

indirect impacts to shellfish habitat due to the additional work of removing and reconstructing 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

Great Bay as a distinct population segment (DPS) for Atlantic sturgeon, an ESA-listed species. Information about this species and impacts anticipated as a result of the Project were previously discussed in **Section 3.4, Wildlife and Fisheries**.

Below is a discussion of the rare, threatened, or endangered species identified by the NHHNB and USFWS that are known to occur within or near the Study Area.

3.5.1.1 State-Listed Species Occurrences

A search for the occurrence of state-listed rare, threatened, or endangered plant or animal species or natural communities within the vicinity of the Study area was completed using the NHHNB online DataCheck tool. A report dated February 8, 2021 indicated the presence of prolific yellow-flowered knotweed (*Polygonum ramosissimum* spp. *prolificum*), smooth black sedge (*Carex nigra*), eelgrass beds (*Zostera marina*), Atlantic sturgeon (*Acipenser oxyrinchus*), shortnose sturgeon (*Acipenser brevirostrum*), and cliff swallow (*Petrochelidon pyrrhonota*) within the Study Area, as well as a sparsely vegetated intertidal system and subtidal system (see **Appendix F**).

The NHHNB report indicates prolific yellow-flowered knotweed under the GSB and LBBs in Hilton Park, as well as smooth black sedge south of the GSB in Newington. Coordination with the NHHNB initially occurred in 2012, at which time NHHNB conducted surveys within wetland areas along the Spaulding Turnpike south of the GSB. During the 2012 surveys, smooth black sedge was found within five wetlands along the Turnpike. An additional survey conducted by NHHNB in October 3, 2019 did not identify prolific yellow-flowered knotweed or smooth black sedge in areas where it has historically been known to occur.

The NHHNB report identified three locations where eelgrass beds have been documented in the general vicinity of the GSB. The eelgrass beds are located downstream (easterly) in the Piscataqua River and upstream (westerly) in Little Bay. The nearest westerly population is approximately 2,800 feet away from the GSB, and the nearest easterly population is approximately 1,700 feet away from the GSB.

The report also indicated the presence of cliff swallow near the Study Area; upon consultation with Pamela Hunt at NH Audubon (refer to **Appendix G**), cliff swallows are not currently known to be nesting on the GSB, having abandoned the site around 2012 or 2013. In addition to these species, the NHHNB report indicated that the project spans a sparsely vegetated intertidal system and subtidal system.

3.5.1.2 Federally-Listed Species Occurrences

The USFWS IPaC tool was used to confirm the presence of any federally listed or proposed, threatened, or endangered species, designated critical habitat, or other natural resources of concern within the Study Area. The IPaC results letter dated July 12, 2019 indicated that NLEB (*Myotis septentrionalis*) may occur within the Study Area (refer to the IPaC report in **Appendix H**). The IPaC official species list was updated on January 19, 2021 and confirmed that

the only federally listed species potentially within the project area is the NLEB. No known hibernacula exist within 0.5 miles of the Study Area, and no known roost trees exist within 0.25 miles of the Study Area. One roost location is present in Newington; however, this roost site is greater than 0.25 miles from the Study Area. Although no known hibernacula or roost trees exist in the vicinity of the Study Area, there are small areas of habitat that would support NLEB species.

The NHHNB report identified Atlantic sturgeon and shortnose sturgeon within the vicinity of the Project, which is consistent with the mapping of designated critical habitat for these species according to the ESA Section 7 Mapper.³⁸

3.5.2 Environmental Consequences

Below is a discussion of the anticipated impacts the Project would have on the rare, threatened, or endangered species identified within the Study Area.

3.5.2.1 Direct Impacts

No-Action Alternative

No direct impacts to threatened or endangered species are anticipated as a result of the No-Action Alternative since there would not be any changes to the existing GSB infrastructure or surrounding area.

