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

March 31, 2021

Melissa Pauley
Energy Resilience Division, OE-20
Office of Electricity
U.S. Department of Energy
Washington, D.C. 20585

Re: Request for Re-initiation of the Champlain Hudson Power Express project – Endangered Species Act Section 7 Consultation

Dear Ms. Pauley:

This responds to our December 4, 2020, and March 19, 2021, letters requesting re-initiation of consultation pursuant to Section 7 of the Endangered Species Act (ESA) of 1973, as amended, regarding the Champlain Hudson Power Express (CHPE) project. On September 18, 2014, we completed an Endangered Species Act (ESA) section 7 consultation in response to your request for concurrence with your determination that the proposed action was not likely to adversely affect any ESA listed species. Our determination was based on your July 2014 letter and final biological assessment (BA) for the proposed CHPE project, as well as a final environmental impact statement (EIS) for the proposed project, which was received on August 11, 2014.

CHPE submitted an application to the Department of Energy (DOE) to amend their existing Presidential Permit PP-481 on September 25, 2020. The proposed modifications to the existing Presidential Permit do not affect the routing within waters where species under our jurisdiction are located other than a minor (less than 1,000 feet) decrease in the length of the transmission system installed in the Hudson River south of Haverstraw Bay and the utilization of horizontal directional drill (HDD) technology to install the transmission cables under these waters. While you have determined that those minor changes to the project do not result in any effects to listed species not considered in our 2014 consultation, DOE has requested re-initiation to consider effects of the action on critical habitat designated for the New York Bight distinct population segment (DPS) of Atlantic sturgeon. This critical habitat designation post-dates the 2014 consultation. On August 17, 2017, we published a final rule designating critical habitat for all five DPSs of Atlantic sturgeon (82 FR 39160; effective date September 18, 2017), including the Hudson River as far upriver as the Federal Dam at Troy, New York. Because the proposed action may affect this critical habitat, we agree that re-initiation of consultation is appropriate.

We concur with your determination that the proposed changes to the action do not cause any effects to listed species that were not considered in our 2014 consultation. We also concur with your determination that the proposed action may affect, but is not likely to adversely affect designated critical habitat under our jurisdiction in the project area. Our supporting analysis in

regards to effects of the proposed action on ESA-listed species and designated critical habitat is provided below.

Proposed Action

Our 2014 consultation contains a complete description of the proposed action and that is incorporated by reference here. In summary, the consultation considers the effects of federal actions that would authorize the applicant, Champlain Hudson Power Express, Inc. (CHPEI), to construct, operate, and maintain the proposed CHPE high-voltage electric transmission line from the U.S./Canada border to New York City (Figures 1 and 2).

Changes to the Proposed Action from the Action Considered in our 2014 Consultation

On July 21, 2020, DOE issued Presidential Permit PP–481 transferring the facilities authorized in PP–362 to CHPE, LLC at the request of CHPEI and CHPE, LLC. Since the issuance of PP–362 in 2014, CHPE, in consultation with various stakeholders, developed certain modifications to the permitted Project route, including relocating the site of the Project converter station (DOE 2020). CHPE proposed eight route modifications that would lengthen the Project by approximately 5.1 linear miles, an increase of less than 2%. Of the eight proposed modifications, the only one with the potential to affect species under our jurisdiction pertains to the water-to-land routing in Rockland County. CHPE proposed moving the cables from the Permitted Route at MP 295.4 in Stony Point to transition from the Hudson River via HDD (Figure 3). As stated above, the proposed modification represents a minor (less than 1,000 feet) decrease in the length of the transmission system installed in the Hudson River south of Haverstraw Bay and the utilization of horizontal directional drill (HDD) technology to install the transmission cables under these waters.

Description of the Action Area

The action area is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR§402.02). More specifically, the action area includes not only the footprint of the proposed CHPE project, but also the distance that sediment plumes, underwater noise, elevated temperatures, and electromagnetic fields can travel outward from the footprint in each of the aquatic segments. Detailed information on the action area is included in our 2014 consultation and incorporated here by reference. In summary, the action area for this project is an approximately 1,000-foot wide swath centered along the path where route clearing and cable entrenchment via jet plowing will occur, as well as 500-foot radius areas surrounding HDD underwater exit and entry points, and any portions of the water column through which tow lines will be suspended. These areas are expected to encompass all of the effects of the proposed project.

NMFS Listed Species and Critical Habitat in the Action Area

Shortnose and Atlantic sturgeon are the only two ESA listed species under our jurisdiction that occur in the action area for this project (which includes segments of the Hudson and Harlem Rivers). The 2014 consultation includes a complete description of the use of the action area by these species and is incorporated here by reference. The only designated critical habitat within the action area is the Hudson River Unit designated for the New York Bight DPS of Atlantic sturgeon. As noted in our 2014 consultation, there are no listed species or critical habitat under

our jurisdiction that occur in Lake Champlain or the overland areas where project construction activities will also occur.

Designated Critical Habitat – New York Bight DPS of Atlantic Sturgeon

On August 17, 2017, we published a final rule designating critical habitat for all five DPSs of Atlantic sturgeon (82 FR 39160; effective date September 18, 2017). Critical habitat designated for the New York Bight DPS includes the Hudson River critical habitat unit, which consists of the Hudson River from the Troy Lock and Dam (also known as the Federal Dam) downstream to where the main stem river discharges at its mouth into New York City Harbor. The Hudson River and New York City Metropolitan Area segments of the project overlap with a portion of the Hudson River unit of critical habitat designated for the New York Bight DPS. The critical habitat designation for the New York Bight DPS is for habitats that support successful Atlantic sturgeon reproduction and recruitment. In order to determine if the proposed action may affect critical habitat, we consider whether it would impact the habitat in a way that would affect its ability to support reproduction and recruitment. Specifically, we consider the effects of the project on the physical or biological features (PBF) of the critical habitat. These 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 (ppt) 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 up to as high as 30 ppt and soft substrate (*e.g.,* sand, mud) between the river mouth and spawning sites for juvenile foraging and physiological development;

3) Water of appropriate depth and absent physical barriers to passage (*e.g.,* locks, dams, thermal plumes, turbidity, sound, reservoirs, gear, etc.) between the river mouth and spawning sites necessary to support:

i. Unimpeded movement of adults to and from spawning sites;
ii. Seasonal and physiologically dependent movement of juvenile Atlantic sturgeon to appropriate salinity zones within the river estuary; and
iii. Staging, resting, or holding of subadults or spawning condition adults.

Water depths in main river channels must also be deep enough (*e.g.,* at least 1.2 m) to ensure continuous flow in the main channel at all times when any sturgeon life stage would be in the river.

4) Water, between the river mouth and spawning sites, especially in the bottom meter of the water column, with the temperature, salinity, and oxygen values that, combined, support:

i. Spawning;
ii. Annual and interannual adult, subadult, larval, and juvenile survival; and
iii. 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 milligrams per liter (mg/L) dissolved oxygen (DO) or greater for juvenile rearing habitat).

Effects of the Action on Critical Habitat

For each PBF, we identify the activities that have effects that overlap with the PBF and then identify the activities that may affect the PBF. For each feature that may be affected by the action, we then determine whether any negative effects to the feature are insignificant or extremely unlikely to occur. In making this determination, we consider the action's potential to affect how each PBF supports Atlantic sturgeon's conservation needs in the action area.

