3.4 Wildlife and Fisheries

Wildlife habitat in New Hampshire is highly valuable to sustaining native large and small mammals, as well as invertebrate, avian, and aquatic species. Each wildlife species requires a unique habitat type or set of habitat types to be sustained, reproduce, and survive. Additionally, habitat size requirements are different for each species, since some species require large tracts of undisturbed land to thrive, while others can survive in more built, urbanized environments.

The NH Fish & Game Department (NHF&GD) is responsible for managing and protecting native wildlife species within New Hampshire, as authorized by RSA 212-A, including threatened and endangered species. This statute also authorizes the NHF&GD to gather information about wildlife species in general and determine types of conservation needs each species has to be sustained. To help accomplish this mission, the NHF&GD developed the New Hampshire Wildlife Action Plan to assist with conserving and protecting wildlife species and habitat types throughout the state.

On a national scale, the USFWS is responsible for the protection and management of migratory species in the United States. Except for threatened and endangered species and their associated "critical habitats," federal protection of wildlife on private property is confined to regulations regarding the exploitation of species and is not extended to wildlife habitat, except for the designation of critical habitat under the Endangered Species Act (ESA) of 1973. Both wildlife species and wildlife habitats are generally protected on Federal lands, including National Wildlife Refuges, National Parks and Monuments, and National Forests.

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) established a requirement to describe and identify Essential Fish Habitat (EFH) in each federal fishery management plan. The Magnuson-Stevens Act defines EFH as "*those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity*" (50 CFR 600.920). Under these regulations, FHWA is required to coordinate with the National Oceanic and Atmospheric Administration (NOAA) regarding the potential effect of the Project on EFH.

3.4.1 Affected Environment

The Project is at the entrance of the Great Bay, located in the lower part of Great Bay called Little Bay, which includes the narrow section between Dover and Newington where it joins the Piscataqua River. The Great Bay estuary provides unique habitat opportunities in coastal New Hampshire since the bay is a large tidal embayment that covers over 17 square miles and contains 144 miles of shoreline. Strong tidal currents exist in Little Bay near the Piscataqua River.

The following sections summarize known wildlife and fish habitats within the Study Area, as well as coordination conducted with the NHF&GD and NOAA. There are no Federal lands, including National Wildlife Refuges, National Parks and Monuments, or National Forests, within the Study Area.

3.4.1.1 Wildlife and Habitat

The Wildlife Action Plan emphasizes the conservation of Species of Greatest Conservation Need and the habitats these species use. The condition of wildlife habitat resources within the Study Area was evaluated based on maps created from the 2015 Wildlife Action Plan habitat type locations and habitat tier information.

Wildlife Habitat Types

Because the Study Area is largely developed as residential, commercial, and park land uses, the Wildlife Action Plan does not identify any habitat type for much of the upland areas around the GSB. Small areas of salt marsh habitat are identified along the shoreline of Great Bay within the Study Area. As shown in **Figure 3.4-1** south of the GSB in Newington are sparse areas of salt marsh, wet meadow/shrub wetland, and hemlock-hardwood-pine to the east, with larger areas of Appalachian oak-pine to the west.

The following dominant habitat types are found within the Study Area:

