heinz National Wildlife Refuge**

Please be aware that the proposed rail route associated with Alternative 2 may impact the Service’s John Heinz National Wildlife Refuge. We recommend you contact Lamar Gore (Refuge Manager) or Mariana Bergerson (Deputy Refuge Manager) to discuss the project: John Heinz National Wildlife Refuge at Tinicum, 8601 Lindbergh Boulevard, Philadelphia, PA 19153; Phone: 215-365-3118.

### **Streams and Wetlands**

Work in streams and in wetlands requires permits from the Pennsylvania Department of Environmental Protection and the U.S. Army Corps of Engineers. In reviewing these applications, unless the activities fall under general or nationwide permits, the Service may concur, with or without stipulations, or object to the proposed work, depending on project effects on fish and wildlife resources. Please review the enclosed *Adaptive Management Practices for Conserving Streams and Wetlands* for general recommendations for avoiding and minimizing impacts to streams and wetlands within and around the project area. Be aware that since these are general guidelines, some of them may not be applicable to the current project design or they may have already been included in the project design.

*To avoid potential delays in reviewing your project, please use the above-referenced USFWS project tracking number in any future correspondence regarding this project.*

Thank you for contacting us. If you have any questions regarding these comments, please contact Melinda Turner at 814-234-4090 x7449.

Sincerely,

A handwritten signature in black ink, appearing to read "Lora L. Zimmerman", with a long, sweeping horizontal flourish extending to the right.

Lora L. Zimmerman  
Field Office Supervisor

Enclosures

cc: USFWS – Glenn Smith

## Federally Listed, Proposed, and Candidate Species in Pennsylvania

(revised February 25, 2014)

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u> <sup>1</sup>	<u>Distribution (Counties and/or Watersheds)</u>
<b>MAMMALS</b>			
Indiana bat	<i>Myotis sodalis</i>	E	<b>Known Hibernacula:</b> Armstrong, Beaver, Blair, Centre, Fayette, Huntingdon, Lawrence, Luzerne, Mifflin and Somerset Co. <b>Known Maternity Colonies &amp; Male Capture Sites:</b> Adams, Armstrong, Bedford, Berks, Blair, Greene, Pike, Somerset, Washington, and York Co. <b>Potential Summer and/or Winter Habitat:</b> All of the above-mentioned Counties and Allegheny, Bucks, Butler, Cambria, Carbon, Chester, Clarion, Clinton, Columbia, Crawford, Cumberland, Dauphin, Delaware, Erie, Franklin, Fulton, Indiana, Juniata, Lancaster, Lebanon, Lehigh, Mercer, Monroe, Montgomery, Montour, Northampton, Northumberland, Perry, Schuylkill, Snyder, Union, Wayne, and Westmoreland Co.
Northern long-eared bat	<i>Myotis septentrionalis</i>	PE	<b>Known Hibernacula:</b> Allegheny, Armstrong, Beaver, Bedford, Berks, Blair, Bucks, Butler, Cambria, Carbon, Centre, Clarion, Clearfield, Clinton, Columbia, Dauphin, Fayette, Fulton, Huntingdon, Indiana, Jefferson, Lackawanna, Lancaster, Lawrence, Lehigh, Luzerne, Lycoming, McKean, Mifflin, Monroe, Montgomery, Northampton, Northumberland, Pike, Potter, Schuylkill, Snyder, Somerset, Tioga, Venango, Warren, Westmoreland, and York Co. <b>Potential Summer and/or Winter Habitat:</b> Statewide
<b>BIRDS</b>			
Piping plover	<i>Charadrius melodus</i>	E	Designated critical habitat on Presque Isle (Erie Co.). Migratory. No nesting in PA since 1950s, but recent colonization attempts at Presque Isle
<b>REPTILES</b>			
Bog turtle	<i>Clemmys (Glyptemys) mühlenbergii</i>	T	Adams, Berks, Bucks, Carbon (Aquashicola Creek watershed only), Chester, Cumberland, Delaware, Lancaster, Lebanon, Lehigh, Monroe, Montgomery, Northampton, Schuylkill (Swatara Creek watershed only), and York Co.  <i>Historically found in Crawford, Mercer and Philadelphia Co.</i>
Eastern massasauga rattlesnake	<i>Sistrurus catenatus catenatus</i>	C	Butler, Crawford, Mercer and Venango Co.  <i>Historically found in Allegheny and Lawrence Co.</i>

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u> <sup>1</sup>	<u>Distribution (Counties and/or Watersheds)</u>
<b>MUSSELS</b>			
Clubshell	<i>Pleurobema clava</i>	E	Allegheny River (Armstrong, Clarion, Forest, Venango, Warren); Conneaut Outlet (Crawford); Conneauttee Creek (Crawford); French Creek (Crawford, Erie, Mercer, Venango); LeBoeuf Creek (Erie); Muddy Creek (Crawford); Shenango River (Mercer)  <i>Has not been found recently in 13 streams of historical occurrence in Butler, Beaver, Fayette, Greene, Indiana, Lawrence, and Westmoreland Co.</i>
Dwarf wedgemussel	<i>Alasmidonta heterodon</i>	E	Delaware River (Monroe, Northampton, Pike, Wayne Co.).  <i>Has not been found recently in streams of historical occurrence in the Delaware River watershed (Bucks, Carbon, Chester, Philadelphia) or Susquehanna River watershed (Lancaster)</i>
Northern riffleshell	<i>Epioblasma torulosa rangiana</i>	E	Allegheny River (Armstrong, Clarion, Forest, Venango, Warren); Conewango Creek (Warren); French Creek (Crawford, Erie, Mercer, Venango); LeBoeuf Creek (Erie); Muddy Creek (Crawford)  <i>Has not been found recently in streams of historical occurrence, including Shenango River (Lawrence)</i>
Rabbitsfoot	<i>Quadrula cylindrica cylindrica</i>	T	Allegheny River (Armstrong, Clarion, Forest, Venango, Warren); Conneauttee Creek (Venango); French Creek (Crawford, Erie, Mercer, Venango); LeBoeuf Creek (Erie); Muddy Creek (Crawford); Shenango River (Crawford, Mercer)
Rayed bean	<i>Villosa fabalis</i>	E	Allegheny River (Armstrong, Clarion, Forest, Venango, Warren); Cussewago Creek (Crawford); French Creek (Crawford, Erie, Mercer, Venango); LeBoeuf Creek (Erie); Muddy Creek (Crawford)  <i>Potentially extant in Shenango River (Crawford, Mercer) and Woodcock Creek (Venango)</i>  <i>Has not been found recently in 5 streams of historical occurrence in Armstrong, Lawrence, Mercer and Warren Co.</i>
Sheepnose	<i>Plethobasus cyphus</i>	E	Allegheny River (Forest and Venango Co.).  <i>Has not been found recently in streams of historical occurrence, including: Allegheny River (Armstrong); Beaver River (Lawrence); Monongahela River (Washington); Ohio River (Allegheny and Beaver)</i>
Snuffbox	<i>Epioblasma triquetra</i>	E	Allegheny River (Armstrong, Clarion, Venango), Conneaut Outlet (Crawford); Cussewago Creek (Crawford); Dunkard Creek (Greene); French Creek (Crawford, Erie, Mercer, Venango); LeBoeuf Creek (Erie); Little Mahoning Creek (Indiana); Muddy Creek (Crawford); Shenango and Little Shenango River (Mercer); West Branch French Creek (Erie)

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u> <sup>1</sup>	<u>Distribution (Counties and/or Watersheds)</u>
<b>FISH</b>			
Atlantic sturgeon <sup>2</sup>	<i>Acipenser oxyrinchus oxyrinchus</i>	E	Delaware River (New York Bight Distinct Population Segment)
Shortnose sturgeon <sup>2</sup>	<i>Acipenser brevirostrum</i>	E	Delaware River and other Atlantic coastal waters
<b>PLANTS</b>			
Northeastern bulrush	<i>Scirpus ancistrochaetus</i>	E	Adams, Bedford, Blair, Cambria, Carbon, Centre, Clinton, Columbia, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Lackawanna, Lehigh, Lycoming, Mifflin, Monroe, Perry, Snyder, Tioga, and Union Co.  <i>Historically found in Northampton Co.</i>
Small-whorled pogonia	<i>Isotria medeoloides</i>	T	Centre, Chester and Venango Co.  <i>Historically found in Berks, Greene, Monroe, Montgomery and Philadelphia Co.</i>

<sup>1</sup> E = Endangered; T = Threatened; PE = Proposed for listing as Endangered; C = Candidate

<sup>2</sup> Atlantic sturgeon and shortnose sturgeon are under the jurisdiction of the National Marine Fisheries Service

**PENNSYLVANIA FISH & BOAT COMMISSION**  
**Division of Environmental Services**  
**Natural Diversity Section**  
**450 Robinson Lane**  
**Bellefonte, PA 16823-9620**

**QUALIFIED SURVEYORS FOR BOG TURTLE**

58 Pa. Code §75.5 provides that in order to conduct surveys for endangered or threatened fish (fish, amphibians, reptiles and aquatic invertebrates) species or their habitat in connection with an application for a proposed or planned development activity, a surveyor must be deemed qualified by the Pennsylvania Fish and Boat Commission (PFBC). An individual who wishes to be qualified by the PFBC to conduct surveys for endangered or threatened species must demonstrate to the PFBC's satisfaction that he or she meets the qualified surveyor requirements as approved by the Executive Director and published in the *Pennsylvania Bulletin*. The following list includes persons deemed qualified by the PFBC to possess skills and to have experience in properly searching for and finding Bog Turtles (*Glyptemys muhlenbergii*) and in identifying their critical habitat. Persons not on this list but who have documented experience in conducting scientific studies of, or successful searches for, Bog Turtles and their critical habitat may submit their qualifications to the Natural Diversity Section for review and possible inclusion as a qualified surveyor. When applicable, a qualified surveyor must meet the requirements pertaining to scientific collector's permits and special permits for endangered and threatened species. All permitted collector's encounters with Bog Turtles must be reported in writing to the PFBC's Natural Diversity Section.