Feature One: Hard bottom substrate (e.g., rock, cobble, gravel, limestone, boulder, etc.) in low salinity waters (i.e., 0.0–0.5 ppt range) for settlement of fertilized eggs, refuge, growth, and development of early life stages

In considering effects to PBF 1, we consider whether the proposed action will have any effect on areas of hard bottom substrate (e.g., rock, cobble, gravel, limestone, boulder, etc.) in low salinity waters (i.e., 0.0–0.5 ppt range) for settlement of fertilized eggs, refuge, growth, and development of early life stages. Therefore, we consider how the action may affect hard bottom substrate and salinity and how any effects may change the value of this feature in the action area. We also consider whether the action will have effects on access to this feature, temporarily or permanently and consider the effect of the action on the action area's ability to develop the feature over time. During average fresh water flow, the freshwater portion of the Hudson River (where salinity is within the 0.0-0.5 ppt range) extends upstream from approximately West Point (MP 286). During conditions of high fresh water runoff (usually in the spring), salt-water intrusion can be pushed south, meaning that the freshwater reach would begin at rkm 24 (MP 322). However, those conditions are intermittent, and it is the reach upstream of MP 286 that typically is within the 0.0 – 0.5 ppt range. Atlantic sturgeon in the Hudson River range as far upstream as the Federal Dam at Troy (approximately rkm 245, RM 150) meaning that Atlantic sturgeon have access to approximately 100 miles of freshwater. A number of mapping products for the Hudson River are available, with various levels of detail on bottom characteristics (see for example NYDEC's benthic mapper[1] and products from the Lamont Doherty Lab[2]). While the area just below the Troy Dam has a gravelly bottom, the rest of the freshwater reach is dominated by mud and a sand-mud mix. Hard bottom substrate for spawning is known to occur near MP 254 (rkm 134; Hyde Park) and MP 266 (rkm 112) (Bain et al. 2000). While there are over 100 miles of freshwater in the Hudson River critical habitat unit, the presence of PBF 1 is limited to the patchy areas where hard bottom substrate is present. Activities that overlap with the portion of the Hudson River that contains PBF 1 include debris removal, transmission line installation and burial, vessel operations, cable operation, and any potential cable repairs during the 40+-year life span of the project. Here we consider whether those activities may affect PBF 1 and if so, whether those effects are insignificant, discountable (i.e., extremely unlikely to occur), or entirely beneficial.

Debris Removal

Debris removal in the Hudson River could require one to three stages based on the site conditions. The initial stage of route clearing involves large grapnel equipment to find and remove debris lying on and just below the river floor. A second stage clearing would employ a de-trenching grapnel in areas of extensive debris or suspect areas. The grapnel would penetrate up to three feet into the riverbed. If site conditions indicate the potential for sub-surface debris, a

[1] http://www.dec.ny.gov/lands/33596.html

[2] https://www.ldeo.columbia.edu/edu/k12/snapshotday/Mapping.html

third stage of clearing including plow pre-rip would be required. The plow pre-rip is designed to clear and break up compacted layers of substrate along the entire route to the full burial depth using a jet plow but without the cables loaded. Debris removal in areas upstream of MP 286 overlaps with the portion of the Hudson River that includes patchy areas that contain PBF 1.

Debris removal will not have any effect on salinity. Clearing with grapnel equipment and jet plowing will result in sediment disturbances. There could be some areas with mixed sand and gravel or silt and clay with cobbles, or shell hash mixed with silt and clay, although these areas are not expected to be common and the project is designed to avoid these areas to facilitate jet plowing. During the marine survey conducted by the applicant in 2010, only two sediment cores in the Hudson River contained cobble or gravel in surficial sediments, located at approximately MP 234. Because cobble and gravel are not common within the transmission line route and rock outcroppings would be avoided wherever possible, the effects to the value of areas containing PBF 1 are expected to be negligible. This is because sturgeon spawning in the Hudson River occurs exclusively over cobble and gravel habitats. Pre-installation hydrographic surveys conducted prior to debris removal would provide additional information on the sediments being disturbed. Upon completion of in-water activities in a given area, riverine depositional processes would, over time, return the benthic habitat to its pre-construction condition. Based on the scarcity of areas containing PBF 1 (i.e., areas within low salinity reaches with hard substrate) and the temporary nature of sediment disturbance if debris removal did occur in these areas, any effects to the value of PBF 1 will be so small that they cannot be meaningfully measured, detected or evaluated and effects to PBF 1 are insignificant.

Transmission Line Installation and Burial
Aquatic installation and burial of the transmission line would occur via jet plow in the Hudson River, via HDD at water-to-land transitions, lain on the surface over bedrock or utility line crossings, and covered with concrete mats (total of 3.0 miles). The jet plow is fitted with hydraulic pressure nozzles that create a downward and backward flow to fluidize the sediment within a trench approximately two feet wide to eight feet deep depending on the burial requirements allowing the transmission cables to settle to the bottom of the trench under their own weight before the sediments settle back into the trench.

Aquatic installation and burial of the transmission line would not have any effect on salinity. Trenching and hydroplowing will result in sediment disturbances. As stated above in the *Debris Removal* section, cobble and gravel are not common within the transmission line route and rock outcroppings would be avoided based on pre-installation hydrographic surveys. The primary installation method in the Hudson River is proposed to be water-jetting technology, which has been shown to minimize impacts on marine habitats and excessive dispersion of bottom habitats relative to dredging activities. Based on the scarcity of areas containing PBF 1 and the use of the best available technology to minimize impacts to bottom habitat, any effects to the value of PBF 1 will be so small that they cannot be meaningfully measured, detected, or evaluated and effects to PBF 1 are insignificant.

Cable Operation and Maintenance
As noted above, mean salinities in areas upstream from approximately MP 286 where limited patchy areas of PBF 1 occur, range from 0.0 – 0.5 ppt. Heat associated with CHPE project's

HVDC cables has no effect on salinity and will not disturb hard substrate. Similarly, electric and magnetic fields associated with the project transmission line will have no effect on salinity and will not disturb hard substrate. Therefore, these activities have no effect on PBF 1.

It is possible that over the lifespan of the project, transmission cables could be damaged. In the event of aquatic cable repair, the location of the problem would be identified and crews of qualified repair personnel would be dispatched to the work location. A portion of the cable would be raised to the surface, the damaged portion of the cable cut, and a new cable section would be spliced in place. Once repairs were completed, the cable would be reburied using a remotely operated vehicle-jetting device. The applicant does not anticipate the need for frequent transmission line repairs and hard bottom substrate is not common within the transmission cable route. Based on the considerations here, any effects to the value of PBF 1 related to transmission cable repairs will be so small that they cannot be meaningfully measured, detected, or evaluated and effects to PBF 1 are insignificant.