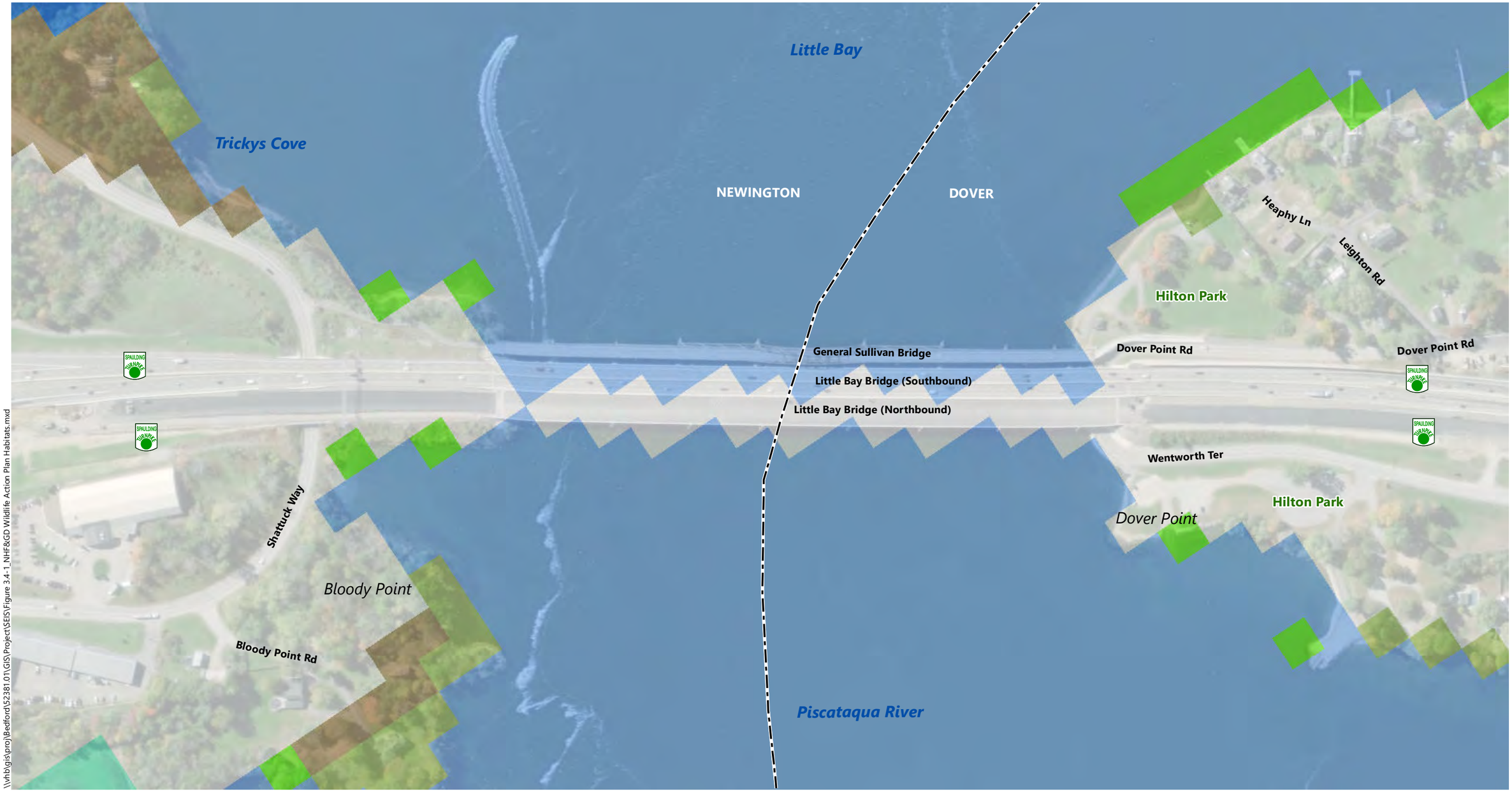
- **Salt Marsh**. Salt marshes are present between ocean and upland and are highly productive habitats, containing plant species that are tolerant of salt and frequently changing water levels.
- **Hemlock-Hardwood-Pine**. This is a transitional forest community between hardwood conifer forests in higher elevations and oak-pine forests in lower elevations. This habitat type has dry, sandy soils with dominant tree species of red oak and white pine, often transitioning to a dominance of hemlock and beech.
- **Appalachian Oak-Pine**. Forests designated as Appalachian Oak-Pine forests contain plant species characteristic of the central Appalachian states.
- **Wet Meadow/Shrub Wetland**. These wetlands are emergent marshes, wet meadows, or scrub-shrub wetlands and are mostly controlled by groundwater. These habitats have poorly-drained muck and mineral soils that are often saturated, but rarely permanently flooded.

Wildlife Habitat Tiers

The NHF&GD identifies ranked habitat tiers via a ranking system which identifies terrestrial and wetland habitats that are in the best condition to meet the needs of wildlife. These ranked habitats are especially considered important for species of greatest conservation need. Habitat tiers are separated into three tier rankings, which are 1) Top Ranked Habitat in the State, 2) Top Ranked Habitat in Biological Region, and 3) Supporting Landscape. The first tier, Top Ranked Habitat in the State, includes the top 15 percent habitat areas, which are known critical habitats of state-listed species and all known alpine, dune, saltmarsh, and rocky shore habitats. The State was then divided into regions to designate the top 30 percent of each habitat type within each region, thus creating the second tier, Top Ranked Habitat in Biological Region. The remaining top 50 percent habitat areas are designated to the Supporting Landscape tier, as well as large continuous tracts of forestland.