Alternative 1

State-Listed Species

The NHHNB report dated February 8, 2021 indicated the presence of prolific yellow-flowered knotweed and smooth black sedge in the vicinity of the Study Area (see **Appendix F**). Specifically, the NHHNB report indicates prolific yellow-flowered knotweed under the GSB and LBBs in Hilton Park, and smooth black sedge south of the GSB in Newington. The NHDOT has consulted with the NHHNB since 2012 regarding these species. The NHHNB conducted surveys for these plants in 2012, during which smooth black sedge was found within five wetlands along the Turnpike. When an additional survey was conducted by NHHNB in October 3, 2019, no prolific yellow-flowered knotweed or smooth black sedge were identified in areas where they were historically known to occur. Therefore, the NHHNB does not anticipate any negative impacts to these species as a result of the proposed project. **Appendix F** provides the email correspondence and associated photographs from NHHNB relaying this information.

The NHHNB report identified eelgrass beds in the Piscataqua River and Little Bay. The potential impacts of the Project primarily relate to possible sedimentation at these eelgrass beds. All of the Action Alternatives (Alternatives 1, 3, 6, 7, and 9) will cause temporary, in-water disturbance from installation and removal of the proposed causeways and trestles for construction access. The installation and removal of these structures over a one- to two-month period may cause limited

³⁸ National Oceanic and Atmospheric Administration Fisheries. 2018. *Section 7 Mapper*. Greater Atlantic Region. Accessed from <https://noaa.maps.arcgis.com/apps/webappviewer/index.html?id=1bc332edc5204e03b250ac11f9914a27>. Accessed on January 11, 2019. See **Section 3.4** for further discussion.

sedimentation. Any impacts are likely to be limited to a temporary increase in turbidity and suspended solids. Because of substantial tidal exchange and normal river flows, water quality at the project site is expected to return quickly to its pre-disturbance condition. BMPs would be implemented to mitigate the potential for suspension of sediments and consequent siltation during in-water construction.

Based on the distance to the nearest eelgrass bed (approximately 1,700 feet to the east and 2,800 feet to the west) and the limited impacts and duration of the in-stream work, NHDOT has concluded that the potential impacts to eelgrass beds is unlikely. As documented in an email dated March 31, 2021, the NHHNB also does not expect impacts to eelgrass beds as a result of the Project. **Appendix F** provides the correspondence between NHDOT and NHHNB.

The NHHNB report identified Atlantic sturgeon and shortnose sturgeon within the vicinity of the Project, which is consistent with the mapping of designated critical habitat for these species according to the ESA Section 7 Mapper.³⁹ Based on the work that would be anticipated to be completed to rehabilitate or replace the bridge for Alternative 9 (Preferred Alternative), NOAA concurred that the project “*may affect but is not likely to adversely affect*” Atlantic/shortnose sturgeon critical habitat per correspondence with William Barnhill, NOAA, June 18, 2019 (refer to **Section 3.4, Wildlife and Fisheries**, as well as **Appendix E**). The proposed temporary impacts would be similar under Alternative 1.

As previously mentioned, cliff swallows have historically used the GSB for nesting; however, cliff swallows have not been documented using the bridge since 2012 or 2013. The NHF&GD and NH Audubon coordinated with the NHDOT regarding possible mitigation opportunities that could be incorporated with the new bridge. The NHF&GD recommended installing clay nests along the bridge to attract cliff swallows due to their historic use of the bridge, however NHDOT is opposed to using clay nests because of anticipated compromising bridge maintenance efforts. Communications with the NHF&GD and NH Audubon is provided in **Appendix G**.

The NHHNB report indicated that the project spans a sparsely vegetated intertidal system and subtidal system. The proposed in-water work would impact both of these systems. The NHDOT has coordinated with NOAA regarding the proposed impacts to fish and marine habitat. Additionally, coordination with the NHF&GD Marine Program is ongoing. As previously described in **Section 3.1, Wetlands and Surface Waters**, the temporary causeways and trestles would have a direct temporary impact on intertidal and subtidal habitats within Little Bay, including impacts to a blue mussel shellfish bed located under the GSB and along the shoreline extending to the west. Impacts to intertidal and subtidal habitats are anticipated to rebound upon removal of the temporary causeways and trestles once construction is complete.