Vessel Operations

The vessel transit route for the route-clearing equipment and the vessels used to coordinate the laying of the transmission cable overlap with the portion of the Hudson River that contains PBF 1. Approximately four vessels including a cable-laying vessel, survey boat, crew boat, and tugboat or towboat, would be involved in laying the transmission cable. However, project vessels will have no effect on PBF 1. This is because the project vessels will have no effect on salinity and will not interact with the bottom in this reach and therefore, there would be no impact to hard bottom habitat. The vessels will be loaded or unloaded at various temporary marine-based yards along the routes. The yards would generally be no more than 50 miles (81 km) from the equipment's location. The vessels will operate in the channel where there is adequate water depth to prevent bottoming out or otherwise scouring the riverbed. Vessel operations are not expected to affect the behavior of Atlantic sturgeon and therefore would not affect access to areas where PBF 1 is present. The vessels operations will not preclude or delay the development of hard bottom habitat in the part of the river with salinity less than 0.5 ppt because they will not impact the river bottom in any way or change the salinity of portions of the river where hard bottom is found.

In the event that bottom conditions are encountered that either stop forward progress or result in excessive rolling of pitching of the jet plow, vessel positioning and anchorage during installation of the transmission line could overlap with an area of the Hudson River that contains PBF 1. Barge positioning, anchoring, anchor cable sweep, and the pontoons on the jet plow could result in sediment disturbance. Anchors would also be employed during idle periods due to weather conditions. The applicant does not envision open water anchorages as a common event. The collective length of all work areas where anchor may be deployed and potentially result in impacts on benthic habitat is projected to be less than 1% of the approximately 197-mile aquatic portion of the installation route. As stated above, cobble and gravel are not common within the transmission line route. Based on the available information, we do not expect cobble and gravel to occur in the less than 1% of benthic habitat impacted by anchorage during installation. Based on the uncommon occurrence of open water anchorages and the limited patchy areas where hard bottom substrate is present, any effects to the value of PBF 1 will be so small that they cannot be meaningfully measured, detected or evaluated and effects to PBF 1 are insignificant.

Any vessels associated with transmission cable repairs will have no effect on salinity and will not interact with the bottom and therefore, there would be no impact to hard bottom habitat.

Conclusions for PBF 1
Debris removal, transmission line installation and burial, vessel operations, and cable operation and maintenance overlap with PBF 1 in low salinity waters. None of these activities will affect salinity in the action area. Cobble and gravel are not common within the transmission line route and the project is designed to avoid areas containing PBF 1 to facilitate jet plowing. In the event that hard bottom substrate is affected by these activities, impacts to bottom habitat will be temporary. Based on the assessment here, any effects of substrate disturbance due to debris removal, transmission line installation and burial, vessel operations, and cable operation and maintenance will be so small that they cannot be meaningfully measured, evaluated, or detected. Based on these considerations, any effects to the value to PBF 1 to the conservation needs of Atlantic sturgeon in the action area will be so small that they cannot be meaningfully measured, detected, or evaluated and effects to PBF 1 are insignificant.

Feature Two: Transitional salinity zone with soft substrate for juvenile foraging and physiological development
In considering effects to PBF 2, we consider whether the proposed action will have any effect on areas of soft substrate within transitional salinity zones between the river mouth and spawning sites for juvenile foraging and physiological development; therefore, we consider effects of the action on soft substrate and salinity and any change in the value of this feature in the action area. We also consider whether the action will have effects on access to this feature, temporarily or permanently. We also consider the effect of the action on the action area's ability to develop the feature over time.

In order to successfully complete their physiological development, Atlantic sturgeon must have access to a gradual gradient of salinity from freshwater to saltwater. Atlantic sturgeon move along this gradient as their tolerance to increased salinity increases with age. Catches of Atlantic sturgeon less than 63 centimeters fork length suggest that sexually immature fish utilize the Hudson River estuary from the Tappan Zee (RKM 40) through Kingston reaches (RKM 148; MP 245) (Dovel and Berggren, 1983; Haley, 1999; Bain *et al*., 2000). Seasonal movements of the immature fish are apparent as they primarily occupy waters from RKM 60 to RKM 107 during summer months and then move downstream as water temperatures decline in the fall, primarily occupying waters from RKM 19 to RKM 74 (Dovel and Berggren, 1983; Haley, 1999; Bain *et al*., 2000). Soft substrate is important for juvenile foraging because soft substrates support the benthic invertebrates on which juveniles forage. At this time, we are not able to draw any conclusions about the value of different types of soft substrates (e.g., sand vs. mud) as soft-bodied benthic invertebrates that juvenile sturgeon eat can be found in a variety of soft substrates. The Hudson River Estuary is tidally influenced from the Battery to the Federal Dam at Troy; during average fresh water flow, salt water intrusion reaches West Point, about 50 miles from the Battery. During conditions of high fresh water runoff (usually in the spring), salt-water intrusion can be pushed south, as far as 15 miles from the Battery. Salinity level varies throughout these areas seasonally and daily depending on tidal and freshwater inputs, with salinity generally increasing from West Point to the Battery. A number of mapping products for the Hudson River are available, with various levels of detail on bottom characteristics (see for

example NYDEC's benthic mapper[3] and products from the Lamont Doherty Lab[4]). While the area just below the Troy Dam has a gravelly bottom, the rest of the freshwater reach is dominated by mud and a sand-mud mix. The area between rkm 138 and rkm 43 is described as being largely silt (Coch and Bokuniewicz 1986). Simpson et al. (1986) examined benthic invertebrates at 16 stations in the lower Hudson River. Areas with relatively heterogeneous substrates (sands mixed with silts) contained the richest fauna in terms of abundance and variety. Fine, well-sorted sand had the lowest biomass and least variety. This study indicates that areas with fine sand may not support juvenile foraging as well as sandy-silt areas because they are not likely to have as high biomass or richness of benthic invertebrate resources. Haley et al. (1996) examined juvenile sturgeon use in the Hudson River and did not find a statistical difference in distribution based on substrate type; in this study, 80% of the stations sampled had silty substrate, 17.4% had sandy substrate and 2.3% had gravel substrate. In a separate study, Atlantic sturgeon ranging in size from 32 to 101 cm fork length were captured at highest concentrations during spring in soft-deep areas of Haverstraw Bay even though this habitat type comprised only 25 percent of the available habitat in the Bay (Sweka et al., 2007).

Activities that overlap with PBF 2 include debris removal, transmission line installation and burial, cofferdam installation, vessel operations, cable operation, and any potential cable repairs during the 40+-year life span of the project. Here we consider whether those activities may affect PBF 2 and if so, whether those effects are insignificant, discountable, or entirely beneficial.

Debris Removal and Transmission Line Installation and Burial
As stated above, debris removal and aquatic installation and burial of the transmission line would not have any effect on salinity. These activities (e.g. clearing with grapnel equipment, jet plowing, and trenching) will result in sediment disturbances. PBF 2 occurs in the action area from the salt front at approximately MP 269 (rkm 107) south to the lowermost boundary of the Hudson River segment of the action area (i.e. Spuyten Duyvil Creek, MP 324, rkm 20).

During the initial phase of debris removal, the riverbed would be disturbed. If plow pre-rip is also required and the jet plow is used, impacts would be similar to water jetting, with a similar or smaller impact corridor. Depending on the debris found, the applicant expects that the total riverbed area disturbed would be a maximum of 15 feet wide along the 54-mile portion of the transmission line corridor in the Hudson River, for a maximum total of 92 acres. Along most of the route, the applicant expects that little or no large debris would be found and the disturbance would be limited to the three-foot grapnel penetration, which would be much narrower than 15 feet. Assuming a disturbance width of five feet, this equates to 33 acres.