The Great Bay is identified as a Tier 1, *Top Ranked Habitat* starting at the GSB and extending west. This Tier 1 habitat includes a small portion of shoreline along the Great Bay in the Study Area. There are additional select areas of Tier 1 habitat along the shoreline of the Piscataqua River in the southeast corner of the Study Area. The Great Bay is ranked as a Tier 1 habitat since the bay is a unique coastal habitat in the State. No Tier 2, *Top Ranked Habitat in Biological*

Figure 3.4-1



\\vhb\gis\proj\Bedford\52381.01\GIS\Project\SEIS\Figure 3.4-1_NHF&GD Wildlife Action Plan Habitats.mxd

0 125 250 500 Feet

Legend

Town Boundaries

NHF&GD Wildlife Action Plan Habitats

- Appalachian oak-pine
- Hemlock-hardwood-pine
- NLCD Developed or Barren
- Open water
- Salt marsh
- Temperate swamp
- Wet meadow/shrub wetland

Newington-Dover 11238S | Newington and Dover, NH

General Sullivan Bridge Supplemental EIS

NHF&GD Wildlife Action Plan Habitats

U.S. Department of Transportation
Federal Highway Administration

New Hampshire DOT
Department of Transportation

Source: NHGRANIT, NHF&GD WAP

Region, or Tier 3, *Supporting Landscape* habitat rankings are located in the Study Area. Refer to **Figure 3.4-2** for more information.

Land uses within the Study Area include residential, with small areas of commercial. The Dover shoreline in the Study Area is largely disturbed. Hilton Park is located on both the east and west sides of the Spaulding Turnpike, with Dover Point Road and Wentworth Terrace running in a "U" shape underneath the Spaulding Turnpike near the Great Bay. This area lacks dense vegetation near the shoreline. The southern portion of the Study Area in Newington is more vegetated than disturbed; however, similar to Dover Point Road and Wentworth Terrace, Shattuck Way runs in a "U" shape under the Turnpike along the point within close proximity to Great Bay, fragmenting this otherwise vegetated coastal habitat.

3.4.1.1 Essential Fish Habitat and Designated Critical Habitat

The ESA Section 7 Mapper was used to determine the presence of ESA-listed species, EFH, and critical habitat for NOAA-managed fish species in the Study Area. Little Bay is designated as EFH for several fish species: Atlantic sturgeon (*Acipenser oxyrhynchus ocyrhynchus*) and shortnose sturgeon (*Acipenser brevirostrum*). Atlantic sturgeon travel into Great Bay and points beyond from the Piscataqua River through Little Bay. Because the Project involves in-water work within Little Bay, an EFH Assessment Worksheet and an Appendix A Verification Form were completed and submitted to NOAA for review. The assessments evaluated the impacts associated with Alternative 9 (Preferred Alternative) as the proposed temporary impacts would be similar under all alternatives. The minor permanent impact differences are noted below in **Section 3.4.2**. A summary of these two assessments is provided below.

Essential Fish Habitat Assessment Worksheet

The 2006 EFH Assessment prepared for the Newington-Dover, Spaulding Turnpike Improvements Project was updated in January 2019 (**Appendix E**). The 2019 EFH Assessment evaluated habitat characteristics of Little Bay and described the anticipated impacts to sediment composition, water salinity, depth, and temperature, as well as aquatic vegetation. The 2019 EFH Assessment also evaluated impacts on the different life stages of species known to occur within the Study Area and depicts the existing types of intertidal and subtidal habitats. The portion of Little Bay in the Study Area is designated EFH habitat for eggs, larvae, juveniles, and spawning adults for several species.[29]

The 2019 EFH Assessment also evaluated the presence of shellfish habitat. The NH Coastal Viewer identified a ±2.8-acre blue mussel shellfish bed in Little Bay along the Dover coastline underneath the GSB in the northern portion of the Study Area. This bed was identified by the NHDES Shellfish Program in 2013.[30]

Atlantic Sturgeon and Shortnose Sturgeon Consultation

The Little Bay is designated critical habitat for Atlantic sturgeon (*Acipenser oxyrhynchus ocyrhynchus*) and shortnose sturgeon (*Acipenser brevirostrum*). The Project was determined to be eligible under the Programmatic ESA Section 7 Consultation since the Project involves work to the bridge structure and meets the applicable project design criteria included in the FHWA Greater Atlantic Regional Fisheries Office 2018 *Not Likely to Adversely Affect Program Appendix A Verification Form* (see **Appendix E**). Atlantic sturgeon is an ESA-listed species, and Little Bay is within a distinct population segment for Atlantic sturgeon. On June 18, 2019 NOAA concurred that the project "*may affect but is not likely to adversely affect*" Atlantic/shortnose sturgeon critical habitat.