Teresa Amitrone Liberty Environmental, Inc. 50 N. 5th Street, 5th Floor Reading, PA 19601 (610)288-1536 <a href="mailto:tamitrone@libertyenviro.com">tamitrone@libertyenviro.com</a>	Ben Berra Skelly and Loy, Inc. 449 Eisenhower Blvd. Suite 300 Harrisburg, PA 17111 (717)232-0593 <a href="mailto:bberra@skellyloy.com">bberra@skellyloy.com</a>	Tessa Bickhart Herpetological Associates, Inc. 21 Daisy Lane Bernville, PA 19506 (484)650-1508 <a href="mailto:tessabtspecialist@gmail.com">tessabtspecialist@gmail.com</a>
Stanley Boder Wildlife Specialists, LLC 942 Camp Trail Road Quakertown, PA 18951 (570)952-1169 <a href="mailto:stan@wildlife-specialists.com">stan@wildlife-specialists.com</a>	Andy Brookens Skelly and Loy, Inc. 449 Eisenhower Blvd. Suite 300 Harrisburg, PA 17111 (717)232-0593 <a href="mailto:abrookens@skellyloy.com">abrookens@skellyloy.com</a>	Robert Bull WHM Consulting Inc. 2525 Green Tech Drive, Suite B State College, PA 16803 (W) 814-689-1650 Cell: 717-424-9817 Fax: 814-689-1557 <a href="mailto:bobb@whmgroup.com">bobb@whmgroup.com</a>
Scott Bush Conestoga-Rovers & Associates 410 Eagleview Blvd. Suite 110 Exton, PA 19341 (610)321-1800 <a href="mailto:sbush@eraworld.com">sbush@eraworld.com</a>	Bryon Dubois Dubois Environmental Consultants, LLC 249 S. Main Street, Suite 6 Barnegat, NJ 08005 (609)488-2857 <a href="mailto:bdubois@denviro.com">bdubois@denviro.com</a>	B. Scott Fiegel Ecological Associates, LLC PO Box 181 Oley, PA 19547 (610)987-6585 Office (484)280-4312 Cell <a href="mailto:bscottfiegel@aol.com">bscottfiegel@aol.com</a>
Jeremy Hite RETTEW 3020 Columbia Avenue Lancaster, PA 17603 (717)715-3811 <a href="mailto:jhite@rettew.com">jhite@rettew.com</a>	Kevin Keat ECSI 1095 Mill Road Pen Argyl, PA 18072 (484)515-6806 <a href="mailto:kevinkeat@ptd.net">kevinkeat@ptd.net</a>	Andrew Longenecker Ceso, Inc. 140 Lamplighter Drive Morgantown, WV 26508 (412)334-8619 <a href="mailto:longenecker@cesoinc.com">longenecker@cesoinc.com</a>

<p>Matthew Malhame PO Box 394 Henryville, PA 18332 (570)872-1284 <a href="mailto:mmalhame@hotmail.com">mmalhame@hotmail.com</a></p>	<p>Dave Moskowitz EcolSciences, Inc. 75 Fleetwood Drive Suite 250 Rockaway, NJ 07866 (973)366-9500 (732)236-2992 cell <a href="mailto:dmoskowitz@ecolsciences.com">dmoskowitz@ecolsciences.com</a></p>	<p>Laura Newgard EcolSciences, Inc. 75 Fleetwood Drive Suite 250 Rockaway, NJ 07866 (973)366-9500 <a href="mailto:lnewgard@ecolsciences.com">lnewgard@ecolsciences.com</a></p>
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# BOG TURTLE CONSERVATION ZONES<sup>1</sup>

(revised April 18, 2001)

Projects in and adjacent to bog turtle habitat can cause habitat destruction, degradation and fragmentation. Of critical importance is evaluating the potential direct and indirect effects of activities that occur in or are proposed for upland areas adjacent to bog turtle habitat. Even if the wetland impacts from an activity are avoided (i.e., the activity does not result in encroachment into the wetland), activities in adjacent upland areas can seriously compromise wetland habitat quality, fragment travel corridors, and alter wetland hydrology, thereby adversely affecting bog turtles.

The following bog turtle conservation zones have been designated with the intent of protecting and recovering known bog turtle populations within the northern range of this species. The conservation suggestions for each zone are meant to guide the evaluation of activities that may affect high-potential bog turtle habitat, potential travel corridors, and adjacent upland habitat that may serve to buffer bog turtles from indirect effects. *Nevertheless, it is important to recognize that consultations and project reviews will continue to be conducted on a case-by-case basis, taking into account site- and project-specific characteristics.*

## Zone 1

This zone includes the wetland and visible spring seeps occupied by bog turtles. Bog turtles rely upon different portions of the wetland at different times of year to fulfill various needs; therefore, this zone includes the entire wetland (the delineation of which will be scientifically based), not just those portions that have been identified as, or appear to be, optimal for nesting, basking or hibernating. In this zone, bog turtles and their habitat are most vulnerable to disturbance, therefore, the greatest degree of protection is necessary.

Within this zone, the following activities are likely to result in habitat destruction or degradation and should be avoided. These activities (not in priority order) include:

- ▶ development (e.g., roads, sewer lines, utility lines, storm water or sedimentation basins, residences, driveways, parking lots, and other structures)
- ▶ wetland draining, ditching, tiling, filling, excavation, stream diversion and construction of impoundments
- ▶ heavy grazing
- ▶ herbicide, pesticide or fertilizer application<sup>2</sup>
- ▶ mowing or cutting of vegetation<sup>2</sup>
- ▶ mining
- ▶ delineation of lot lines (e.g., for development, even if the proposed building or structure will not be in the wetland)

Some activities within this zone may be compatible with bog turtle conservation but warrant careful evaluation on a case-by-case basis:

- ▶ light to moderate grazing
- ▶ non-motorized recreational use (e.g., hiking, hunting, fishing)



## Zone 2

The boundary of this zone extends *at least 300 feet* from the edge of Zone 1 and includes upland areas adjacent to Zone 1. Activities in this zone could indirectly destroy or degrade wetland habitat over the short or long-term, thereby adversely affecting bog turtles. In addition, activities in this zone have the potential to cut off travel corridors between wetlands occupied or likely to be occupied by bog turtles, thereby isolating or dividing populations and increasing the risk of turtles being killed while attempting to disperse. Some of the indirect effects to wetlands resulting from activities in the adjacent uplands include: changes in hydrology (e.g., from roads, detention basins, irrigation, increases in impervious surfaces, sand and gravel mining); degradation of water quality (e.g., due to herbicides, pesticides, oil and salt from various sources including roads, agricultural fields, parking lots and residential developments); acceleration of succession (e.g., from fertilizer runoff); and introduction of exotic plants (e.g., due to soil disturbance and roads). This zone acts as a filter and buffer, preventing or minimizing the effects of land-use activities on bog turtles and their habitat. This zone is also likely to include at least a portion of the groundwater recharge/supply area for the wetland.

Activities that should be avoided in this zone due to their potential for adverse effects to bog turtles and their habitat include:

- ▶ development (e.g., roads, sewer lines, utility lines, storm water or sedimentation basins, residences, driveways, parking lots, and other structures)
- ▶ mining
- ▶ herbicide application<sup>2</sup>
- ▶ pesticide or fertilizer application
- ▶ farming (with the exception of light to moderate grazing - see below)
- ▶ certain types of stream-bank stabilization techniques (e.g., rip-rapping)
- ▶ delineation of lot lines (e.g., for development, even if the proposed building or structure will not be in the wetland)

Careful evaluation of proposed activities on a case-by-case basis will reveal the manner in which, and degree to which activities in this zone would affect bog turtles and their habitat. Assuming impacts within Zone 1 have been avoided, evaluation of proposed activities within Zone 2 will often require an assessment of anticipated impacts on wetland hydrology, water quality, and habitat continuity.

Activities that are likely to be compatible with bog turtle conservation, but that should be evaluated on a case-by-case basis within this zone include:

- ▶ light to moderate grazing
- ▶ non-motorized recreational use (e.g., hiking, hunting, fishing)
- ▶ mowing or cutting of vegetation

## Zone 3

This zone includes upland, wetland, and riparian areas extending either to the geomorphic edge of the drainage basin or at least one-half mile beyond the boundary of Zone 2. Despite the distance from Zone 1, activities in these areas have the potential to adversely affect bog turtles and their habitat. This particularly applies to activities affecting wetlands or streams connected to or contiguous with Zone 1, because these areas may support undocumented occurrences of bog turtles and/or provide travel corridors. In addition, some activities (e.g., roads, groundwater withdrawal, water/stream diversions, mining, impoundments, dams, "pump-and-treat" activities) far beyond Zone 1 have the potential to alter

the hydrology of bog turtle habitat, therefore, another purpose of Zone 3 is to protect the ground and surface water recharge zones for bog turtle wetlands. Where the integrity of Zone 2 has been compromised (e.g., through increases in impervious surfaces, heavy grazing, channelization of stormwater runoff), there is also a higher risk of activities in Zone 3 altering the water chemistry of bog turtle wetlands (e.g., via nutrient loading, sedimentation, and contaminants).

Activities occurring in this zone should be carefully assessed in consultation with the Fish and Wildlife Service and/or appropriate State wildlife agency to determine their potential for adverse effects to bog turtles and their habitat. Prior to conducting activities that may directly or indirectly affect wetlands, bog turtles and/or bog turtle habitat surveys should be conducted in accordance with accepted survey guidelines.

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<sup>1</sup> These guidelines are taken directly from the final "Bog Turtle (*Clemmys muhlenbergii*), Northern Population, Recovery Plan" (dated May 15, 2001).

<sup>2</sup> Except when conducted as part of a bog turtle habitat management plan approved by the Fish and Wildlife Service or State wildlife agency

# GUIDELINES FOR BOG TURTLE SURVEYS<sup>1</sup>

(revised April 2006)

## RATIONALE

A bog turtle survey (when conducted according to these guidelines) is an attempt to determine presence or probable absence of the species; it does not provide sufficient data to determine population size or structure. Following these guidelines will standardize survey procedures. It will help maximize the potential for detection of bog turtles at previously undocumented sites at a minimum acceptable level of effort. Although the detection of bog turtles confirms their presence, failure to detect them does not absolutely confirm their absence (likewise, bog turtles do not occur in all appropriate habitats and many seemingly suitable sites are devoid of the species). Surveys as extensive as outlined below are usually sufficient to detect bog turtles; however, there have been instances in which additional effort was necessary to detect bog turtles, especially when habitat was less than optimum, survey conditions were less than ideal, or turtle densities were low.

## PRIOR TO CONDUCTING ANY SURVEYS

If a project is proposed to occur in a county of known bog turtle occurrence (see attachment 1), contact the U.S. Fish and Wildlife Service (Service) and/or the appropriate State wildlife agency (see attachment 2). They will determine whether or not any known bog turtle sites occur in or near the project area, and will determine the need for surveys.

< If a wetland in or near the project area is *known* to support bog turtles, measures must be taken to avoid impacts to the species. The Service and State wildlife agency will work with federal, state and local regulatory agencies, permit applicants, and project proponents to ensure that adverse effects to bog turtles are avoided or minimized.

< If wetlands in or adjacent to the project area are *not* known bog turtle habitat, conduct a bog turtle habitat survey (Phase 1 survey) if:

1. The wetland(s) have an emergent and/or scrub-shrub wetland component, or are forested with suitable soils and hydrology (see below), *and*
2. Direct and indirect adverse effects to the wetland(s) cannot be avoided.