Transmission line installation and burial in the Hudson River would temporarily disturb or alter the sediment and bottom substrates. As previously stated, the primary installation method in the Hudson River segment is proposed to be water-jetting technology, which has been shown to minimize impacts on marine habitat and excessive dispersion of bottom sediments relative to dredging activities. The bottom area directly disturbed by water jetting or mechanical plowing would range from 12 to 16 feet in width. The depth of the transmission line trench would be

[3] http://www.dec.ny.gov/lands/33596.html
[4] https://www.ldeo.columbia.edu/edu/k12/snapshotday/Mapping.html

approximately seven feet with one foot or less of horizontal separation between the two bipole cables, which would be collocated in the same trench. The bulk of the sediment disturbed would resettle in the trench created by the jet plow, and we expect natural processes that control scour and deposition to re-establish the original bottom contours along the transmission line route. Installation of the transmission line would result in approximately 533 acres of riverbed disturbance in the Hudson River, which is approximately 0.9% of the total surface area of the River. This represents the acreage within a 50-foot construction corridor along the transmission line route and includes trenching and the adjacent area where a substantial majority of sediment from the trench would settle.

Sediment disturbances from water jetting and sediment redeposition would result in a short-term loss of benthic organisms and shellfish that serve as forage for Atlantic sturgeon. These impacts result from crushing, killing, or displacing benthic organisms. The temporary sediment disturbance in benthic habitat, which supports benthic prey items for Atlantic sturgeon, would remain usable as potential Atlantic sturgeon foraging habitat. Temporary and localized reductions in available benthic food sources are anticipated, since some mortality of benthic infaunal organisms that serve as prey for Atlantic sturgeon would occur. The majority of these impacts would occur within the 50-foot project corridor. Mortality of invertebrates is expected to be greatest within the two-foot wide trench, but could also occur to either side of the trench, particularly near the trench where greater concentrations of sediment are expected to settle. The temporary disturbance of an area would represent a minor fraction of similar adjacent habitat in the Hudson River. Only a small portion (0.9% of the Hudson River in the vicinity of the proposed CHPE project) of sturgeon feeding habitat would be affected by sediment disturbance associated with the transmission line.

Upon completion of in-water activities in a given area, estuarine depositional processes would, over time, return the benthic habitat to its pre-construction condition. Functional communities would be expected to recolonize these areas over time. Complete recovery times for the benthic communities vary from several months to several years depending on the community composition and severity and frequency of disturbance (Newell et al. 2004, Carter et al. 2008).

Debris removal would occur within the same area to be disturbed by actual transmission line installation within the following year. Because the habitat disturbance would affect a relatively small amount of the river, and because of the temporary nature of the disturbance, debris removal and installation of the transmission line is expected to result in negligible reductions in benthic shellfish and infaunal organisms that serve as prey for Atlantic sturgeon. Based on the considerations here, we conclude that any effects to the value of PBF 2 related to debris removal and transmission line installation and burial will be so small that they cannot be meaningfully measured, detected, or evaluated and effects to PBF 2 are insignificant.

Cofferdam Installation

Cofferdam installation will have effects on soft substrates; dredging and pile installation will result in a small net loss of soft substrate in the transitional salinity zone. This loss is not contiguous and will be limited to the footprint of the three cofferdams that will be installed in the Hudson River. The acreage of habitat loss due to the cofferdam footprint is less than one acre in the Hudson River. Approximately, 107 cubic yards would be removed from within each cofferdam, for a total of 321 cubic yards of dredged material. The substrate types affected (silt,

sand, and mud) are the dominant substrate types throughout the action area. As previously stated, there is no information to suggest that any of the impacted areas are of a higher value for foraging than other adjacent and surrounding areas of soft substrate. Rather, the location in the shallow near-shore areas indicates that these are areas that would not often be used by foraging juvenile sturgeon. The area of permanent habitat loss is an extremely small percentage of the available soft-sediment benthic habitat within the transitional salinity zone of the Hudson River segment of the project.

Other than the permanent loss due to the cofferdam footprint, there will be no permanent loss of access to any areas of PBF 2. During installation of sheet piles, there will be times when underwater noise limits access to areas with PBF 2, however, that temporary loss of access would amount to 30-120 minutes for a single pair of sheets and be limited spatially to the small areas where noise is greater than 150 dB re 1µPa RMS.

There will be no alterations to the salinity gradient, and the impacts to soft substrate will not affect access to the transitional salinity zone in the Hudson River. Given that the loss will be: (1) limited to three small areas of soft substrate in an areas with contiguous stretches of abundant soft substrate habitat; (2) temporary and limited spatially to just the small areas where underwater noise limits access to areas with PBF 2; and (3) outside of the deeper parts of the action area where juvenile sturgeon most often occur, we conclude that any effects to the value of PBF 3 related to dredging and sheet pile installation will be so small that they cannot be meaningfully measured, detected or evaluated and effects to PBF 2 are insignificant.

Cable Operation and Maintenance
Mean salinities in the action area from the salt front at approximately MP 269 (rkm 107) south to the lowermost boundary of the Hudson River segment of the action area at MP 324 (rkm 20), range from 0.0 – 18.0 ppt. Heat associated with CHPE project's HVDC cables has no effect on salinity and will not disturb hard substrate. Similarly, electric and magnetic fields associated with the project transmission line will have no effect on salinity and will not disturb hard substrate. Therefore, these activities have no effect on PBF 2.

It is possible that over the lifespan of the project, transmission cables could be damaged. In the event of aquatic cable repair, the location of the problem would be identified and crews of qualified repair personnel would be dispatched to the work location. A portion of the cable would be raised to the surface, the damaged portion of the cable cut, and a new cable section would be spliced in place. Once repairs were completed, the cable would be reburied using a remotely operated vehicle-jetting device. Any vessels associated with transmission cable repairs will have no effect on salinity and will not interact with the bottom and therefore, there would be no impact to soft bottom habitat. While the applicant does not anticipate the need for frequent transmission line repairs, any future cable repairs would occur within the approximately 533 acres of riverbed (i.e. approximately 0.9% of the total surface area of the River) that experienced disturbance during debris clearing and the initial transmission line installation. This means less than 0.9% of the total surface area of the Hudson River would be affected by any cable maintenance activities over the lifespan of the project. This area represents a minor fraction of similar adjacent habitat in the Hudson River. Based on the considerations here, we conclude that

any effects to the value of PBF 2 related to transmission cable repairs will be so small that they cannot be meaningfully measured, detected, or evaluated and effects to PBF 2 are insignificant.

Vessel Operations
The vessel transit routes for the route-clearing equipment, as well as the four vessels used to coordinate the laying of the transmission cable, overlap with the portion of the Hudson River that contains PBF 2. However, project vessels will have no effect on this feature. This is because the project vessels will have no effect on salinity and will not interact with the bottom in this reach and therefore, there would be no impact to soft bottom habitat. The vessels will be loaded or unloaded at various temporary marine-based yards along the routes. The yards would generally be no more than 50 miles (81 km) from the equipment's location. The vessels will operate in the channel where there is adequate water depth to prevent bottoming out or otherwise scouring the riverbed. Vessel operations are not expected to affect the behavior of Atlantic sturgeon and therefore would not affect access to areas where PBF 2 is present. The vessels operations will not preclude or delay the development of soft bottom habitat in areas of the river with a gradual downstream salinity gradient because they will not impact the river bottom in any way or change the salinity of areas of the river where soft bottom is found.