3.4.2 Environmental Consequences

This section discusses the anticipated direct and indirect impacts to wildlife habitat types and tiers as identified by the 2015 Wildlife Action Plan, as well as anticipated direct and indirect impacts to EFH and critical habitat for Atlantic sturgeon and shortnose sturgeon. The Project would not impact the Great Bay National Wildlife Refuge nor the Great Bay National Estuarine Research Reserve because of their distance from the Study Area.

3.4.2.1 Direct Impacts

No-Action Alternative

No direct or indirect impacts to wildlife or fishery habitat, EFH, or designated critical habitat would occur under the No-Action Alternative.

Alternative 1

Wildlife Habitat Types and Tiers

Under Alternative 1, direct, temporary impacts would result from the installation of temporary construction access within and adjacent to Little Bay. A minor amount of shoreland habitat would be impacted; generally, this shoreland habitat impact would be limited to previously disturbed areas. Some of this habitat is identified as Tier 1 wildlife habitat, which is part of the greater habitat area of Great Bay, beginning at the GSB and continuing west. Specifically, Alternative 1 would involve minor tree and shrub clearing along the shoreline within the Study Area along the Newington side. Disturbed areas along the shoreline would be restored and plantings would be added upon completion of construction; therefore, these impacts are not anticipated to result in permanent, direct impacts to the habitat of Great Bay or adjacent shoreline.

Essential Fish Habitat

Like the evaluation of Alternative 9 (Preferred Alternative) described below, Alternative 1 would not have a substantial effect on EFH. No permanent impacts to EFH are anticipated under Alternative 1. Direct temporary impacts under Alternative 1 would result from the placement of causeways and trestles which would have localized impacts to the bed, current flows, and

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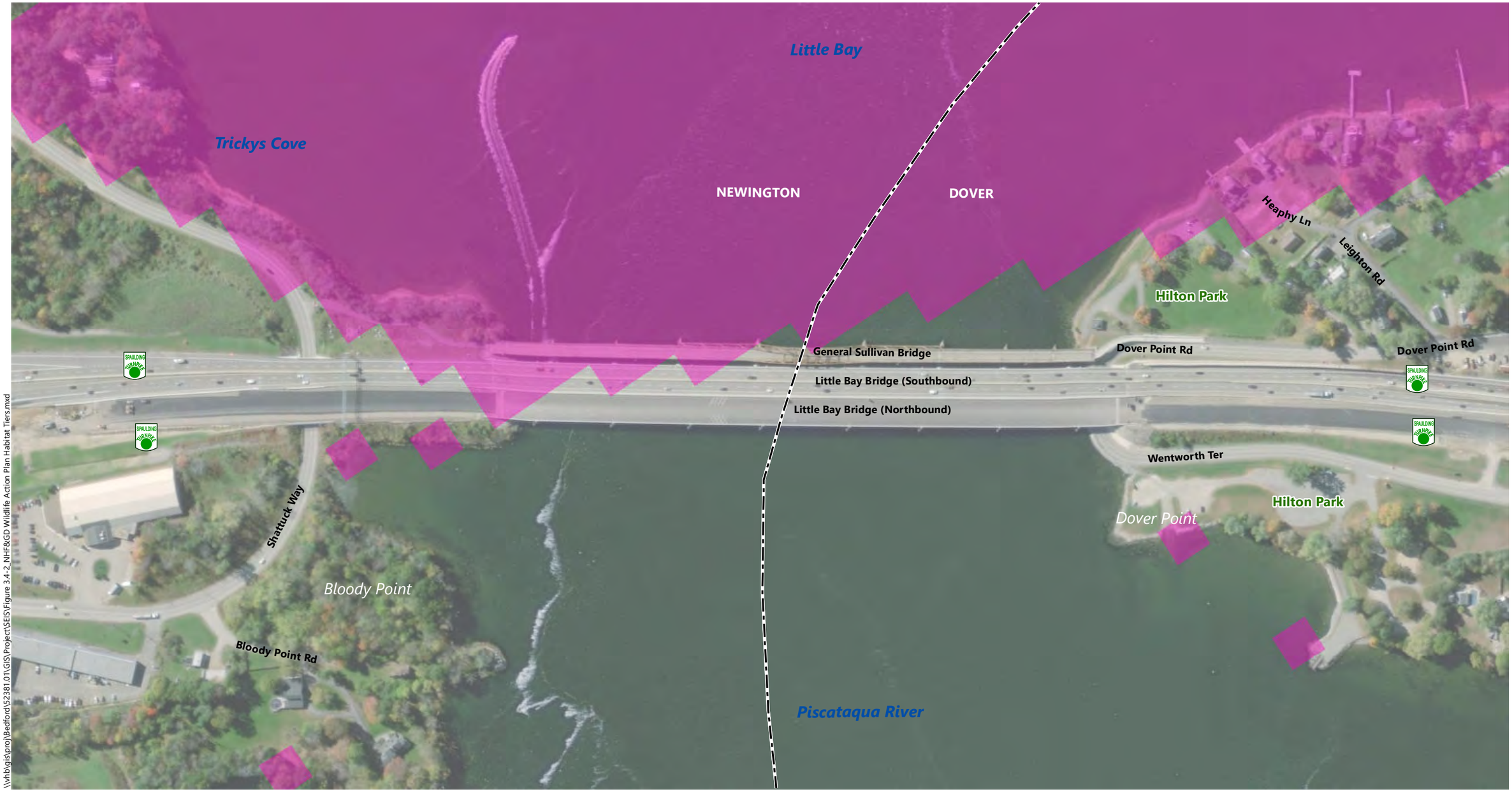
[29] A breakdown of species located in the Great Bay at a particular life stage is provided in **Appendix E**, Table 1.