See *Bog Turtle Conservation Zones*<sup>2</sup> for guidance regarding activities that may affect bog turtles and their habitat. In addition, consult with the Fish and Wildlife Service and/or appropriate State wildlife agency to definitively determine whether or not a Phase 1 survey will be necessary.

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<sup>1</sup> These guidelines are a modification of those found in the final "Bog Turtle (*Clemmys muhlenbergii*), Northern Population, Recovery Plan" (dated May 15, 2001). Several minor revisions were made to facilitate survey efforts and increase searcher effectiveness. As additional information becomes available regarding survey techniques and effectiveness, these survey guidelines may be updated and revised. Contact the Fish and Wildlife Service or one of the state agencies listed in Attachment 1 for the most recent version of these guidelines.

<sup>2</sup> See Appendix A of the "Bog Turtle (*Clemmys muhlenbergii*), Northern Population, Recovery Plan" (dated May 15, 2001).

## BOG TURTLE HABITAT SURVEY (= Phase 1 survey)

The purpose of this survey is to determine whether or not the wetland(s) are *potential* bog turtle habitat. These surveys are performed by a recognized, qualified bog turtle surveyor (contact the Service or the appropriate State wildlife agency to receive a list of recognized, qualified bog turtle surveyors). The following conditions and information apply to habitat surveys.

< Surveys can be performed any month of the year (except when significant snow and/or ice cover is present). This flexibility in conducting Phase 1 surveys allows efforts during the Phase 2 survey window to be spent on wetlands most likely to support bog turtles (*i.e.*, those that meet the criteria below).

< Potential bog turtle habitat is recognized by three criteria (*not all of which may occur in the same portion of a particular wetland*):

1. **Suitable hydrology.** Bog turtle wetlands are typically spring-fed with shallow surface water or saturated soils present year-round, although in summer the wet area(s) may be restricted to near spring head(s). Typically these wetlands are interspersed with dry and wet pockets. There is often subsurface flow. In addition, shallow rivulets (less than 4 inches deep) or pseudo-rivulets are often present.
2. **Suitable soils.** Usually a bottom substrate of permanently saturated organic or mineral soils. These are often soft, mucky-like soils (this does not refer to a technical soil type); you will usually sink to your ankles (3-5 inches) or deeper in muck, although in degraded wetlands or summers of dry years this may be limited to areas near spring heads or drainage ditches. In some portions of the species' range, the soft substrate consists of scattered pockets of peat instead of muck.
3. **Suitable vegetation.** Dominant vegetation of low grasses and sedges (in emergent wetlands), often with a scrub-shrub wetland component. Common emergent vegetation includes, but is not limited to: tussock sedge (*Carex stricta*), soft rush (*Juncus effusus*), rice cut grass (*Leersia oryzoides*), sensitive fern (*Onoclea sensibilis*), tearthumbs (*Polygonum* spp.), jewelweeds (*Impatiens* spp.), arrowheads (*Sagittaria* spp.), skunk cabbage (*Symplocarpus foetidus*), panic grasses (*Panicum* spp.), other sedges (*Carex* spp.), spike rushes (*Eleocharis* spp.), grass-of-Parnassus (*Parnassia glauca*), shrubby cinquefoil (*Dasiphora fruticosa*), sweet-flag (*Acorus calamus*), and in disturbed sites, reed canary grass (*Phalaris arundinacea*) or purple loosestrife (*Lythrum salicaria*). Common scrub-shrub species include alder (*Alnus* spp.), red maple (*Acer rubrum*), willow (*Salix* spp.), tamarack (*Larix laricina*), and in disturbed sites, multiflora rose (*Rosa multiflora*). Some forested wetland habitats are suitable given hydrology, soils and/or historic land use. These forested wetlands include red maple, tamarack, and cedar swamps.

**Suitable hydrology and soils are the critical criteria (*i.e.*, the primary determinants of potentially suitable habitat).**

< Suitable hydrology, soils and vegetation are necessary to provide the critical wintering sites (soft muck, peat, burrows, root systems of woody vegetation) and nesting habitats (open

areas with tussocky or hummocky vegetation) for this species. It is very important to note, however, that one or more of these criteria may be absent from portions of a wetland or wetland complex supporting bog turtles. Absence of one or more criteria does not preclude bog turtle use of these areas to meet important life functions, including foraging, shelter and dispersal.

- < If these criteria (suitable soils, vegetation and hydrology) are present in the *wetland*, then the *wetland* is considered to be potential bog turtle habitat, regardless of whether or not that portion of the wetland occurring within the project boundaries contains all three criteria. If the *wetland* is determined to be potential habitat and the project will directly or indirectly impact *any portion* of the wetland (see *Bog Turtle Conservation Zones*), then either:
  - < Completely avoid all direct and indirect effects to the wetland, in consultation with the Service and appropriate State wildlife agency, OR
  - < Conduct a Phase 2 survey to determine the presence of bog turtles.
- < The Service and appropriate State wildlife agency (see list) should be sent a copy of survey results for review and comment including: a USGS topographic map indicating location of site; project design map, including location of wetlands and stream and delineation of wetland type (PEM, PSS, PFO, POW) and “designated survey areas”<sup>3</sup>; color photographs of the site; surveyor's name; date of visit; opinion on potential/not potential habitat; a description of the hydrology, soils, and vegetation. A phase 1 report template and field form are available from the States and Service.

#### **BOG TURTLE SURVEY (= Phase 2 survey)**

If the wetland(s) are identified as potential bog turtle habitat (see Phase 1 survey), and direct and indirect adverse effects cannot be avoided, conduct a bog turtle survey in accordance with the specifications below. Note that this is *not* a survey to estimate population size or structure; a long-term mark/recapture study would be required for that.

Prior to conducting the survey, contact the appropriate State agency (see attached list) to determine whether or not a scientific collector's permit valid for the location and period of the survey will be required.

The Phase 2 survey will focus on the areas of the wetland that meet the soils, hydrology and vegetation criteria, as defined under the Phase 1 survey guidelines. Those areas that meet the criteria are referred to as “designated survey areas” for Phase 2 and Phase 3 survey purposes.

1. Surveys should only be performed during the period from April 15-June 15. For the Lake Plain Recovery Unit (see Recovery Plan), surveys should only be performed during the period from May 1 to June 30. This coincides with the period of greatest annual turtle activity (spring emergence and breeding) and before vegetation gets too dense to accurately survey. While turtles may be found outside of these dates, a result of no turtles would be

<sup>3</sup> “Designated survey areas” are those areas of the wetland that meet the soils, hydrology and vegetation criteria for potential bog turtle habitat. These areas may occur within the emergent, scrub-shrub or forested parts of the wetland.

considered inconclusive. Surveys beyond June also have a higher likelihood of disruption or destruction of nests or newly hatched young.

2. Ambient air temperature at the surface in the shade should be  $\geq 55^{\circ}$  F.
3. Surveys should be done during the day, at least one hour after sunrise and no later than one hour before sunset.
4. Surveys may be done when it is sunny or cloudy. In addition, surveys may be conducted during and after light rain, provided air temperatures are  $\geq 65^{\circ}$  F.
5. At least one surveyor must be a recognized qualified bog turtle surveyor<sup>4</sup>, and the others should have some previous experience successfully conducting bog turtle surveys or herpetological surveys in wetlands. To maintain survey effort consistency and increase the probability of encountering turtles, the same surveyors should be used for each wetland.
6. A minimum of four (4) surveys per wetland site are needed to adequately assess the site for presence of bog turtles. At least two of these surveys must be performed in May. From April 15 to April 30, surveys should be separated by six or more days. From May 1 to June 15, surveys should be separated by three or more days. The shorter period between surveys during May and June is needed to ensure that surveys are carried out during the optimum window of time (*i.e.*, before wetland vegetation becomes too thick).

Note that bog turtles are more likely to be encountered by spreading the surveys out over a longer period. For example, erroneous survey results could be obtained if surveys were conducted on four successive days in late April due to possible late spring emergence, or during periods of extreme weather because turtles may be buried in mud and difficult to find.

Because this is solely a presence/absence survey, survey efforts at a particular wetland may cease once a bog turtle has been found.

7. Survey time should be at least four (4) to six (6) person-hours per acre of designated survey area per visit. Additional survey time may be warranted in wetlands that are difficult to survey or that have high quality potential habitat. The designated survey area includes all areas of the wetland where soft, mucky-like soils are present, regardless of vegetative cover type. This includes emergent, scrub-shrub, and forested areas of the wetland.

If the cover is too thick to effectively survey using Phase 2 survey techniques alone (*e.g.*, dominated by multiflora rose, reed canary grass, *Phragmites*), contact the Service and State wildlife agency for guidance on Phase 3 survey techniques (trapping) to supplement the Phase 2 effort. In addition, Phase 3 (trapping) surveys may also be warranted if the site is in

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<sup>4</sup> Searching for bog turtles and recognizing their habitat is a skill that can take many months or years of field work to develop. This level of expertise is necessary when conducting searches in order to ensure that surveys are effective and turtles are not harmed during the survey (*e.g.*, by stepping on nests). Many individuals that have been recognized as qualified to conduct bog turtle surveys obtained their experience through graduate degree research or employment by a state wildlife agency. Others have spent many years actively surveying for bog turtles as amateur herpetologists or consultants.

the Lake Plain-Prairie Peninsula Recovery Unit. Check with the Service or State wildlife agency for further guidance.

8. Walk quietly through the wetland. Bog turtles will bask on herbaceous vegetation and bare ground, or be half-buried in shallow water or rivulets. Walking noisily through the wetland will often cause the turtles to submerge before they can be observed. Be sure to search areas where turtles may not be visible, including under mats of dead vegetation, shallow pools, underground springs, open mud areas, vole runways and under tussocks. Do not step on the tops of tussocks or hummocks because turtle nests, eggs and nesting microhabitat may be destroyed. Both random opportunistic searching and transect surveys should be used at each wetland.

The following survey sequence is recommended to optimize detection of bog turtles:

- Semi-rapid walk through the designated survey area using visual encounter techniques.
  - If no bog turtles are found during visual survey, while walking through site identify highest quality habitat patches. Within these highest quality patches, begin looking under live and dead vegetation using muddling and probing techniques.
  - If still no bog turtles are found, the rest of the designated survey area should be surveyed using visual encounter surveys, muddling and probing techniques.
9. Photo-documentation of each bog turtle located will be required; a macro lens is highly recommended. The photos should be in color and of sufficient detail and clarity to identify the bog turtle to species and individual. Therefore, photographs of the carapace, plastron, and face/neck markings should be taken of each individual turtle. Do not harass the turtle in an attempt to get photos of the face/neck markings; if gently placed on the ground, most turtles will slowly extend their necks if not harassed. If shell notching is conducted, do the photo-documentation after the notching is done.
  10. The following information should be collected for each bog turtle: sex, carapace length-straight line and maximum length, carapace width, weight, and details about scars/injuries. Maximum plastron length information should also be collected to differentiate juveniles from adults as well as to obtain additional information on recruitment, growth, and demography.
  11. Each bog turtle should be marked (*e.g.*, notched, PIT tagged) in a manner consistent with the requirements of the appropriate State agency and/or Service. Contact the appropriate State wildlife agency prior to conducting the survey to determine what type of marking system, if any, should be used.
  12. All bog turtles must be returned to the point of capture as soon as possible on the same day as capture. They should only be held long enough to identify, measure, weigh, and photograph them, during which time their exposure to high temperatures must be avoided. No bog turtles may be removed from the wetland without permission from the Service and appropriate State agency.