In the event that bottom conditions are encountered that either stop forward progress at reasonable tow tension or result in excessive rolling of pitching of the jet plow, vessel positioning and anchorage during installation of the transmission line could overlap with areas of the Hudson River that contains PBF 2. Barge positioning, anchoring, anchor cable sweep, and the pontoons on the jet plow could result in sediment disturbance. In such a case, the barge would be stopped, anchors deployed to hold the barge in position, and obstructions investigated and remedied. Construction of three temporary water-to-land transition cofferdams would also involve anchorage areas. During idle periods due to weather conditions, anchors would be employed as well. The applicant does not envision open water anchorages as a common event. The collective length of all work areas where anchor may be deployed and potentially result in impacts on benthic habitat is projected to be less than 1% of the approximately 197-mile aquatic portion of the installation route. This area represents a minor fraction of similar adjacent habitat in the Hudson River. Based on the uncommon occurrence of open water anchorages and available information (Coch 1986, Bain *et al* 2000) describing the majority of the transmission line route as soft benthic sediments, any effects to the value of PBF 2 due to anchorage will be so small that they cannot be meaningfully measured, detected or evaluated and effects to PBF 2 are insignificant.

Any vessels associated with transmission cable repairs will have no effect on salinity and will not interact with the bottom and therefore, there would be no impact to soft bottom habitat.

Conclusions for PBF 2
Debris removal, transmission line installation and burial, cofferdam installation, vessel operations, and cable operation and maintenance overlap with PBF 2 in waters with salinity of 0.5 ppt or higher. None of these activities will affect salinity in the action area. Cofferdam installation will result in the permanent loss of an extremely small percentage of the available soft-sediment benthic habitat, and all of these activities will result in temporary disturbances to limited areas of soft substrate in the action area. However, based on the assessment here, any

effects of substrate loss or disturbance due to debris removal, transmission line installation and burial, cofferdam installation, vessel operations, and cable operation and maintenance will be so small that they cannot be meaningfully measured, evaluated, or detected. Based on these considerations, any effects to the value to PBF 2 to the conservation needs of Atlantic sturgeon in the action area will be so small that they cannot be meaningfully measured, detected, or evaluated and effects to PBF 2 are insignificant.

Feature Three: Water absent physical barriers to passage between the river mouth and spawning sites

In considering effects to PBF 3, we consider whether the proposed action will have any effect on water of appropriate depth and absent physical barriers to passage (e.g., locks, dams, thermal plumes, turbidity, sound, reservoirs, gear, etc.) between the river mouth and spawning sites necessary to support the following: unimpeded movements of adults to and from spawning sites; seasonal and physiologically dependent movement of juvenile Atlantic sturgeon to appropriate salinity zones within the river estuary, and; staging, resting, or holding of subadults or spawning condition adults. We also consider whether the proposed action will affect water depth or water flow, as if water is too shallow it can be a barrier to sturgeon movements, and an alteration in water flow could similarly impact the movements of sturgeon in the river, particularly early life stages that are dependent on downstream drift. Therefore, we consider effects of the action on water depth and water flow and whether the action results in barriers to passage that impede the movements of Atlantic sturgeon. We also consider whether the action will have effects to access to this feature, temporarily or permanently and consider the effect of the action on the action area's ability to develop the feature over time.

Unlike some southern rivers, given the extent of tidal flow, geomorphology and naturally deep depths of the Hudson River, it is not vulnerable to natural reductions in water flow or water depth that can result in barriers to sturgeon movements; we are not aware of any anthropogenic impacts at this time that reduce water depth or water flow in a way that impact sturgeon movements. We are not aware of any complete barriers to passage for Atlantic sturgeon in the Hudson River; that is, we do not know of any structures or conditions that prevent sturgeon from moving up- or downstream within the river. The locks and dam at the Federal Dam at Troy are a barrier to sturgeon passage; however, these structures are the upstream limit of the critical habitat designation. There are areas in the Hudson River critical habitat unit where sturgeon movements are affected by water quality (e.g., thermal plumes discharged from power plant outfalls) and noise (e.g., during pile driving at ongoing in-water construction projects); however, impacts on movements are normally temporary and/or intermittent, and we expect there always to be a zone of passage through the affected river reach. Therefore, PBF 3 is present throughout the Hudson River segment of the action area. Activities that overlap with PBF 3 include debris removal, transmission line installation and burial, cofferdam installation, vessel operations, cable operation, and any potential cable repairs during the 40+-year life span of the project. Here we consider whether those activities may affect PBF 3 and if so, whether those effects are insignificant, discountable, or entirely beneficial.

Debris Removal and Transmission Line Installation and Burial

Debris removal and transmission line installation and burial will result in habitat alterations (i.e. increased turbidity and underwater noise) that make parts of the action area inaccessible for some period. Sediment disturbance would occur during the pre-installation grapnel run (to remove

debris). The applicant expects disturbance associated with the debris removal to be similar to the jet plow with a similar or smaller impact corridor. During installation via jet plow, the sediment plume would be approximately one-mile long and 500 feet wide (an area of about 60 acres). While the plume is defined at the edges by TSS concentrations of 15 mg/L above background, maximum concentrations would range from 80 to 200 mg/L above background in the water column immediately above the sediment bed where the jet plow would be operating. The plume concentrations would be highest near the river bottom. At the surface, concentrations would be approximately one-tenth of the bottom values. The discernible plume width at the bottom would be approximately 500 feet wide. Because maximum concentrations are expected to be 200 mg/L, installation is not expected to exceed 200 mg/L above background at the edge of the 500-foot mixing zone, as required by the Clean Water Act Section 401 Water Quality Certification issued for the proposed CHPE project. At approximately 4,500 feet downstream, which is near the edge of the discernible plume, the maximum concentration would be 10 mg/L above background condition and by approximately one mile downstream the concentrations would be back to background.

TSS levels would be approximately 15 mg/L or less at nine hours following installation, based on the assumption of 24-hour-per-day installation operations. The applicant is proposing measures to reduce turbidity in sensitive areas (i.e. SCFWHs) by reducing jetting speed and jetting pressure. If installation activities cease for longer than two hours, the plume would dissipate before operations would be restarted. Plumes would be continually affected by tidal action and, over the course of a tidal cycle, would reverse direction.

Turbidity associated with anchors and the installation of sheet piles is expected to be similar. Turbidity levels during these activities would be expected to be less than 50 mg/L above background, diminishing to 5-10 mg/L above background within a few hundred feet.

The Hudson River already typically experiences periods of naturally occurring increases in suspended sediments from storm events. We expect Atlantic sturgeon to be tolerant of suspended sediment at the levels that are generated marine construction activities. Based on the localized and temporary nature of the sediment plume described above, it is unlikely that turbidity associated with by debris removal and transmission line installation and burial will result in any type of barriers to Atlantic sturgeon passage. Therefore, any effects to the value of PBF 3 to the conservation of the species in the action area will be so small that they cannot be meaningfully measured, detected, or evaluated and effects to PBF 3 are insignificant.