[30] Morrissey, E., and C. Nash. 2013. *Identifying Blue Mussel* (Mytilus edulis) *Resource in Coastal New Hampshire*. NH Department of Environmental Services' Shellfish Program. Accessed from https://www.des.nh.gov/organization/divisions/water/wmb/shellfish/ redtide/aquaculture.htm. Accessed on January 14, 2019.

Figure 3.4-2



\\vhb\gis\proj\Bedford\52381.01\GIS\Project\SEIS\Figure 3.4-2_NHF&GD Wildlife Action Plan Habitat Tiers.mxd

0 125 250 500 Feet

Legend

Town Boundaries

NHF&GD Wildlife Action Plan Habitat Tiers

Highest Ranked Habitat in New Hampshire

Newington-Dover 11238S | Newington and Dover, NH

General Sullivan Bridge Supplemental EIS

NHF&GD Wildlife Action Plan Habitat Tiers

U.S. Department of Transportation
Federal Highway Administration

New Hampshire DOT
Department of Transportation

Source: NHGRANIT, NHF&GD WAP

acoustic effects within Little Bay. These temporary impacts would be similar under all alternatives.

Temporary impacts under Alternative 1 would occur due to in-water disturbance from the causeways and trestles. The installation and removal of these structures over a one- to two-month period could cause sedimentation, acoustic effects, and habitat disturbance. Direct temporary impacts to EFH would occur under Alternative 1 from the placement of the causeways and trestles involve temporary alterations to the currents of Little Bay at a localized scale and would cause minor changes in tidal velocities. Current flows in the Study Area are complex and have a wide range of directional components and speeds during the tidal cycle. These tidal flow characteristics were studied during the preparation of the 2007 FEIS. Tidal flows, currents, and wave patterns are not expected to be permanently altered as a result of the temporary impacts associated with construction access. Any changes to tidal flow, currents, and wave patterns due to the placement of the causeways and trestles would be temporary and minor.

ESA Designated Critical Habitat

Like the evaluation of Alternative 9 (Preferred Alternative), Alternative 1 is anticipated to have minor impacts to designated critical habitat for Atlantic sturgeon and shortnose sturgeon that may occur within Little Bay. Resources that contribute to known designated critical habitat within the project area include the following: hard bottom substrate; water temperature, flow, salinity, and dissolved oxygen; submerged aquatic vegetation and oyster reefs; noise environment; and aquatic species movement.

Temporary impacts to designated critical habitat under Alternative 1 would include temporary disturbance to the bed of Little Bay from the use of cofferdams and turbidity curtains, and temporary placement of fill from the causeways within the Little Bay. Additionally, temporary noise impacts within this designated critical habitat would occur under Alternative 1 due to pile driving from the temporary causeways and the installation of the temporary trestle. An *Hydroacoustic Impact Assessment* evaluated the potential for noise impacts on Atlantic sturgeon and shortnose sturgeon due to pile driving to install the temporary trestles. The findings of the *Hydroacoustic Impact Assessment* determined that there would be no injury to Atlantic sturgeon or shortnose sturgeon as a result of the installation of the temporary causeways and trestles. These impacts would be similar under all Action Alternatives. No permanent impacts to designated critical habitat would occur under Alternative 1.