13. The Fish and Wildlife Service and appropriate State agency should be sent a copy of survey results for review and concurrence, including the following: dates of site visits; time spent per designated survey area per wetland per visit; names of surveyors; a site map including wetlands and delineations of designated survey areas; a table indicating the size of each wetland, the designated survey area within each wetland, and the survey effort per visit; a description of the wetlands within the project area (*e.g.*, acreage, vegetation, soils, hydrology); an explanation of which wetlands or portions of wetlands were or were not surveyed, and why; survey methodology; weather per visit at beginning and end of survey (air temperature, wind, and precipitation); presence or absence of bog turtles, including number of turtles found and date, and information and measurements specified in item 10 above; and other reptile and amphibian species found and date.

### **ADDITIONAL SURVEYS / STUDIES**

Proper implementation of the Phase 2 survey protocol is usually adequate to determine species presence or probable absence, especially in small wetlands lacking invasive plant species. Additional surveys, however, may be necessary to determine whether or not bog turtles are using a particular wetland, especially if the Phase 2 survey results are negative but the quality and quantity of habitat are good and in a watershed of known occurrence. In this case, additional surveys (Phase 2 and/or Phase 3 (trapping) surveys), possibly extending into the following field season, may be recommended by the Service or appropriate State agency.

If bog turtles are documented to occur at a site, additional surveys/studies may be necessary to characterize the population (*e.g.*, number, density, population structure, recruitment), identify nesting and hibernating areas, and/or identify and assess adverse impacts to the species and its habitat, particularly if project activities are proposed to occur in, or within 300 feet of, wetlands occupied by the species.

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**CONTACT AGENCIES - BY STATE***(April 2006)*

STATE	FISH AND WILDLIFE SERVICE	STATE AGENCY
Connecticut	U.S. Fish and Wildlife Service New England Field Office 22 Bridge Street, Unit #1 Concord, NH 03301	Department of Environmental Protection Env. & Geographic Information Center 79 Elm Street, Store Floor, Hartford, CT 06106 <i>(info about presence of bog turtles in or near a project area)</i>  Department of Environmental Protection Wildlife Division, Sixth Floor 79 Elm Street, Store Floor, Hartford, CT 06106 <i>(to get a Scientific Collectors Permit or determine what type of marking system to use)</i>
Delaware	U.S. Fish and Wildlife Service Chesapeake Bay Field Office 177 Admiral Cochrane Drive Annapolis, MD 21401	Nongame & Endangered Species Program Delaware Division of Fish and Wildlife 4876 Hay Point Landing Road Smyrna, DE 19977
Maryland	U.S. Fish and Wildlife Service Chesapeake Bay Field Office 177 Admiral Cochrane Drive Annapolis, MD 21401	Maryland Department of Natural Resources Wildlife & Heritage Division PO Box 68, Main Street Wye Mills, MD 21679
Massachusetts	U.S. Fish and Wildlife Service New England Field Office 22 Bridge Street, Unit #1 Concord, NH 03301	Division of Fisheries and Wildlife Dept. Fisheries, Wildlife and Env Law Enforcement Rt. 135 Westboro, MA 01581
New Jersey	U.S. Fish and Wildlife Service New Jersey Field Office 927 North Main Street, Bldg. D-1 Pleasantville, NJ 08232	New Jersey Division of Fish and Wildlife Endangered and Nongame Species Program 143 Van Syckels Road Hampton, NJ 08827
New York	U.S. Fish and Wildlife Service 3817 Luker Road Cortland, NY 13045	New York Natural Heritage Program 625 Broadway, 5th Floor Albany, NY 12233-4757 Phone: (518) 402-8935 <i>(info about presence of bog turtles in or near a project area)</i>  NYS Department of Environmental Conservation Division of Fish, Wildlife, and Marine Resources Special Licenses Unit 600 Broadway, 5th Floor Albany, NY 12233-4752 <i>(for endangered species permit applications)</i>
Pennsylvania	U.S. Fish and Wildlife Service Pennsylvania Field Office 315 South Allen Street, Suite 322 State College, PA 16801	Natural Diversity Section Pennsylvania Fish and Boat Commission 450 Robinson Lane Bellefonte, PA 16823

**BOG TURTLE COUNTIES OF OCCURRENCE OR LIKELY OCCURRENCE<sup>1</sup>**  
*(April 2006)*

STATE	COUNTY	
Connecticut	Fairfield	Litchfield
Delaware	New Castle	
Maryland	Baltimore Carroll	Cecil Harford
Massachusetts	Berkshire	
New Jersey	Burlington Gloucester Hunterdon Middlesex Monmouth Morris	Ocean Salem Somerset Sussex Union Warren
New York	Albany Columbia Dutchess Genesee Orange Oswego Putnam	Seneca Sullivan Ulster Wayne Westchester
Pennsylvania	Adams Berks Bucks Chester Cumberland Delaware Franklin	Lancaster Lebanon Lehigh Monroe Montgomery Northampton Schuylkill York

<sup>1</sup> This list is valid for one year from the date indicated. It may, however, be revised more frequently if new counties of occurrence are documented. Updates to this list are available from the Service upon request.

## Adaptive Management Practices for Conserving Migratory Birds

The Fish and Wildlife Service is the principal Federal agency charged with protecting and enhancing populations and habitat of migratory bird species. The Migratory Bird Treaty Act (MBTA, 16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755, as amended) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. While the MBTA has no provision for authorizing incidental take, the Service recognizes that some birds may be killed even if all reasonable measures to avoid take are implemented. Unless the take is authorized, it is not possible to absolve individuals, companies or agencies from liability (even if they implement avian mortality avoidance or similar conservation measures). However, the Office of Law Enforcement focuses on those individuals, companies, or agencies that take migratory birds with disregard for their actions and the law.

The potential exists for avian mortality from habitat destruction and alteration within the project boundaries. Site-specific factors that should be considered in project siting to avoid and minimize the risk to birds include avian abundance; the quality, quantity and type of habitat; geographic location; type and extent of bird use (*e.g.* breeding, foraging, migrating, etc.); and landscape features.

We offer the following recommendations to avoid and minimize impacts to migratory birds within and around the project area:

1. Where disturbance is necessary, clear natural or semi-natural habitats (*e.g.*, forests, woodlots, reverting fields, shrubby areas) and perform maintenance activities (*e.g.*, mowing) between September 1 and March 31, which is outside the nesting season for most native bird species. Without undertaking specific analysis of breeding species and their respective nesting seasons on the project site, implementation of this seasonal restriction will avoid take of most breeding birds, their nests, and their young (*i.e.*, eggs, hatchlings, fledglings).
2. Minimize land and vegetation disturbance during project design and construction. To reduce habitat fragmentation, co-locate roads, fences, lay down areas, staging areas, and other infrastructure in or immediately adjacent to already-disturbed areas (*e.g.*, existing roads, pipelines, agricultural fields) and cluster development features (*e.g.*, buildings, roads) as opposed to distributing them throughout land parcels. Where this is not possible, minimize roads, fences, and other infrastructure.
3. Avoid permanent habitat alterations in areas where birds are highly concentrated. Examples of high concentration areas for birds are wetlands, State or Federal refuges, Audubon Important Bird Areas, private duck clubs, staging areas, rookeries, leks, roosts, and riparian areas. Avoid establishing sizable structures along known bird migration pathways or known daily movement flyways (*e.g.*, between roosting and feeding areas).
4. To conserve area-sensitive species, avoid fragmenting large, contiguous tracts of wildlife habitat, especially if habitat cannot be fully restored after construction. Maintain

contiguous habitat corridors to facilitate wildlife dispersal. Where practicable, concentrate construction activities, infrastructure, and man-made structures (*e.g.*, buildings, cell towers, roads, parking lots) on lands already altered or cultivated, and away from areas of intact and healthy native habitats. If not feasible, select fragmented or degraded habitats over relatively intact areas.

5. Develop a habitat restoration plan for the proposed site that avoids or minimizes negative impacts to birds, and that creates functional habitat for a variety of bird species. Use only plant species that are native to the local area for revegetation of the project area.

If you have any questions regarding these measures, please contact Lora Zimmerman of the Pennsylvania Field Office located in State College, PA at 814-234-4090.

## Adaptive Management Practices for Conserving Streams and Wetlands

The Fish and Wildlife Coordination Act (FWCA; 48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*) provides the basic authority for the Fish and Wildlife Service's involvement in evaluating impacts to fish and wildlife from proposed water resource development projects. It requires that fish and wildlife resources receive equal consideration to other project features. It also requires Federal agencies that construct, license or permit water resource development projects to first consult with the Service and State fish and wildlife agencies regarding the impacts on fish and wildlife resources and measures to mitigate these impacts.

In Pennsylvania, work in streams and in wetlands requires permits from the Pennsylvania Department of Environmental Protection and the U.S. Army Corps of Engineers. In reviewing these applications, unless the activities fall under general or nationwide permits, the Service may concur, with or without stipulations, or object to the proposed work, depending on project effects on fish and wildlife resources. Therefore, we offer the following recommendations to avoid and minimize impacts within and around the project area.