As transmission line installation progresses at a rate of 1-3 miles per day, increased underwater noise will be temporary and localized (i.e. very close to the cable-laying vessel), and activities will be carried out in such a way that underwater noise never results in a barrier to passage (i.e., there will always be a zone of passage above or around the disturbance). During transmission line installation there will be areas of the river that we expect Atlantic sturgeon will avoid because they will have disturbing levels of noise. However, the width of the Hudson River at Magazine Point near West Point is approximately 1,300 feet. This is one of the narrowest areas along the transmission line route that a sturgeon would transit. Based on a worst-case scenario zone of behavioral effects of 450 feet on either side of the transmission line, sturgeon would still have zones of passage approximately 200 feet wide on either side of the transmission line to

transit. These narrow points only occur in a few locations. The average width of the lower Hudson River is approximately 4,900 feet and the average zone of passage would be more than 2,000 feet on either side of the transmission line. Additionally, installation of the line would not be scheduled during sturgeon spawning migration and would avoid behavioral effects on spawning adults and larvae. Based on this information, any effects to the value of PBF 3 to the conservation of the species in the action area will be so small that they cannot be meaningfully measured, detected, or evaluated and effects to PBF 3 are insignificant.

Cofferdam Installation

Cofferdam installation will affect the habitat in a way that impacts the movements of sturgeon in the river; this is because it will result in habitat alterations (i.e. increased underwater noise and temporary in-water structures) that make part of the action area inaccessible for some period.

Once cofferdams are installed, silt curtains would be used around the work area to eliminate or minimize turbidity during clamshell dredging. The area behind the silt curtain will not be accessible to any Atlantic sturgeon for the time when it is deployed. However, because the silt curtain will temporarily block access to small nearshore areas at the three Hudson River cofferdam locations, and it will not prevent any sturgeon from passing through the action area, the silt curtain will not impede the movements of any life stage of Atlantic sturgeon.

Turbidity associated with dredging would not result in habitat alterations that impede the movement of Atlantic sturgeon. This is because the environmental bucket (i.e. a variation of the conventional clamshell dredge bucket) has been developed to limit spillage and leakage of dredged materials. The applicant also proposes to dredge only inside the cofferdam and to position the receiving barge as close to the dredging site as possible to minimize dripping into open water. Based on the unlikely incidence of sediment resuspension during clamshell dredging, we conclude that turbidity associated with cofferdam installation will not result in any type of barriers to Atlantic sturgeon passage.

At the cofferdam installation sites, increased underwater noise as sheet piles are installed with a vibratory hammer will be temporary (30-120 minutes for a single pair of sheets), and activities will be carried out in such a way that underwater noise never results in a significant barrier to passage. During vibratory hammering, there will be areas of the river that we expect Atlantic sturgeon will avoid because they will have disturbing levels of noise. Cofferdam construction would be limited to the three HDD water-to-land transition locations in the Hudson River at Catskill, Stony Point, and Clarkstown. The narrowest location is at Catskill, where the Hudson River is 3,450 feet wide. Assuming that the area where behavioral effects occur is 33 feet from the sheet pile installation, the smallest zone of passage during sheet pile installation would be approximately 3,400 feet. Because there will always be zone of passage through the action area, and areas will be inaccessible due to noise for only a short, intermittent periods, the increased underwater noise associated with sheet pile installation will not prevent any sturgeon from passing through the Hudson River segment of the action area, and any impediments to the movements of sturgeon will be limited to temporary alterations in the route of passage through the noisy area.

Cofferdam installation will not reduce water depth or impact river flow. Cofferdam installation would result in temporary impediments to the movement of Atlantic sturgeon in the Hudson River segment of the action area. However, underwater construction is being scheduled to avoid impacts on spawning migrations, spawning activity, and larval stages of Atlantic sturgeon. Based on the assessment here, these impediments are extremely unlikely to affect the value of PBF 3 to the conservation of the species in the action area. Therefore, we conclude that any effects to the value of PBF 3 related to cofferdam installation will be so small that they cannot be meaningfully measured, detected, or evaluated and effects to PBF 3 are insignificant.

Cable Operation and Maintenance

The CHPE project will result in permanent structures in the water (i.e., the transmission cables). These transmission cables would not have any effect on water depths or present a physical barrier to passage. The transmission cables would be buried to a depth of 4-8 feet where feasible. As stated in previous sections, riverine depositional processes would, over time, return the benthic habitat to its pre-construction condition. Where burial to full depth is not possible due to an obstruction (e.g., bedrock, utility), a protective covering would be placed over the cable. The concrete mats would extend up to 9 inches (23 cm) above the river bottom. In either circumstance, the buried transmission line does not result in habitat alterations that impede the movement of Atlantic sturgeon. The applicant estimates that for cable burial at depths between four and eight feet, the maximum expected temperature change would be less than 1°F in the water column above the riverbed, approximately 1.8°F at the riverbed surface, and between 4°F and 9°F at 0.66 feet below the riverbed surface. Where the transmission cables cannot be buried to their full depth due to utilities or bedrock and must be covered with concrete mats, the estimated increase in water temperature surrounding the cables covered by the concrete mats is expected to be less than 0.25°F. We expect this temperature difference to be within the range of daily variation of water temperatures experienced in the Hudson River. The highest increase in ambient temperature in the top two inches of sediment along the sides of the concrete mat is expected to be 1.26°F or less. Based on the considerations here, we conclude that any effects to the value of PBF 3 related to the presence of buried transmission cables will be so small that they cannot be meaningfully measured, detected, or evaluated and effects to PBF 3 are insignificant.

As stated in previous sections, it is possible that over the lifespan of the project, transmission cables could be damaged. In the event of aquatic cable repair, a portion of the cable would be raised to the surface and reburied using a remotely operated vehicle-jetting device once repairs were completed. While the applicant does not anticipate the need for frequent transmission line repairs, any future cable repairs are likely to result in turbidity and underwater noise at levels that are similar or smaller than those that occurred during the initial transmission line installation. Therefore, we conclude that any effects to the value of PBF 3 related to transmission cable repairs will be so small that they cannot be meaningfully measured, detected, or evaluated and effects to PBF 3 are insignificant.

Vessel Operations

PBF 3 occurs throughout the Hudson River segment of the action area because there are no barriers to sturgeon passage. Vessel operations associated with debris removal Transmission line cable installation and burial, HDD operations, and repairs over the lifespan of the project overlap with areas where PBF 3 is present. Transiting project vessels and anchoring do not result in

habitat alterations that impede the movement of Atlantic sturgeon; therefore, vessel operations will have no effect on PBF 3.

Conclusions for PBF 3
Debris removal, transmission line installation and burial, cofferdam installation, vessel operations, cable operation will have no effect on water depth or water flow. The proposed action will result in temporary sediment plumes and increased underwater noise in a portion of the action area. However, based on the assessment here, any effects of increases in turbidity and underwater noise due to these activities on the ability of the habitat to support the movement of Atlantic sturgeon through the action area will be so small that they cannot be meaningfully measured, evaluated, or detected. Therefore, any effects to the value of PBF 3 to the conservation of the species in the action area will be so small that they cannot be meaningfully measured, detected, or evaluated and effects to PBF 3 are insignificant.