Shellfish Habitat

Alternative 1 would result in temporary, direct impacts to about 0.2 acre of the blue mussel shellfish bed due to the installation of causeways and trestles. These temporary structures would be in place throughout the duration of construction. Standard marine construction BMPs would be implemented wherever feasible to mitigate the potential for suspension of sediments and consequent siltation.

Alternative 3

Impacts to wildlife, EFH, designated critical habitat, and shellfish habitat under Alternative 3 would be similar to the impacts described under Alternative 1.

Alternative 6

Wildlife Habitat Types and Tiers

Temporary direct impacts to wildlife habitats and wildlife tiers under Alternative 6 would be similar to those described under Alternative 1. However, Alternative 6 would result in minor additional direct permanent impact to open water habitat due to the removal of the existing GSB Pier 1 and the construction of a new approach span pier in Little Bay near the Dover shoreline. The approach span pier would permanently impact approximately 50 square feet of blue mussel shellfish bed.

Essential Fish Habitat

Temporary impacts to EFH habitat under Alternative 6 would be similar to those described under Alternative 1.

Alternative 6 would result in direct permanent impacts to EFH within Little Bay from the removal and construction of GSB Pier 1. Permanent impacts from the pier removal and construction of a new approach span pier would have a negative effect on EFH habitat because of the addition of a permanent structure, which would result in permanent impacts to the bed and localized currents of Little Bay. Additionally, the new pier would be located within the blue mussel shellfish bed, therefore resulting in approximately 50 square feet of permanent impacts to shellfish habitat (see below).

ESA Designated Critical Habitat

Impacts to designated critical habitat for Atlantic and shortnose sturgeon would be similar as those described in Alternative 1 with the exception of the additional direct permanent impacts proposed within Little Bay from the removal of the existing GSB Pier 1 and construction of a new approach span pier. It is anticipated that the removal and construction of this pier would result in additional noise impacts that would not occur under Alternative 9.

Shellfish Habitat

Like Alternative 1, Alternative 6 would result in temporary, direct impacts to about 0.2 acre of the blue mussel shellfish bed due to the installation of causeways and trestles. Alternative 6 would also result in permanent, direct impact to the blue mussel shellfish bed from the removal of the existing GSB Pier 1 and construction of a new approach span pier.

Alternative 7

Impacts to wildlife, EFH, designated critical habitat, and shellfish habitat under Alternative 7 would be similar to the impacts described under Alternative 6.

Alternative 9 (Preferred Alternative)

Impacts to wildlife and shellfish habitat under Alternative 9 would be similar to the impacts described under Alternative 1.

Essential Fish Habitat

An analysis of impacts to EFH was completed for Alternative 9 (**Appendix E**). The Worksheet concluded that Alternative 9 would not have a substantial effect on EFH. NOAA reviewed this assessment on May 17, 2019 and indicated that the impacts are temporary and minor in nature; NOAA did not have any EFH conservation recommendations (**Appendix E**). Temporary impacts under Alternative 9 would occur due to in-water disturbance from the causeways and trestles. The installation and removal of these structures over a one- to two-month period could cause sedimentation, acoustic effects, and habitat disturbance.

Direct temporary impacts to EFH under Alternative 9 would result from the placement of the causeways and trestles involve temporary alterations to the currents of Little Bay at a localized scale and would cause minor changes in tidal velocities. Current flows in the Study Area are complex and have a wide range of directional components and speeds during the tidal cycle. These tidal flow characteristics were studied during the preparation of the 2007 FEIS. Tidal flows, currents, and wave patterns are not expected to be permanently altered as a result of the temporary impacts associated with construction access. Any changes to tidal flow, currents, and wave patterns due to the placement of the causeways and trestles would be temporary and minor.

ESA Designated Critical Habitat

The Appendix A Verification Form was used to evaluate proposed impacts to ESA-listed species and critical habitat within the Study Area under Alternative 9. Resources evaluated for impacts in the Appendix A Verification Form included: hard bottom substrate; changes in water temperature, flow, salinity, and dissolved oxygen; and submerged aquatic vegetation and oyster reefs. Additionally, under the Appendix A Verification Form the Project was evaluated for noise impacts, impacts from marine vessels, aquatic species movement, use of cofferdams and turbidity curtains, and temporary placement of fill from the causeways within the Little Bay. Further information regarding the impact evaluation can be found in **Appendix E**.