***Preventing direct water contamination*** – Water contamination can be one of the most damaging and difficult to control environmental impacts that can result from a project. In order to avoid these impacts, we recommend:

- Using directional boring rather than open cuts under streams to avoid impacts at the point of crossing
- Refueling construction equipment outside the 100 year floodplain and protecting the refueling area with secondary containment
- Storing hazardous materials, fuel, lubricating oils, or other chemicals outside the 100-year floodplain, at an upland site
- Inspecting and maintaining equipment daily to prevent the contamination of surface waters from leaking fuels, lubricants, or other toxic materials
- Keeping equipment out of streams by operating from the banks in a fashion that minimizes disturbance to woody vegetation
- Pipeline/Utility stream crossings should be near perpendicular to stream flow

***Protecting the floodplain and streamside forest*** - Streamside forests provide travel corridors and habitat for wildlife and protect water quality by stabilizing stream banks and filtering storm-water runoff. Development in the floodplain increases the potential for flooding adjacent and downstream properties and interferes with natural hydrological processes. In order to protect these important and sensitive stream-side areas, we recommend:

- Limiting activities in the floodplain to those absolutely necessary for construction
- Maintaining riparian vegetation to the maximum extent possible, especially large trees
- If riparian areas are disturbed, revegetating them with native species as soon as possible
- Locating areas used for borrow or construction by-products away from wetlands and out of the 100-year flood plain
- Maintaining forested wetland/stream buffers throughout the project area

- Keep all utility crossings to a minimum, and all utility infrastructure should be kept out of riparian buffer areas

**Preventing or minimizing erosion** – While soil forms the foundation of life on land, it becomes a pollutant in water, eliminating habitat and species. In order to minimize the amount of soil that enters a stream during the construction of a project, we recommend:

- Installing all erosion-control measures prior to starting ground-disturbing activities
- Frequently maintaining erosion-control measures
- Returning existing approaches to preconstruction contours upon completion of the project, and planting the area with native grasses and tree species
- Planting temporary (e.g., rye, grain, wheat, millet) or permanent herbaceous material to help control erosion immediately following any ground-disturbing activity (native annual small grains and herbs appropriate for the season is recommended. Invasive, exotic species (including fescue) should be avoided)

**Reseeding** - Native plant species provide the keystone elements for ecosystem restoration and, in most cases, form self-sustaining plant communities that do not require much maintenance. Because they are adapted to a local region, native plants tend to resist damage from freezing, drought, common diseases, and herbivores if planted in that same local region.

- Based on recommendations from Pennsylvania Game Commission and our own observations, we discourage the use of annual ryegrass (*Lolium multiflorum*) as a cover crop. It reseeds heavily and competes with native seedlings. To meet the rapid revegetation requirements for E&S control, we recommend use of cereal oats (*Avena sativa*) if the planting occurs from spring through summer or grain (cereal) rye (*Secale cereale*) if the planting occurs from early fall through winter. The seasonal split is based on germination temperature tolerances for each. The benefit of both of these species is that they don't reseed heavily which results in less competition for the native seedlings
- For more permanent stability, we recommend the use of native wild rye such as riverbank, Canadian, or Virginia wild rye (*Elymus riparius*, *E. canadensis*, or *E. virginicus*, respectively). These species are usually used in conjunction with a native legume such as the partridge pea (*Chamaecrista fasciculata*), if nitrogen fixation is desirable
- For disturbed upland areas (and as a buffer around riparian corridors) we recommend that you consider a mixture of native warm-season grasses, including big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), and Indian grass (*Sorghastrum nutans*)
- For plants that are beneficial to birds, include plants such as cardinal flower (*Lobelia cardinalis*), spicebush (*Lindera benzoin*), black elderberry (*Sambucus canadensis*), downy serviceberry (*Amelanchier arborea*), Allegheny serviceberry (*Amelanchier laevis*) and silky dogwood (*Cornus amomum*) in seed mixes or plant as saplings

If you have any questions regarding these measures, please contact the Pennsylvania Field Office, State College, PA, 814-234-4090.

## **Knauer, Erin K.**

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**From:** Knauer, Erin K.  
**Sent:** Thursday, July 30, 2015 5:11 PM  
**To:** Knauer, Erin K.  
**Subject:** FW: New York Species List for the NEC Future Project  
**Attachments:** Copy of Table 1\_T&E\_Species\_List.NYFO rev.03.17.15.xlsx

---

From: Anderson, Susan [mailto:[Susan.Anderson@aecom.com](mailto:Susan.Anderson@aecom.com)]  
Sent: Tuesday, March 17, 2015 11:46 AM  
To: Knauer, Erin K.; McNicholas, Pamela S.  
Cc: Siegel, Ruby; Mason, Mary Ann  
Subject: FW: New York Species List for the NEC Future Project

Hi Erin and Pam,

Please review and incorporate into your analysis as appropriate. Let me know if you have any questions.

Best,  
Susan

Susan Anderson, AICP  
Environmental Manager

[Susan.Anderson@aecom.com](mailto:Susan.Anderson@aecom.com)  
Office: 804-515-8559  
Mobile: 571-269-7637

From: Doran, Sandra [mailto:[sandra\\_doran@fws.gov](mailto:sandra_doran@fws.gov)]  
Sent: Tuesday, March 17, 2015 11:13 AM  
To: Castelli, Amishi (VOLPE)  
Cc: [glenn\\_s\\_smith@fws.gov](mailto:glenn_s_smith@fws.gov) <fws>; Patricia Cole; Steve Papa; Sandra Doran; MaryEllen VanDonsel  
Subject: New York Species List for the NEC Future Project

Amishi,

Please see the attached species list (revised table) with the NY County additions.

Also, I see that the link for the shape files has expired. Is there anyway we can gain access to the shape files?

Call if you have any questions.  
-- Sandie

**Sandra Doran, Fish & Wildlife Biologist**

Conservation Planning Assistance/Endangered Species Branch  
U.S. Fish & Wildlife Service

New York Field Office (Region 5)  
3817 Luker Rd.  
Cortland, NY 13045  
(607) 753-9334 (voice)  
(607) 753-9699 (fax)  
<http://nyfo.fws.gov> (web)  
[sandra\\_doran@fws.gov](mailto:sandra_doran@fws.gov) (email)

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Alternative 1: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
DC	District of Columbia					
Maryland	Prince George's County					
	Anne Arundel	Swamp Pink	Helonius bullata	Plant	T	No
	Howard					
	Baltimore	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
	Baltimore City					
	Harford	Maryland Darter	Etheostoma sellare	Fish	E	Yes. Gasheys Run. Critical Habitat intersects with AE approximately 3,888 linear feet
		Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
	Cecil	Swamp Pink	Helonius bullata	Plant	T	No
		Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
Delaware	New Castle	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
Pennsylvania	Delaware	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
	Philadelphia	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Bucks	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
New Jersey	Salem					
	Gloucester					
	Camden					
	Burlington					
	Mercer	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Swamp Pink	Helonius bullata	Plant	T	No
	Middlesex	Swamp Pink	Helonius bullata	Plant	T	No
	Somerset	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
	Union	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
	Essex					
	Hudson	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
New York	New York	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
	add monarch butterfly					
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Queens	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Seabeach Amaranth	Amaranthus pumilus	Plant	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Red Knot	Calidris canutus rufa)	Bird		
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Kings	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Red Knot	Calidris canutus rufa)	Bird	T	
	Bronx	Piping Plover	Charadrius melodus	Bird	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Westchester	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		New England Cottontail			C	No

Alternative 1: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
		Northern Long-eared bat	<i>Myotis septentrionalis</i>	mammal	PE	No
		Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	Fish	E	No
	Nassau	PP, Roseate tern, sandplain gerardia, seabeach amaranth, shortnose sturg and small whorled pogonia (Historic) and Red Knot				
	Suffolk	Kemp's ridley, green, hawksbill, leatherback, piping plover, roseate tern, sandplain gerardia, seabeach amaranth, shortnose sturgeon and swp (Historic) and Red Knot				
	Putnam	Atlantic Sturgeon, Shortnose sturgeon, bog turtle, indiana bat, New England cottontail				
Connecticut	Litchfield					
	Fairfield	Bog Turtle	<i>Clemmys muhlenbergii</i>	Reptile	T	No
		Piping Plover	<i>Charadrius melodus</i>	Bird	T	No
		Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No
		Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	Fish	E	No
		Atlantic Sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	Fish	E	No
		Hawksbill Sea Turtle	<i>Eretmochelys imbricata</i>	Reptile	E	No
		Kemp's Ridley Sea Turtle	<i>Lepidochelys kempii</i>	Reptile	E	No
		Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	Reptile	E	No
		Loggerhead Sea Turtle	<i>Caretta caretta</i>	Reptile	T	No
		Green Sea Turtle	<i>Chelonia mydas</i>	Reptile	T	No
		Humpback Whale	<i>Megaptera novaeangliae</i>	Mammal	E	No
		Fin Whale	<i>Balaenoptera musculus</i>	Mammal	E	No
		Right Whale	<i>Eubalaena glacialis</i>	Mammal	E	No
	New Haven	Piping Plover	<i>Charadrius melodus</i>	Bird	T	No
		Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No
		Indiana Bat	<i>Myotis sodalis</i>	Mammal	E	No
		Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	Fish	E	No
		Atlantic Sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	Fish	E	No
		Hawksbill Sea Turtle	<i>Eretmochelys imbricata</i>	Reptile	E	No
		Kemp's Ridley Sea Turtle	<i>Lepidochelys kempii</i>	Reptile	E	No
		Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	Reptile	E	No
		Loggerhead Sea Turtle	<i>Caretta caretta</i>	Reptile	T	No
		Green Sea Turtle	<i>Chelonia mydas</i>	Reptile	T	No
		Humpback Whale	<i>Megaptera novaeangliae</i>	Mammal	E	No
		Fin Whale	<i>Balaenoptera musculus</i>	Mammal	E	No
		Right Whale	<i>Eubalaena glacialis</i>	Mammal	E	No
	Middlesex	Piping Plover	<i>Charadrius melodus</i>	Bird	T	No
		Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No
		Puritan Tiger Beetle	<i>Cicindela puritana</i>	Insect	T	No
		Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	Fish	E	No
		Atlantic Sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	Fish	E	No
		Hawksbill Sea Turtle	<i>Eretmochelys imbricata</i>	Reptile	E	No
		Kemp's Ridley Sea Turtle	<i>Lepidochelys kempii</i>	Reptile	E	No
		Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	Reptile	E	No
		Loggerhead Sea Turtle	<i>Caretta caretta</i>	Reptile	T	No
		Green Sea Turtle	<i>Chelonia mydas</i>	Reptile	T	No
	New London	Piping Plover	<i>Charadrius melodus</i>	Bird	T	No
		Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No
		Small-whorled Pogonia	<i>Isotria medeoloides</i>	Plant	T	No
		Sandplain Gerardia	<i>Aqaliniis acuta</i>	Plant	E	No
		Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	Fish	E	No
		Atlantic Sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	Fish	E	No
		Hawksbill Sea Turtle	<i>Eretmochelys imbricata</i>	Reptile	E	No

Alternative 1: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
	Harford					
	Tolland					
	Windham					
Rhode Island	Washington	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Sandplain Gerardia	Agalinis acuta	Plant	E	No
	Kent	Sandplain Gerardia	Agalinis acuta	Plant	E	No
	Providence	Sandplain Gerardia	Agalinis acuta	Plant	E	No
		Small-whorled Pogonia	Isotria medeoloides	Plant	T	No
Massachusetts	Worcester					No
	Middlesex					No
	Bristol	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Plymouth Red-Bellied Cooter	Pseudemys rubriventris bangsi	Reptile	E	No
	Norfolk					
	Suffolk	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Additional species under consideration: The Rufus Red Knot, Northern long-eared bat, New England Cottontail, and Monarch butterfly are four species identified for continued monitoring of their ESA status and occurrence within the project area. The Red Knot has completed a final determination assessment and is listed as of January 2015. This species will be investigated for occurrence within the project area.					

