

4.9 Aquatic and Benthos Habitat

4.9.1 Existing Conditions

The brackish waters of the HMD are unnaturally stressed due to low dissolved oxygen concentrations and exceedances of other water quality parameters. These conditions exist largely as a result of the many sanitary sewage and industrial wastewater outfalls discharging into the estuary. Despite these circumstances, the waters of the HMD still provide habitat for a variety of aquatic species including fish, crustaceans, waterfowl and benthic invertebrates (*USEPA and USACOE, 1995*). The Hackensack River and its associated tributaries and marshes are known to support at least 34 different species of fish (*HMDC, 1989*). These fish species include freshwater, estuarine, marine and even anadromous fishes. The dominant species of fish found in the lower Hackensack River system are the mummichog (*Fundulus heteroclitus*), which represented approximately 90 percent of the individuals caught in an aquatic resource study completed in 1987 and 1988 (*USEPA and USACOE, 1995*). The mummichog has most likely become the dominant fish species due to its capabilities of adapting to and surviving the stress created by periods of low dissolved oxygen.

The aquatic invertebrate community found in the lower Hackensack River and its tributaries does not contain the diversity that would be expected in an unpolluted, unstressed estuary. It has been documented that the Newark Bay and Hackensack River sediments are contaminated with a variety of pollutants, including nitrates, various heavy metals, PCBs, dioxins and other compounds from industrial sources (*USACE 2002*). As a result, similar to the fish populations found in the region, the benthic invertebrate communities are dominated by more “pollution tolerant” species such as polychaete worms.

The benthic invertebrate community was assessed by the NJMC in its aquatic resource study prepared in 1987 and 1988. In that study, a total of 53 different invertebrate species were collected from the sediments in the Hackensack River and its tributaries. Of the individuals collected, 36 percent were polychaetes, 15 percent were mollusks and 11 percent were amphipods (*HMDC, 1989*). Polychaetes tend to be labeled as “habitat generalists” due to their ability to adapt to environmentally stressful conditions (*USACOE, 2002*).

The aquatic and benthos habitat within the Project site is limited to Walden Mash and Berry’s Creek. Similar to the Hackensack River and other water bodies within the HMD, Walden Marsh is also stressed due to low dissolved oxygen concentrations and exceedances of many water quality parameters. Sediments within the creek bottom and wetlands exhibit elevated levels of mercury and PCB contamination greater than that found in other areas of the Meadowlands (*NJSEA, 2004*). It is also important to point out that sometime during the early part of the 20th Century Berry’s Creek was dredged and channelized to accommodate shipping traffic (*USGS, 1900 and USGS, 1967*). The dredging followed by the disposing of mercury and PCBs upstream likely destroyed much of the original benthic communities inhabiting the Creek. Despite the excessive degradation that has affected Berry’s Creek and Walden Marsh, aquatic and benthos

environments continue to function as habitat to many of the species mentioned above (*NJSEA, 2004*).

The National Marine Fisheries Service (NMFS) was contacted to request information relevant to the Meadowlands Railroad Project regarding the Endangered Species Act, the Fish and Wildlife Coordination Act and the Magnuson-Stevens Fishery Conservation and Management Act. In a response dated January 25, 2005, the NMFS stated that with the exception of occasional transients, there are no endangered or threatened species in the project area (Appendix A). In regard to the Fish and Wildlife Coordination Act, the letter states that Anadromous and resident fish, forage and benthic species including American Shad, alewife and blueback herring, striped bass, winter flounder and windowpane may be present in the project area. The NMFS also reports that Hackensack River and its tributaries have been designated as Essential Fish Habitat (EFH) for one or more species. Conservation recommendations may be made by the NMFS during the permit application process.

4.9.2 No-Action Alternative

It is anticipated that aquatic and benthos habitat conditions under the No-Action Alternative will be similar to existing conditions.

4.9.3 Preferred Alternative Impacts

The Meadowlands Railroad and Roadway Improvement Project would result in ephemeral impacts to aquatic and benthos habitat associated mostly with the construction of the rail alignment viaduct. The process of driving piles and constructing the temporary access road in order to complete construction would have the greatest impact to these habitats. Through the placement of pilings within aquatic and benthos habitat, existing benthic invertebrates and small fish species may be impacted during this process. Larger, more mobile fish are able to migrate outside the area of impact, and thus, impacts to larger fish are not expected.

Once construction is complete, the temporary access road would be removed and the rail alignment would be elevated above the aquatic and benthos habitats leaving it intact. Constructing the viaduct with a minimal amount of fill greatly reduces the extent of potential impacts. The degraded nature of the habitat that currently exists in and around Berry's Creek further reduces the potential for severe impacts.

4.9.4 Mitigation

Short-term impacts to aquatic and benthos habitat would be mitigated for through various approaches. Constructing the rail alignment almost entirely on viaduct through the aquatic and benthos habitats as opposed to on fill material is the most significant mitigation approach. Had the design for the rail alignment required depositing fill material along its entire length, the project would have resulted in the permanent destruction of nearly two acres of aquatic and

benthos habitat. As the current design stands, approximately one half acre of habitat would be filled.

Another form of mitigation to be utilized is the implementation of a phased approach for the placement of piers and fill material into aquatic and benthos habitats, thereby allowing larger fish and mobile macro-invertebrates to evacuate the waters of the impacted area. In addition, soil erosion and sediment controls would be in place prior to the commencement of any earthwork onsite to minimize impacts to water quality, which in turn can affect aquatic and benthos habitats.

Mitigation for the minimal losses to these habitats may also be compensated for through the Project's wetland mitigation plan (Section 4.2.3).