A *Hydroacoustic Impact Assessment* (**Appendix E**) evaluated the potential for noise impacts on Atlantic sturgeon and shortnose sturgeon due to pile driving to install the temporary trestle. The hydroacoustic assessment determined that a sturgeon would need to be within approximately 190 feet (58 meters) of a pile for a prolonged period of time to be exposed to potentially injurious sound levels. If any sturgeon are within 190 feet of a pile at the time pile driving commences, it is expected that sturgeon would leave the area in a matter of seconds. The utilization of a soft start technique would also give any sturgeon in the area time to move out of the range of potential injury causing noise; therefore, no injury to Atlantic sturgeon or shortnose sturgeon is anticipated.

Additionally, underwater sound levels would be below 150 dBRMS[31] at distances beyond approximately 256 feet (78 meters) from the pile being installed. If sturgeon were to go into the area where sound levels exceed 150 dBRMS, it is reasonable to assume that a sturgeon would redirect its course of movement away from the area where pile driving is occurring. Given the small distance a sturgeon would need to move to avoid disturbances, these temporary noise impacts would not result in substantial, adverse impacts to sturgeon.

Upon completion of the Appendix A Verification Form, NHDOT and FHWA determined that Alternative 1 "*may affect but not likely to adversely affect*" Atlantic sturgeon and shortnose sturgeon, or their critical habitat.[32] Applicable minimization and mitigation measures would be followed during construction to ensure impacts to these species would be minimized to the greatest extent practicable. Additionally, the Project would comply with the *NMFS/FHWA Best Management Practices Manual for Transportation Activities in the Greater Atlantic Region* (April 2018).

3.4.2.2 Indirect Impacts

No-Action Alternative

No indirect impacts to wildlife habitat, EFH, designated critical habitat, or shellfish habitat are anticipated to occur under the No-Action Alternative, since there would not be any changes to the existing GSB infrastructure or surrounding area.

Action Alternatives

Potential indirect impacts of the Action Alternatives to wildlife habitat, EFH, designated critical habitat, and shellfish habitats are described below.

Wildlife Habitat Types and Tiers

None of the Action Alternatives would cause temporary or permanent indirect impacts to wildlife habitat types or tiers within the Study Area.

Essential Fish Habitat

The in-water work of all Action Alternatives has the potential to cause temporary, indirect impacts to prey species of federally managed fish species. No measurable indirect impacts to these species' populations are anticipated; prey species are expected to return to existing conditions once in-water work is complete and all disturbed areas have been restored.

ESA Designated Critical Habitat

Under all Action Alternatives, indirect impacts to Atlantic sturgeon and shortnose sturgeon are similar to potential indirect impacts to EFH, including temporary alterations to the currents of Little Bay at a localized scale and minor changes in tidal velocities. Since these changes to tidal flow, currents, and wave patterns are expected to be temporary and minor in nature, any indirect impacts are not anticipated to adversely affect Atlantic sturgeon or shortnose sturgeon.

Shellfish

All Action Alternatives would result in minor, temporary, indirect impact to shellfish habitat from the proposed in-water work. Impacts under Alternatives 6 and 7 would result in the greatest indirect impacts to shellfish habitat due to the additional work of removing and reconstructing

[31] "RMS" sound level (dBRMS) represents the root-mean squared sound pressure over a duration (typically 50 to 100 milliseconds).

[32] Johnson, Mike. US Department of Commerce, NOAA Fisheries, Greater Atlantic Regional Fisheries Office, Habitat Conservation Division. Personal communication, May 17, 2019. (Refer to **Appendix E**).

GSB Pier 1, since there would be a greater disturbance within the bed of Little Bay. Upon completion of construction, areas indirectly disturbed would become re-established over time.

3.4.3 Mitigation

Because wildlife impacts are considered minor, no specific mitigation is proposed. However, the following list of environmental commitments would minimize potential impacts to wildlife:

- Erosion and sediment control BMPs composed of wildlife friendly materials such as woven organic material would be used during the construction period, as recommended by the NHF&GD.
- Tree and shrub clearing and ground disturbing impacts would be reduced to the extent practicable during design and construction to limit unnecessary impacts on wildlife habitat.
- Areas of disturbance along the shoreline of Little Bay would be stabilized and plantings installed as appropriate as part of site restoration.