Alternative 2: Geography		Alternative Resource Information				Critical Habitat	
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE	
DC	District of Columbia						
Maryland	Prince George's County						
	Anne Arundel	Swamp Pink	Helonius bullata	Plant	T	No	
	Howard						
	Baltimore	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
	Baltimore City						
	Harford	Maryland Darter	Etheostoma sellare	Fish	E	Yes. Gasheys Run. Critical Habitat intersects with AE approximately 3,888 linear feet	
		Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
	Cecil	Swamp Pink	Helonius bullata	Plant	T	No	
		Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
Delaware	New Castle	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
		Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No	
	Pennsylvania	Delaware	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
			Indiana Bat	Myotis sodalis	Mammal	E	No
			Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
			Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Philadelphia	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
			Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
Bucks			Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
	Indiana Bat		Myotis sodalis	Mammal	E	No	
	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No		
	Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No		
New Jersey	Salem						
	Gloucester						
	Camden						
	Burlington						
	Mercer	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
			Indiana Bat	Myotis sodalis	Mammal	E	No
			Swamp Pink	Helonius bullata	Plant	T	No
		Middlesex	Swamp Pink	Helonius bullata	Plant	T	No
		Somerset	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Union	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
	Essex		Indiana Bat	Myotis sodalis	Mammal	E	No
		Hudson	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
			Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
New York		New York	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
			Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Queens	Piping Plover	Charadrius melodus	Bird	T	No
				Roseate Tern	Sterna dougalli dougalli	Bird	E
			Seabeach Amaranth	Amaranthus pumilus	Plant	T	No
			Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
			Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Kings		Piping Plover	Charadrius melodus	Bird	T	No
			Roseate Tern	Sterna dougalli dougalli	Bird	E	No
			Seabeach Amaranth	Amaranthus pumilus	Plant	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
Bronx	Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No		
	Piping Plover	Charadrius melodus	Bird	T	No		
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No	
	Westchester	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
			Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
Nassau							

Alternative 2: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
	Suffolk					
	Putnam					
Connecticut	Litchfield					
	Fairfield	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
		Humpback Whale	Megaptera novaeangliae	Mammal	E	No
		Fin Whale	Balaenoptera musculus	Mammal	E	No
		Right Whale	Eubalaena glacialis	Mammal	E	No
	New Haven	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
		Humpback Whale	Megaptera novaeangliae	Mammal	E	No
		Fin Whale	Balaenoptera musculus	Mammal	E	No
		Right Whale	Eubalaena glacialis	Mammal	E	No
	Middlesex	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Puritan Tiger Beetle	Cicindela puritana	Insect	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
	New London	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Small-whorled Pogonia	Isotria medeoloides	Plant	T	No
		Sandplain Gerardia	Agalinis acuta	Plant	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
	Harford					
	Tolland					
	Windham	Small-whorled Pogonia	Isotria medeoloides	Plant	T	No
Rhode Island	Washington	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Sandplain Gerardia	Agalinis acuta	Plant	E	No
	Kent	Sandplain Gerardia	Agalinis acuta	Plant	E	No
	Providence	Sandplain Gerardia	Agalinis acuta	Plant	E	No
		Small-whorled Pogonia	Isotria medeoloides	Plant	T	No
Massachusetts	Worcester					
	Middlesex					
	Bristol	Piping Plover	Charadrius melodus	Bird	T	No

Alternative 2: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
		Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No
		Plymouth Red-Bellied Cooter	<i>Pseudemys rubriventris bangsi</i>	Reptile	E	No
	Norfolk					
	Suffolk	Piping Plover	<i>Charadrius melodus</i>	Bird	T	No
		Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No
		Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	Fish	E	No
		Atlantic Sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	Fish	E	No
Additional species under consideration: The Rufus Red Knot, Northern long-eared bat, New England Cottontail, and Monarch butterfly are four species identified for continued monitoring of their ESA status and occurrence within the project area. The Red Knot has completed a final determination assessment and is listed as of January 2015. This species will be investigated for occurrence within the project area.						

Alternative 3.1: Geography		Alternative Resource Information				Critical Habitat	
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE	
DC	District of Columbia						
Maryland	Prince George's County						
	Anne Arundel	Swamp Pink	Helonius bullata	Plant	T	No	
	Howard						
	Baltimore	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
	Baltimore City						
	Harford	Maryland Darter	Etheostoma sellare	Fish	E	Yes. Gasheys Run. Critical Habitat intersects with AE approximately 3,888 linear feet	
		Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
	Cecil	Swamp Pink	Helonius bullata	Plant	T	No	
		Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No		
Delaware	New Castle	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No	
Pennsylvania	Delaware	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
		Indiana Bat	Myotis sodalis	Mammal	E	No	
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No	
	Philadelphia	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No	
		Bucks	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
			Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No	
New Jersey	Salem						
	Gloucester						
	Camden						
	Burlington						
	Mercer	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
		Indiana Bat	Myotis sodalis	Mammal	E	No	
		Swamp Pink	Helonius bullata	Plant	T	No	
	Middlesex	Swamp Pink	Helonius bullata	Plant	T	No	
	Somerset	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
	Union	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
		Indiana Bat	Myotis sodalis	Mammal	E	No	
	Essex						
	Hudson	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No	
New York	New York	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No	
	Queens	Piping Plover	Charadrius melodus	Bird	T	No	
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No	
		Seabeach Amaranth	Amaranthus pumilus	Plant	T	No	
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No	
	Kings	Piping Plover	Charadrius melodus	Bird	T	No	
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No	
		Seabeach Amaranth	Amaranthus pumilus	Plant	T	No	
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No	
	Bronx	Piping Plover	Charadrius melodus	Bird	T	No	
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No	
	Westchester	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No	
		Indiana Bat	Myotis sodalis	Mammal	E	No	
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No	
	Nassau						
	Suffolk						
Putnam	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No		
	Indiana Bat	Myotis sodalis	Mammal	E	No		

Alternative 3.1: Geography		Alternative Resource Information				Critical Habitat	
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE	
Connecticut	Litchfield						
	Fairfield	Bog Turtle	<i>Clemmys muhlenbergii</i>	Reptile	T	No	
		Piping Plover	<i>Charadrius melodus</i>	Bird	T	No	
		Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No	
		Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	Fish	E	No	
		Atlantic Sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	Fish	E	No	
		Hawksbill Sea Turtle	<i>Eretmochelys imbricata</i>	Reptile	E	No	
		Kemp's Ridley Sea Turtle	<i>Lepidochelys kempii</i>	Reptile	E	No	
		Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	Reptile	E	No	
		Loggerhead Sea Turtle	<i>Caretta caretta</i>	Reptile	T	No	
		Green Sea Turtle	<i>Chelonia mydas</i>	Reptile	T	No	
		Humpback Whale	<i>Megaptera novaeangliae</i>	Mammal	E	No	
		Fin Whale	<i>Balaenoptera musculus</i>	Mammal	E	No	
		Right Whale	<i>Eubalaena glacialis</i>	Mammal	E	No	
		New Haven	Piping Plover	<i>Charadrius melodus</i>	Bird	T	No
			Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No
			Indiana Bat	<i>Myotis sodalis</i>	Mammal	E	No
			Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	Fish	E	No
			Atlantic Sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	Fish	E	No
			Hawksbill Sea Turtle	<i>Eretmochelys imbricata</i>	Reptile	E	No
			Kemp's Ridley Sea Turtle	<i>Lepidochelys kempii</i>	Reptile	E	No
			Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	Reptile	E	No
			Loggerhead Sea Turtle	<i>Caretta caretta</i>	Reptile	T	No
			Green Sea Turtle	<i>Chelonia mydas</i>	Reptile	T	No
			Humpback Whale	<i>Megaptera novaeangliae</i>	Mammal	E	No
			Fin Whale	<i>Balaenoptera musculus</i>	Mammal	E	No
			Right Whale	<i>Eubalaena glacialis</i>	Mammal	E	No
		Middlesex	Piping Plover	<i>Charadrius melodus</i>	Bird	T	No
			Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No
			Puritan Tiger Beetle	<i>Cicindela puritana</i>	Insect	T	No
			Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	Fish	E	No
			Atlantic Sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	Fish	E	No
			Hawksbill Sea Turtle	<i>Eretmochelys imbricata</i>	Reptile	E	No
			Kemp's Ridley Sea Turtle	<i>Lepidochelys kempii</i>	Reptile	E	No
			Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	Reptile	E	No
			Loggerhead Sea Turtle	<i>Caretta caretta</i>	Reptile	T	No
			Green Sea Turtle	<i>Chelonia mydas</i>	Reptile	T	No
		New London	Piping Plover	<i>Charadrius melodus</i>	Bird	T	No
			Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No
			Small-whorled Pogonia	<i>Isotria medeoloides</i>	Plant	T	No
			Sandplain Gerardia	<i>Agalinis acuta</i>	Plant	E	No
			Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	Fish	E	No
			Atlantic Sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	Fish	E	No
			Hawksbill Sea Turtle	<i>Eretmochelys imbricata</i>	Reptile	E	No
			Kemp's Ridley Sea Turtle	<i>Lepidochelys kempii</i>	Reptile	E	No
			Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	Reptile	E	No
			Loggerhead Sea Turtle	<i>Caretta caretta</i>	Reptile	T	No
		Green Sea Turtle	<i>Chelonia mydas</i>	Reptile	T	No	
	Harford	Dwarf Wedgemussel	<i>Alasmidonta heterodon</i>	Mussel (freshwater)	E	No	
	Tolland						
	Windham	Small-whorled Pogonia	<i>Isotria medeoloides</i>	Plant	T	No	
Rhode Island	Washington	Piping Plover	<i>Charadrius melodus</i>	Bird	T	No	
		Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No	
		Sandplain Gerardia	<i>Agalinis acuta</i>	Plant	E	No	
		Kent	Sandplain Gerardia	<i>Agalinis acuta</i>	Plant	E	No
		Providence	Sandplain Gerardia	<i>Agalinis acuta</i>	Plant	E	No
			Small-whorled Pogonia	<i>Isotria medeoloides</i>	Plant	T	No
Massachusetts	Worcester						
	Middlesex						
	Bristol	Piping Plover	<i>Charadrius melodus</i>	Bird	T	No	
		Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No	
		Plymouth Red-Bellied Cooter	<i>Pseudemys rubriventris bangsi</i>	Reptile	E	No	
	Norfolk						
Suffolk	Piping Plover	<i>Charadrius melodus</i>	Bird	T	No		



Alternative 3.1: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
		Roseate Tern	<i>Sterna dougalli dougalli</i>	Bird	E	No
		Shortnose Sturgeon	<i>Acipenser brevirostrum</i>	Fish	E	No
		Atlantic Sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	Fish	E	No
Additional species under consideration: The Rufus Red Knot, Northern long-eared bat, New England Cottontail, and Monarch butterfly are four species identified for continued monitoring of their ESA status and occurrence within the project area. The Red Knot has completed a final determination assessment and is listed as of January 2015. This species will be investigated for occurrence within the project area.						