Federally-Listed Species

Construction impacts for Alternative 1 would involve minor tree and shrub clearing to make room for the temporary construction access and causeways. All tree clearing would occur within 300 feet of existing roadways. Additionally, a survey for the presence of NLEB on the GSB structure was completed on September 26 and 27, 2018. During the survey no signs of NLEB

roosting locations were detected on or under the bridge structure. Since there is the potential for NLEB species to be present within the vicinity of the Project and the Project would impact the bridge structure and trees in the Project’s limit of disturbance, coordination with the USFWS was required to assess potential impacts to the NLEB.

Based on this information, a determination key was completed for the Project through the USFWS IPaC system. In response to the determination key, the USFWS provided a concurrence verification letter (Consultation Code 05E1NE00-2019-F-2285), stating that the Project adheres to the criteria of the *Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat* (revised February 5, 2018), and therefore satisfies the requirements under Section 7(a)(2) of the ESA of 1973 (refer to **Appendix H**). The official effect determination of “*may affect - likely to adversely affect*” is valid as long as applicable Avoidance and Minimization Measures (AMMs, provided in **Appendix H** and **Section 3.5.3**) are adopted into the final plans and are implemented during construction. Additionally, a survey for the presence of NLEB on the GSB structure will need to be done prior to construction in accordance with the Programmatic Biological Opinion. While the Project may affect the NLEB, the resulting incidental take of the NLEB is not prohibited by the final 4(d) rule.

Alternative 3

Impacts to threatened and endangered species under Alternative 3 would be the same as the impacts described under Alternative 1.

Alternative 6

Under Alternative 6, impacts to threatened or endangered species would be similar to that described under Alternative 1 with the exception of the additional direct, permanent impacts to subtidal and intertidal systems from the removal of the existing GSB Pier 1 and construction of a new pier within Little Bay to support a new bridge span, as described in **Section 3.1, Wetlands and Surface Waters**. The replacement pier would have slightly greater temporary impacts on Atlantic and shortnose sturgeon, as described in **Section 3.4, Wildlife and Fisheries**. Under Alternative 6, the potential for suspension of sediments and consequent siltation during in-water construction is greater than Alternatives 1, 3, and 9 due to the construction of a new pier within Little Bay.

Alternative 7

Impacts to threatened or endangered species under Alternative 7 would be the same as the impacts described under Alternative 6.

Alternative 9 (Preferred Alternative)

Impacts to threatened or endangered species under Alternative 9 would be the same as the impacts described under Alternative 1.

³⁹ National Oceanic and Atmospheric Administration Fisheries. 2018. *Section 7 Mapper*. Greater Atlantic Region. Accessed from <https://noaa.maps.arcgis.com/apps/webappviewer/index.html?id=1bc332edc5204e03b250ac11f9914a27>. Accessed on January 11, 2019.

3.5.2.2 Indirect Impacts

No-Action Alternative

No indirect impacts to threatened or endangered species are anticipated as a result of the No-Action Alternative since there would not be any changes to the existing GSB infrastructure or surrounding area.

Action Alternatives

While Alternatives 6 and 7 involve direct permanent impact to intertidal and subtidal systems and a greater degree of temporary impact to Atlantic and shortnose sturgeon, no indirect impacts to threatened or endangered species are anticipated to occur as a result of any of the Action Alternatives.

3.5.3 Mitigation

In addition to the environmental commitments in **Section 3.4.3, Wildlife and Fisheries**, the following mitigation measures would be implemented during construction to reduce or eliminate potential impacts to threatened and endangered species and natural communities.