No compensatory mitigation for the proposed permanent and temporary impacts within EFH habitat is required. All impacts to EFH and designated critical habitat would be temporary (except for the minor permanent impact associated with the replacement pier required by Alternatives 6 and 7) and standard BMPs for marine construction would be used for the Project, wherever feasible. BMPs would be implemented to mitigate the potential for suspension of sediments and consequent siltation during in-water construction.

Based on correspondence with NOAA's Greater Atlantic Regional Fisheries Office, the following list of environmental commitments would be implemented to protect the water quality and aquatic habitat of Great Bay, and reduce risk of impact to aquatic species:

- A drainage and erosion control plan for all shoreside construction would be implemented, including BMPs to control and capture silt-laden stormwater runoff.
- Standard marine construction BMPs would be implemented wherever feasible to mitigate the potential for suspension of sediments and consequent siltation.
- The contractor would be directed to divert runoff to temporary erosion check dams or to capture runoff using silt fences, hay bales, silt socks, mulch filter berms, or temporary detention basins.
- Areas of soil disturbance would be seeded and mulched as quickly as possible after initial grading.
- The contractor would be required to inspect all construction BMPs on a daily basis to ensure that they are properly installed and maintained.
- Standard BMPs will be used for in-water and shoreside construction to address potential fuel or oil spills from the construction equipment, and to mitigate the potential for suspension of sediments and consequent siltation.
- An emergency response plan for all spills would be in place prior to construction.
- The Project would comply with the *NMFS/FHWA Best Management Practices Manual for Transportation Activities in the Greater Atlantic Region* (April 2018).
- Care will be taken to minimize impacts to shellfish beds, particularly those adjacent to Dover Point. If needed and determined practical, shellfish may be relocated outside of the temporary impact area associated with the temporary construction causeway.

3.5 Threatened and Endangered Species

Threatened, endangered, and special concern species and exemplary natural communities are natural resources that are historically known to occur within New Hampshire but are protected and given special consideration due to their declining presence in the State. The NH Endangered Species Conservation Act (RSA 212-A) delegates authority and responsibility for the listing and protection of threatened and endangered wildlife species in New Hampshire to the NHF&GD. The NHF&GD developed the *Nongame and Endangered Wildlife Program* in 1988 to manage and steward these species. The NHF&GD manages threatened and endangered species cooperatively with the New Hampshire Natural Heritage Bureau (NHNHB). The *New Hampshire Plant Protection Act of 1987* (RSA 217-A), enacted by the New Hampshire Legislature in 1987, established the authority for the State to develop a list of rare plant species. The NHNHB was designated this authority and developed the list in NH Administrative Rules Res 1100, *et seq*.

The federal ESA (P.L. 93-205), as amended in 1978, 1982, and 1988, recognizes the need and provides the means to protect rare plants and invertebrate and vertebrate species of fish and wildlife, and provides for the protection and/or acquisition of critical habitats and the management of endangered species. Section 7(a)(2) of the ESA dictates that all Federal agencies must consult the US Department of the Interior to ensure that actions taken under federal funding, federal assistance, or federal permits (*e.g.*, Section 404 Wetland Fill Permits) do not jeopardize the existence of threatened or endangered species. Jurisdiction is given to US Department of the Interior to recommend changes to the Project to avoid such jeopardy (including impacts to the habitat as well as to the plants or animals themselves).

3.5.1 Affected Environment

Determining the presence of State rare, threatened, and endangered plant, animal, and natural communities within or near the Study Area was determined by consultation through letters and email with Amy Lamb (NHNHB), Carol Henderson (NHF&GD), and Cheri Patterson (NHF&GD).

The presence of federally listed or proposed, threatened, or endangered species, designated critical habitat, or other natural resources of concern within or near the Study Area was determined using the USFWS Information Planning and Conservation (IPaC) System. The IPaC tool streamlines the USFWS coordination process regarding potential impacts to federally threatened or endangered species by producing a report of the known occurrences of federally threatened or endangered species that may be present within one mile of the Project Footprint, and then providing opportunities for online consultation for certain species rather than contacting the local USFWS office. In New Hampshire, state agencies may conduct consultation with the USFWS through the IPaC tool regarding potential impacts to certain species such as the Northern Long-eared bat (NLEB).

In addition to the species managed under the NHNHB, NHF&GD, and USFWS, ESA-listed species managed under NOAA were identified using the ESA Section 7 Mapper. The Mapper identified