Feature Four: Water with the temperature, salinity, and oxygen values that, combined, provide for dissolved oxygen values that support successful reproduction and recruitment and are within the temperature range that supports the habitat function
In considering effects to PBF 4, we consider whether the proposed action will have any effect on water, between the river mouth and spawning sites, especially in the bottom meter of the water column, with the temperature, salinity, and oxygen values that, combined, support: spawning; annual and interannual adult, subadult, larval, and juvenile survival; and larval, juvenile, and subadult growth, development, and recruitment. Therefore, we consider effects of the action on temperature, salinity and dissolved oxygen needs for Atlantic sturgeon spawning and recruitment. These water quality conditions are interactive, and both temperature and salinity influence the dissolved oxygen saturation for a particular area. We also consider whether the action will have effects to access to this feature, temporarily or permanently and consider the effect of the action on the action area's ability to develop the feature over time.

The Hudson River Estuary is tidally influenced from the Battery to the Federal Dam at Troy. Fresh water flow varies seasonally (Moran & Limburg 1986). The highest fresh water flows into the estuary occur in spring and fall, associated with snowmelt and rains; the lowest input occurs in late summer. During average freshwater flow, saltwater intrusion reaches West Point, about 50 miles from the Battery. During conditions of high fresh water runoff (usually in the spring), salt-water intrusion can be pushed south, as far as 15 miles from the Battery. Salinity level varies throughout these areas seasonally and daily depending on tidal and fresh water inputs. Average water temperatures within the estuary generally follow mean air temperature; temperatures range from 0°C in January to a July or August maximum of 28°C. In the spring and summer, temperature decreases towards the Battery as colder saline water enters with tidal flow. This horizontal gradient reverses in late fall and winter because salt water cools to a lesser extent than shallow fresh water. DO levels are influenced by temperature and salinity. The solubility of oxygen, or its ability to dissolve in water, decreases as the water's temperature and salinity increase (that is, warmer or saltier water can hold less dissolved oxygen than colder or less salty water). DO levels in an estuary also vary seasonally, with the lowest levels occurring during the late summer months when temperatures are highest. NYDEC sets DO standards for discharges to the Hudson River; the minimum daily average must not be less than 5.0 mg/L, and at no time can DO concentration be less than 4.0 mg/ L. No reach of the mainstem Hudson River is listed on the EPA's 303(d) list of impaired waters for dissolved oxygen.

Activities that overlap with the portion of the Hudson River that contains PBF 4 include debris removal, transmission line installation and burial, cofferdam installation, vessel operations, cable operation, and any potential cable repairs during the 40+-year life span of the project. Here we consider whether those activities may affect PBF 4 and if so, whether those effects are insignificant, discountable, or entirely beneficial.

Debris removal and transmission line installation and burial, cofferdam construction, vessel operations, and cable operations and maintenance will have no effects on water temperature, salinity or dissolved oxygen. The only activities that will impact any of these aspects of water quality are related to cable operations (less than 1°F temperature change in the water column above the riverbed). Spawning and larval development do not occur in the part of the action area where these effects will occur. Additionally, we expect this temperature difference to be within the range of daily variation of water temperatures experienced in the Hudson River; therefore, we consider the impact of the action on the feature's ability to support the successful reproduction and recruitment of Atlantic sturgeon in the action area.

Based on these considerations, the project will have no effect on PBF 4. That is, it will have no effect on water temperature, salinity, or dissolved oxygen and no effect on the conservation function of that habitat (i.e., temperature and dissolved oxygen necessary to support spawning, annual and inter-annual adult, subadult, larval, and juvenile survival; and larval, juvenile, and subadult growth, development, and recruitment).

Summary of effects to critical habitat

We have determined that effects to PBF 1, PBF 2, PBF 3, and PBF 4 are not able to be meaningfully measured, detected, or evaluated and are therefore insignificant. Based on this, the action is not likely to adversely affect critical habitat designated for the New York Bight DPS of Atlantic sturgeon.

Effects of the Action on ESA listed sturgeon

In our 2014 consultation, we conclude that the proposed project was not likely to adversely affect shortnose sturgeon or any DPS of Atlantic sturgeon. The only proposed changes to the project that may affect these species are a decrease in the length of the transmission line in the lower Hudson River south of Haverstraw Bay and an associated additional HDD crossing. These modifications of the project do not introduce any effects to shortnose or Atlantic sturgeon that were not already considered in our 2014 consultation. The decrease in cable length reduces the amount of bottom habitat disturbance and may decrease the effects of the project on sturgeon. The 2014 consultation considered effects of a number of HDD crossings on these species; the addition of the HDD crossing south of Haverstraw Bay would have the same effects as those considered in the 2014 consultation. As such, no additional analyses are necessary and the conclusions reached in the 2014 consultation remain valid.

Essential Fish Habitat

The Magnuson Stevens Fishery Conservation and Management Act (MSA) and the Fish and Wildlife Coordination Act (FWCA) require federal agencies to consult with one another on projects such as this that may adversely affect essential fish habitat (EFH) and other aquatic resources. In turn, we must provide recommendations to conserve EFH. These

recommendations may include measures to avoid, minimize, mitigate, or otherwise offset adverse effects on EFH resulting from actions or proposed actions authorized, funded, or undertaken by that agency. This process is guided by the requirements of our EFH regulation at 50 CFR 600.905, which mandates the preparation of EFH assessments and generally outlines each agency's obligations in this consultation procedure. An EFH Assessment, including conservation recommendations, was completed for the project in 2014. As discussed, EFH consultation must be re-initiated pursuant to 50 CFR 600.920(j) if new information becomes available or if the project is revised in such a manner that affects the basis for the above determination. Based on discussions and information provided by the DOE, we agree that project revisions are not substantial and do not affect the basis for our original August 2014 determination. Should you have any questions or need additional information, please contact Jessie Murray in our Highlands, NJ field office (Jessie.Murray@noaa.gov; 732- 872-3023).

Conclusions

Based on the analysis that all effects of the proposed project will be insignificant or discountable, we concur with your determination that the CHPE project is not likely to adversely affect any ESA-listed species or critical habitat. Therefore, no further consultation pursuant to section 7 of the ESA is required.

Reinitiation of consultation is required and shall be requested by the Federal agency or by the Service, where discretionary Federal involvement or control over the action has been retained or is authorized by law and: if (a) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered in the consultation; (b) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the consultation; or (c) a new species is listed or critical habitat designated that may be affected by the identified action. No take is anticipated or exempted. If there is any incidental take of a listed species, reinitiation would be required. Should you have any questions about this correspondence please contact Jolvan Morris of my staff at 978-282-8429 or by e-mail (Jolvan.Morris@noaa.gov).