- › If a threatened, endangered, or rare plant species is encountered during construction that was not documented prior to construction, construction activities in that area would temporarily cease until the plant has been relocated.
- › The existing bridge structure will be re-surveyed to identify any use by NLEB following the procedures in Appendix D of the *Programmatic Biological Opinion for Transportation Projects within the Range of the Indiana Bat and Northern Long-eared Bat* (revised February 5, 2018).
- › The following AMMs shall be followed to comply with the NLEB effect determination (refer to the USFWS concurrence letter in **Appendix H**).
 - Ensure all operators, employees, and contractors working in areas of known or presumed bat habitat are aware of all FHWA/FRA/FTA (Transportation Agencies) environmental commitments, including all applicable AMMs.
 - Direct temporary lighting away from suitable habitat during the active season.
 - When installing new or replacing existing permanent lights, use downward-facing, full cut-off lens lights (with same intensity or less for replacement lighting).
 - Modify all phase/aspects of the project (e.g., temporary work areas) to minimize tree removal.
 - Ensure tree removal is minimized to that specified in project plans and ensure that contractors understand clearing limits and how they are marked in the field.
- › Wildlife friendly erosion control methods shall be implemented during construction such as woven organic material for erosion control blankets. Welded plastic, biodegradable plastic, or threaded erosion control materials shall not be used as part of construction.

- › Since soil disturbance is anticipated to occur as part of the Project, the contractor(s) shall be required to develop and implement an appropriate Invasive Species Control and Management Plan which adheres to NHDOT's publication *Best Management Practices for the Control of Invasive and Noxious Plant Species* (2018) during construction to minimize the spread of invasive plant species within the area of ground disturbance. Only clean equipment that is free of plant material and debris shall be delivered to the Project site and utilized during construction. All machinery entering and leaving any area containing invasive plants will be inspected for foreign plant matter (stems, flowers roots, etc.) and embedded soil. If foreign plant matter/soil is present, the operator shall remove the plant material and soil from the machine using acceptable methods.

3.6 Farmlands

The identification and protection of farmlands is important to the national, regional and local economies; therefore, consideration of potential impacts from federal activities on- or adjacent to prime or unique farmlands is necessary. The Farmland Protection Policy Act (FPPA) of 1984 (7 USC 4201) provides guidelines to Federal agencies involved in projects that may convert existing or potential farmland areas to non-agricultural uses. The FPPA directs Federal agencies to "...*(a) identify and take into account the adverse effects of their programs on the preservation of farmland, (b) to consider alternative actions, as appropriate, that could lessen adverse effects, and (c) to ensure that their programs, to the extent practicable, are compatible with State and units of local government and private programs and policies to protect farmland...*" (7 CFR 658.1). FHWA's Technical Advisory T6640.8A (October 30, 1987) further directs that impacts on farmlands be assessed as part of the environmental assessment for all transportation projects.

The FPPA outlines several exemptions which apply to projects that occur within urbanized areas as identified by the US Census Bureau or areas already in development. Farmlands are defined as *already in* areas of development in the FPPA as, *Farmland "already in" urban development or water storage includes all such land with a density of 30 structures per 40-acre area. Farmland already in urban development also includes lands identified as "urbanized area" (UA) on the Census Bureau Map* (7 CFR 658.2).

3.6.1 Affected Environment

Urbanized areas maps are available by the US Census Bureau from the 2010 Census.⁴⁰ Review of urban area reference maps determined that the Study Area occurs entirely within the following two UAs: Dover – Rochester, NH – ME 24607 on the Dover side of the Study Area and Portsmouth, NH – ME 71506 on the Newington side of the Study Area.

3.6.2 Environmental Consequences

Impacts to farmlands result from the conversion or loss of undeveloped properties and prime or unique farmlands (as defined by the FPPA or the US Department of Agriculture) to paved or

⁴⁰ US Census Bureau. *2010 Census Urban Area Reference Maps*. Revised October 16, 2019. Accessed from <https://www.census.gov/geographies/reference-maps/2010/geo/2010-census-urban-areas.html>. Accessed on June 25, 2019.