Alterantive 3.2: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
DC	District of Columbia					
Maryland	Prince George's County					
	Anne Arundel	Swamp Pink	Helonius bullata	Plant	T	No
	Howard					
	Baltimore	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
	Baltimore City					
	Harford	Maryland Darter	Etheostoma sellare	Fish	E	Yes. Gasheys Run. Critical Habitat intersects with AE approximately 3,888 linear feet
		Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
	Cecil	Swamp Pink	Helonius bullata	Plant	T	No
		Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
Delaware	New Castle	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
Pennsylvania	Delaware	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Philadelphia	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Bucks	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
New Jersey	Salem					
	Gloucester					
	Camden	Bog Turtle	Clemmys muhlenbergii	Reptile	T	
	Mercer	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Swamp Pink	Helonius bullata	Plant	T	No
	Middlesex	Swamp Pink	Helonius bullata	Plant	T	No
	Somerset	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
	Union	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
	Essex					
	Hudson	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
New York	New York	Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Queens	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Seabeach Amaranth	Amaranthus pumilus	Plant	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Kings	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Seabeach Amaranth	Amaranthus pumilus	Plant	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Bronx	Piping Plover	Charadrius melodus	Bird	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Westchester	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
	Nassau	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Seabeach Amaranth	Amaranthus pumilus	Plant	T	No
		Sandplain Gerardia	Agalinis acuta	Plant	E	No
	Suffolk	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Seabeach Amaranth	Amaranthus pumilus	Plant	T	No

Alterantive 3.2: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
		Sandplain Gerardia	Agalinis acuta	Plant	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermodochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
		Humpback Whale	Megaptera novaeangliae	Mammal	E	No
		Fin Whale	Balaenoptera musculus	Mammal	E	No
		Right Whale	Eubalaena glacialis	Mammal	E	No
	Putnam					
Connecticut	Litchfield					
	Fairfield	Bog Turtle	Clemmys muhlenbergii	Reptile	T	No
		Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermodochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
		Humpback Whale	Megaptera novaeangliae	Mammal	E	No
		Fin Whale	Balaenoptera musculus	Mammal	E	No
		Right Whale	Eubalaena glacialis	Mammal	E	No
	New Haven	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Indiana Bat	Myotis sodalis	Mammal	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermodochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
		Humpback Whale	Megaptera novaeangliae	Mammal	E	No
		Fin Whale	Balaenoptera musculus	Mammal	E	No
		Right Whale	Eubalaena glacialis	Mammal	E	No
	Middlesex	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Puritan Tiger Beetle	Cicindela puritana	Insect	T	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermodochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
	New London	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Small-whorled Pogonia	Isotria medeoloides	Plant	T	No
		Sandplain Gerardia	Agalinis acuta	Plant	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
		Hawksbill Sea Turtle	Eretmochelys imbricata	Reptile	E	No
		Kemp's Ridley Sea Turtle	Lepidochelys kempii	Reptile	E	No
		Leatherback Sea Turtle	Dermodochelys coriacea	Reptile	E	No
		Loggerhead Sea Turtle	Caretta caretta	Reptile	T	No
		Green Sea Turtle	Chelonia mydas	Reptile	T	No
	Harford	Dwarf Wedgemussel	Alasmidonta heterodon	Mussel (freshwater)	E	No
	Tolland					
	Windham	Small-whorled Pogonia	Isotria medeoloides	Plant	T	No
Rhode Island	Washington	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No

Alterantive 3.2: Geography		Alternative Resource Information				Critical Habitat
State	County	Species Common Name	Species Scientific Name	Species Type	Threatened or Endangered	In AE
		Sandplain Gerardia	Agalinis acuta	Plant	E	No
	Kent	Sandplain Gerardia	Agalinis acuta	Plant	E	No
	Providence	Sandplain Gerardia	Agalinis acuta	Plant	E	No
		Small-whorled Pogonia	Isotria medeoloides	Plant	T	No
Massachusetts	Worcester					
	Middlesex					
	Bristol	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Plymouth Red-Bellied Cooter	Pseudemys rubriventris bangsi	Reptile	E	No
	Norfolk					
	Suffolk	Piping Plover	Charadrius melodus	Bird	T	No
		Roseate Tern	Sterna dougalli dougalli	Bird	E	No
		Shortnose Sturgeon	Acipenser brevirostrum	Fish	E	No
		Atlantic Sturgeon	Acipenser oxyrinchus oxyrinchus	Fish	E	No
	Additional species under consideration: The Rufus Red Knot, Northern long-eared bat, New England Cottontail, and Monarch butterfly are four species identified for continued monitoring of their ESA status and occurrence within the project area. The Red Knot has completed a final determination assessment and is listed as of January 2015. This species will be investigated for occurrence within the project area.					



# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

New England Field Office  
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<http://www.fws.gov/newengland>

April 21, 2015

Rebecca Reyes-Alicea  
USDOT – Federal Railroad Administration  
One Bowling Green, Suite 429  
New York, NY 10004

Dear Ms. Reyes-Alicea:

This responds to your correspondence, dated January 13, 2015, requesting confirmation of a list provided by you of federally listed and/or proposed endangered or threatened species, as well as other ecological resources, in relation to the Federal Railroad Administration's (FRA) Northeast Corridor (NEC) Future Study Area. Our comments are provided in accordance with section 7 of the Endangered Species Act (ESA) Act (87 Stat. 884, as amended; 16 U.S.C. 1531, *et seq.*), as well as the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755) and the Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. 668-668d).

The NEC is a high-speed rail project that would run from Washington, D.C. to Boston, Massachusetts. Currently, the FRA is evaluating five different alternatives for this project. This letter addresses only those portions of the project located in Massachusetts, Connecticut and Rhode Island. Portions of the proposed project in other states are being reviewed by the U.S. Fish and Wildlife Service's (Service) respective field offices in those states.

### **Endangered Species Comments**

We have reviewed your list of federally listed and/or proposed endangered or threatened species. According to our records, three federally threatened species occur within the range of the existing route alternatives: the small whorled pogonia (SWP) (*Isotria medeoloides*), the bog turtle (*Clemmys muhlenbergii*), and the northern long-eared bat (NLEB) (*Myotis septentrionalis*).

#### Small Whorled Pogonia

Portions of Alternative 1 in Waterford, Connecticut and Alternative 2 in Gloucester, Rhode Island occur within the range of SWP. The SWP typically occurs on upland sites in mixed deciduous or mixed deciduous/coniferous forests that are generally in second- or third-growth successional states.

Characteristics common to most SWP sites include sparse-to-moderate ground cover, a relatively open understory canopy, and proximity to features that create long-persisting breaks in the forest canopy. Soils at most sites are highly acidic and nutrient poor, with moderately high soil moisture content. If one of these alternatives is chosen, we recommend that you conduct a habitat assessment to determine if there is potential SWP habitat. If habitat is present, we recommend that a qualified botanist conduct a survey to determine if SWP is present at those locations.

### Bog Turtle

Portions of Alternative 31 in the towns of Danbury, Brookfield, Newtown, and Southbury, Connecticut are within the range of the bog turtle. Although there are no known occurrences of the bog turtle within the project study areas, we recommend that a Phase One bog turtle habitat survey be done if this alternative is chosen to document the potential presence of suitable habitat. The Service's April 2006 Guidelines for Bog Turtle Surveys are available at <http://www.fws.gov/northeast/nyfo/es/btsurvey.pdf> (accessed April 2015). Upon completion of the surveys, a report, including data forms, should be submitted to the Service for review. If these Phase One surveys reveal that potential habitat for the bog turtle may be impacted by the project, Phase Two (i.e., Presence/Absence) surveys may be advised.

### Northern Long-Eared Bat

Effective May 4, 2015, the NLEB will be listed as a federally threatened species. At this time, no critical habitat has been proposed for the NLEB. However, the states of Connecticut, Rhode Island, and Massachusetts are within the known range of the NLEB. During the winter, NLEBs hibernate predominately in caves and abandoned mine portals. During the summer, NLEBs typically roost singly or in colonies in cavities, underneath bark, crevices, or hollows of both live and dead trees and/or snags (typically  $\geq 3$  inches dbh). Males and non-reproductive females may also roost in cooler places, such as caves and mines. This species is opportunistic in selecting roosts, using various tree species based on the presence of cavities, crevices, or peeling bark. It has also been occasionally found roosting in structures such as barns and sheds (particularly when suitable tree roosts are unavailable). NLEBs forage for insects in upland and lowland woodlots and tree-lined corridors. Additional habitat types may be identified as new information is obtained. Summer surveys to determine if NLEBs are present within the project area may be recommended once a preferred alternative is chosen. We recommend that you review the 2015 Rangewide Indiana Bat Summer Survey Guidelines, found at (<http://www.fws.gov/midwest/endangered/mammals/inba/surveys/pdf/2015IndianaBatSummerSurveyGuidelines01April2015.pdf>) (accessed April 2015).

### Species Undergoing Review

In an effort to improve ESA implementation, the Service developed a multi-year-listing work plan that will enable the agency to systematically review and address the needs of more than 250 species listed on the 2010 Candidate Notice of Review, to determine if they should be added to the Federal Lists of Endangered and Threatened Wildlife and Plants. This work plan was subsequently filed as part of a Multi-District Litigation (MDL) court-approved settlement agreement with the Center for Biological Diversity and WildEarth Guardians, whereby the Service has committed to publish certain

ESA listing actions (i.e., petition findings, listing determinations, and critical habitat designations) in fiscal years (FY) 2013 to 2016 (the Federal FY ends September 30). The Service recently extended the MDL work plan to include FYs 2017 and 2018 (see the work plan available at: [http://www.fws.gov/endangered/improving\\_ESA/listing\\_workplan\\_FY13-18.html](http://www.fws.gov/endangered/improving_ESA/listing_workplan_FY13-18.html) [accessed March 2015]).

Although not currently listed, the New England cottontail rabbit (*Sylvilagus transitionalis*) appears on the MDL work plan and may occur in the vicinity of the project. The Service will draft a Proposed Rule to list the New England cottontail or prepare a 12-month finding concluding that listing of the New England cottontail is not warranted during FY 2015.