Sincerely,

Jennifer Anderson

Jennifer Anderson
Assistant Regional Administrator
for Protected Resources

ec: Murray, GAR/HCD
Julie Smith, DOE
Jodi McDonald, ACOE

File Code: H:\Section 7 Team\Section 7\Non-Fisheries\DOE\Champlain Hudson Cable\2021 Reinitiation
GAR-2020-03673

Figures

Figure 1. Hudson River Segment of the CHPE project (DOE 2014a)

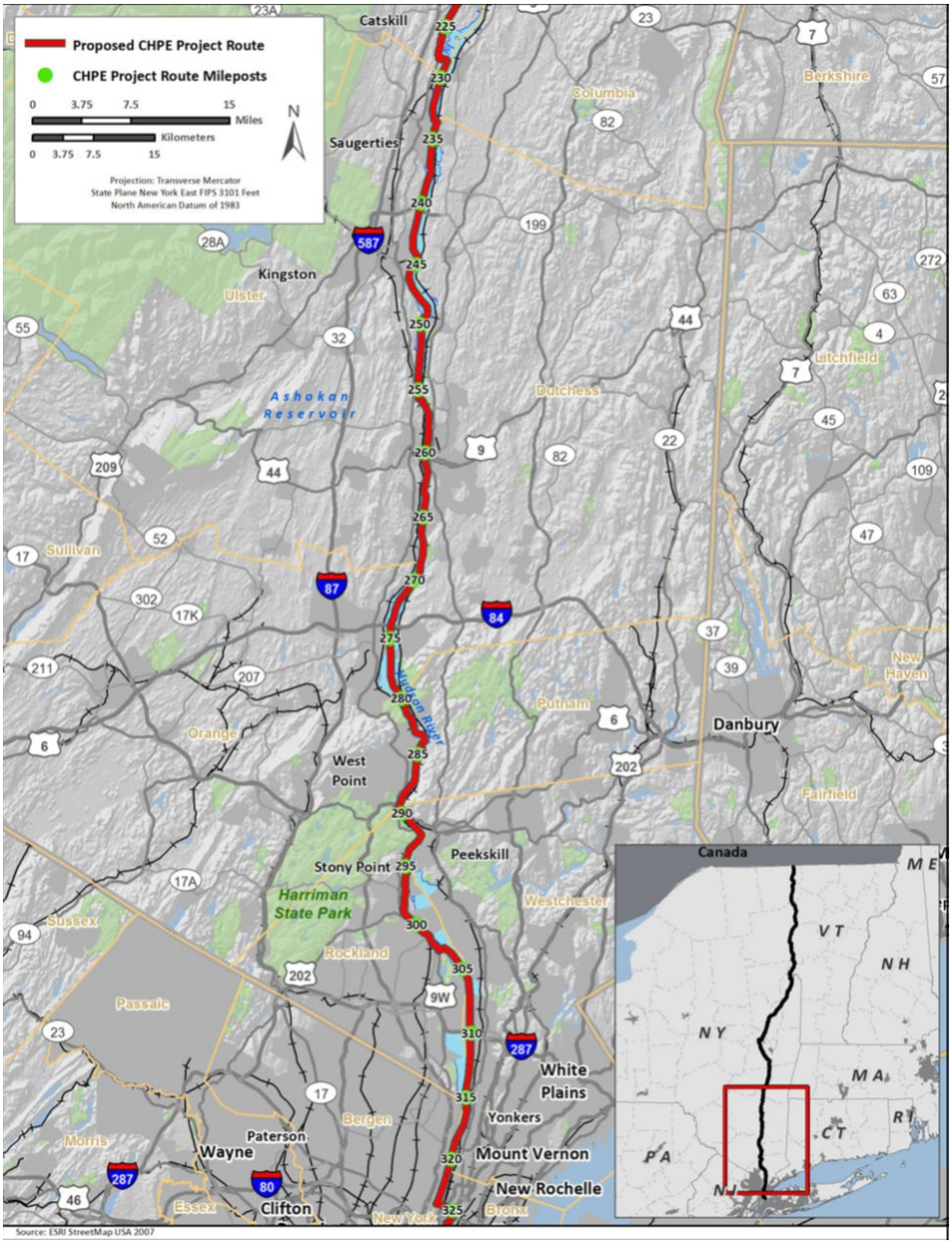

Figure 2. New York City Metropolitan Area Segment of the CHPE project (DOE 2014a)

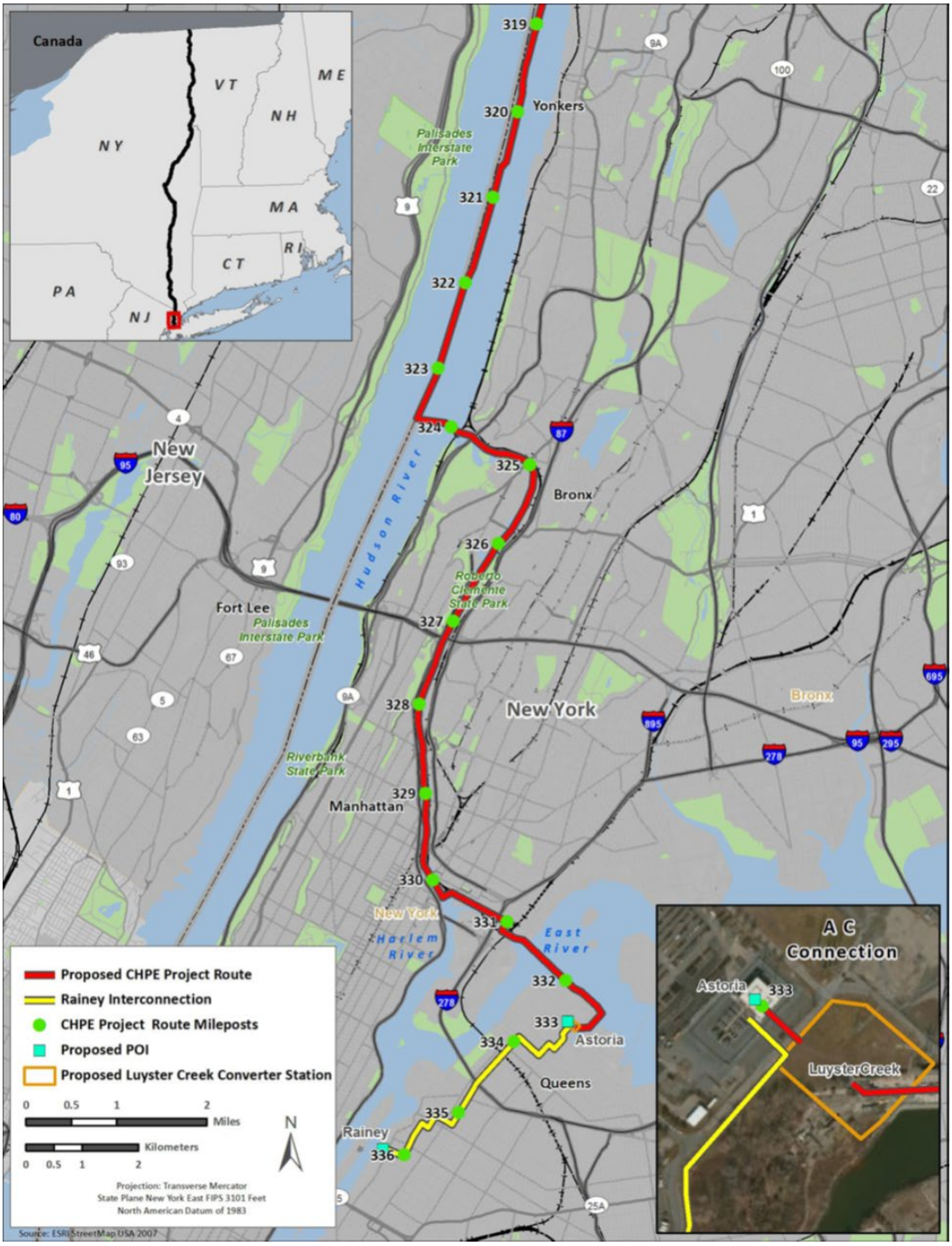

Figure 3. Proposed water-to-land route modifications in Rockland County

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