We are not aware that any comprehensive surveys or other studies have been conducted for this species within the project area. However, portions of Alternatives 2 and 31 are located within focus areas for New England cottontail management in Connecticut and Rhode Island, and in the vicinity where the New England cottontail is known to occur. New England cottontails are habitat specialists, insofar as they are dependent on early-successional habitats typically described as thickets. New England cottontails demonstrate a strong affinity for heavy cover, and are reluctant to stray from it (>5 m). Habitats of this type are typically associated with beaver flowage wetlands, idle agricultural lands, power line corridors, railroad right of ways, and patches of regenerating forests. In contrast, eastern cottontails (which can often be found inhabiting areas where New England cottontails exist) appear to have relatively generalized habitat requirements and can often be found in residential-type habitats, such as private lawns, golf courses, and active agriculture areas. Given the conservation status of the New England cottontail and their potential presence in the project area, consideration of the species during project planning is strongly advised.

### **Migratory Bird Treaty Act**

The MBTA prohibits taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. Neither the MBTA nor its implementing regulations at 50 CFR Part 21 provide for permitting of “incidental take” of migratory birds. While “take” of migratory birds does not include habitat destruction or alteration, direct taking of birds, nests, eggs, or parts thereof is likely to occur if clearing or other ground disturbance occurs within migratory bird nesting habitat during the nesting season, when eggs or young are likely to be present. Vegetation removal activities should not occur during these periods.

This project occurs within the Atlantic Northern Forest Bird Conservation Region (BCR) 14 and the New England/Mid-Atlantic Coast BCR 30. BCRs are ecologically based units for planning, implementing, and evaluating cooperative bird conservation efforts across North America. Activities associated with this project, particularly in areas of new transmission line, may result in direct and secondary impacts to forest-interior breeding birds and their natural habitats. In these areas, there will be an increase in disturbance of birds due to habitat fragmentation, increased populations of some predators due to edge effect, and possibly an increase in the spread of invasive species. These are important issues that we encourage FRA to consider when developing avoidance, minimization and mitigation measures.

### **Bald and Golden Eagle Protection Act**

Although protection of the bald eagle (*Haliaeetus leucocephalus*) pursuant to the ESA was removed in 2007 when the species was delisted, the species remains federally protected under the MBTA and the BGEPA. The BGEPA prohibits unpermitted take of bald eagles, with “take” defined as to “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest or disturb” (16 U.S.C. 668c; 50 CFR 22.3). The regulations (50 CFR 22.3) also define “disturb” as “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause: (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.” If eagle nests are currently found in the vicinity of the project, or if activities are proposed that may disturb bald eagles, (i.e., blasting within 0.5 mile of a known nest), a BGEPA permit may be required.

To ensure compliance with the BGEPA, we recommend that you contact the States annually to obtain updated information on bald eagles within your project area. Upon receipt of this occurrence information, we recommend that you review the Service’s National Bald Eagle Management Guidelines. This information may allow you to plan the project in a way that minimizes disturbance to bald eagles.

### **National Wildlife Refuges**

A portion of Alternative 2 goes through the Salt Meadow Unit of the Stewart B. McKinney National Wildlife Refuge in Westbrook, Connecticut. Please coordinate with Refuge Manager Richard Potvin (richard\_potvin@fws.gov) to address any potential impacts at the Refuge.

Thank you for your coordination on this project. Please contact Maria Tur of this office at 603-223-2541 with any additional information or for further assistance.

Sincerely yours,



*Adm* Thomas R. Chapman  
Supervisor  
New England Field Office





# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

Chesapeake Bay Field Office  
177 Admiral Cochrane Drive  
Annapolis, Maryland 21401  
<http://www.fws.gov/chesapeakebay>

May 14, 2015

Ms. Rebecca Reyes-Alicea  
NEC FUTURE Program Manager  
USDOT – Federal Railroad Administration  
One Bowling Green, Suite 429  
New York, NY 10004

*RE: Northeast Corridor Future Program Tier 1 EIS - Ecological Resources Effects Assessment  
Coordination Relative to Section 7 of the Endangered Species Act for Delaware, Maryland and  
Washington, DC*

Dear Ms. Reyes-Alicea:

This responds to your letter dated January 13, 2015 with attachments and Amishi Castelli's email message dated March 16, 2015 regarding widths of the Representative Routes for the Northeast Corridor Future Program. You are requesting information on the presence of species which are federally listed or proposed for listing as endangered or threatened within the vicinity of the above referenced project area. We have reviewed the information you enclosed and are providing comments in accordance with section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

The federally threatened bog turtle (*Clemmys muhlenbergii*) may be present within the project area or within the vicinity of the project. Bog turtles primarily inhabit palustrine wetlands comprised of a muddy bottom or shallow water, and tussocks of vegetation. A survey for bog turtle habitat and bog turtles may be appropriate. These surveys or other measures should be conducted at any location where the Delaware Division of Fish and Wildlife, Species Conservation and Research Program; and Maryland Wildlife and Heritage Division recommends. Upon completion, survey reports should be forwarded to the U.S. Fish and Wildlife Service (Service), Delaware Division of Fish and Wildlife, Species Conservation and Research Program; and the Maryland Wildlife and Heritage Division for review. If you have not already sent a copy of your request for threatened and endangered species information to the Delaware Division of Fish and Wildlife, Species Conservation and Research Program (4876 Hay Point Landing Road, Smyrna, DE 19977) and Maryland Department of Natural Resources Wildlife and Heritage Division (580 Taylor Avenue, E-1, Annapolis MD 21401), please do so. Ms. Holly Niederriter can provide further details regarding the distribution of bog turtles in Delaware, appropriate survey techniques for determining the presence of the species, and a list of qualified bog turtle surveyors. Ms. Niederriter may be contacted at (302) 735-8670. Ms. Lori



Byrne of the Wildlife and Heritage Division in Maryland will provide additional information regarding the need for surveys and a list of experts who are qualified to perform such surveys. Ms. Byrne may be contacted at (410) 260-8573.

The federally endangered Maryland darter (*Etheostoma sellare*) may be present within the project area or within the vicinity of this project. The Maryland darter is a small freshwater fish only known from a limited area in Harford County, Maryland. The Maryland darter primarily inhabits the areas of streams that contain riffles that are composed of gravel and silt.

The federally threatened northern long-eared bat (*Myotis septentrionalis*) may be present in the project area. Northern long-eared bats predominantly overwinter in hibernacula that include caves and abandoned mines. Hibernacula used by northern long-eared bats vary in size from large, with large passages and entrances, to much smaller hibernacula. During the summer, northern long-eared bats occur in a variety of forest types and typically roost singly or in colonies underneath bark or in cavities of both live trees and snags. Northern long-eared bats have also been observed roosting in colonies in human-made structures, such as in buildings, in barns, on utility poles, behind window shutters, and in bat houses.

The federally threatened swamp pink (*Helonias bullata*) has been documented to occur in the project area in Maryland. Swamp pink is a perennial wildflower that inhabits a variety of freshwater wetlands, including spring seepages, swamps, bogs, wet meadows and margins of small streams. We recommend that any wetlands to be filled or otherwise affected by the proposed project be surveyed for the presence of swamp pink by a professional botanist. Enclosed is a list of qualified individuals who have experience with swamp pink surveys. Even if no direct effects to potential swamp pink habitat are identified, any projects on this property must be designed to minimize impacts of hydrologic changes, siltation, and runoff (quantity and quality) on the watershed. Any such potential impacts on swamp pink habitat should be analyzed as a part of your environmental assessment. If such impacts may occur, further Section 7 consultation with the U.S. Fish and Wildlife Service may be required.

Except for occasional transient individuals, no other federally proposed or listed endangered or threatened species are known to exist within the project impact area. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

This response relates only to federally protected threatened or endangered species under our jurisdiction. For information on the presence of other rare species in Delaware, you should contact Kate Fleming of the Delaware Division of Fish and Wildlife, Wildlife Species Conservation and Research Program at (302) 735-8658. You may also obtain information on how to make such a request by visiting the Program website at [www.dnrec.state.de.us/nhp](http://www.dnrec.state.de.us/nhp). For information on the presence of other rare species in Maryland, you should contact Lori Byrne of the Maryland Wildlife and Heritage Division at (410) 260-8573. In addition, for information on the presence of other rare species in Washington, DC, you should contact Bryan King of the DC Department of the Environment at (202) 535-2260.



The bald eagle is a federally protected species under the Bald and Golden Eagle Protection Act (BGEPA). Please review the Service's National Bald Eagle Management Guidelines to assess whether impacts from your project's activities are likely to impact bald eagles. The link to this guidance can be found

at: <http://www.fws.gov/northeast/ecologicalservices/pdf/NationalBaldEagleManagementGuidelines.pdf>. If your project cannot avoid disturbance, you may apply for a permit that authorizes take of bald eagles where take to be authorized is associated with otherwise lawful activities.

Please contact the Chesapeake Bay Ecological Services Field Office at 410-573-4534 for further information and assistance with the BGEPA permitting process.

An additional concern of the Service is wetlands protection. The Service's wetlands policy has the interim goal of no overall net loss of Delaware Bay's remaining wetlands, and the long term goal of increasing the quality and quantity of the Basin's wetlands resource base. In addition, Federal and state partners of the Chesapeake Bay Program have adopted an interim goal of no overall net loss of the Chesapeake Bay's remaining wetlands, and the long term goal of increasing the quality and quantity of the Chesapeake Bay's wetlands resource base. Because of this policy, interim goal, and the functions and values wetlands perform, the Service recommends avoiding wetland impacts. All wetlands within the project area should be identified, and if construction in wetlands is proposed, the U.S. Army Corps of Engineers, Philadelphia District should be contacted for permit requirements in the State of Delaware at (215) 656-6728 and the U.S. Army Corps of Engineers, Baltimore District, should be contacted for permit requirements in the State of Maryland at (410) 962-3670.

We appreciate the opportunity to provide information relative to fish and wildlife issues, and thank you for your interests in these resources. If you have any questions or need further assistance, please contact Trevor Clark at (410) 573-4527.

Sincerely,



Genevieve LaRouche  
Supervisor

Attachment

and Maryland

**Approved Surveyors in Virginia for:  
Swamp pink (*Helonias bullata*)**

This list contains the names of individuals who are qualified to conduct habitat assessments/surveys for the referenced species in Virginia. If you select an individual not on this list to conduct habitat assessments/surveys for the referenced species, provide that individual's qualifications to this office for review and approval 60 days prior to the start of the survey. If a habitat assessment determines there is habitat for one or more of the referenced species, a species survey by an approved surveyor is needed. If the survey determines that any rare species are present, contact this office to allow us the opportunity to work with you to avoid or minimize adverse effects to rare species and their habitats during project design and implementation. Email correspondence and survey results to [virginiafieldoffice@fws.gov](mailto:virginiafieldoffice@fws.gov). Inclusion of names on this list does not constitute endorsement by the U.S. Fish and Wildlife Service or any other U.S. Government agency.

Last Updated: 06 February 2015

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