

precluding their use of the canal, it is likely that sea turtles also occur in the canal. The Fact Sheet for this permit states that one sea turtle was observed near the Station in 1977 and that no sea turtles have been sighted near the plant or its intakes since this date.

Intake Structure

The approach velocities of the intake structures and intake screens are such that marine mammals and sea turtles are able to readily avoid becoming impinged on the structures. These species are too large to be vulnerable to entrainment. The Fact Sheet reports that no sea turtles or marine mammals have ever been documented as impinged on the intake structures. As such, EPA has made the determination that the intakes will have no direct effects on these species. Due to the low approach velocities and the lack of any evidence of an impingement risk, NMFS agrees that it is unlikely that marine mammals or sea turtles are vulnerable to impingement at the Station's intakes.

The effect that the loss of fish eggs, larvae, and adults has on foraging marine mammals and sea turtles is unknown. However, as the marine mammals and sea turtles in the Canal are transient and are likely using the canal to transit to and from Cape Cod Bay and Buzzards Bay, and large amounts of suitable forage occur in these waterbodies, the effects of this loss of forage on marine mammals and sea turtles is likely to be discountable.

The best available information indicates that water temperatures within the limits of this permit (i.e., below a maximum of 90°F), are well tolerated by sea turtles (Milton and Lutz 2003) and are below the upper lethal limit for sea turtles reported in the literature (99.5°F; Coles 1999). As such, the discharge of heated effluent is not likely to directly affect sea turtles in the Canals and the thermal plume is not likely to act as a barrier to normal behaviors, including transiting the Canal. No information on the temperature tolerances for humpback or right whales is currently available; however, both species may be found in areas where water temperatures are quite warm (i.e., southern coast of the US and for humpbacks, the tropics) (Perrin et. al. 2002). As the thermal plume is limited to the surface, both species would be able to avoid the plume by swimming underneath it. In addition, as the heated water rapidly cools and the plume occurs in a very limited geographic area and does not extend into Cape Cod Bay, it likely has an insignificant effect on transient whales that may occur in the Canal.

Chlorine

Three percent sodium hypochlorite injections, to prevent biofouling, occur daily when water temperature approaches and remains above 50°F. The acute chlorine standard for Massachusetts waters is 0.013mg/L. Based on average flow and the dilution calculations, EPA has determined that a permit limit of 0.1mg/L of Total Residual Chlorine (TRC) will assure that the Water Quality Stand of 0.013mg/L is met in the receiving water. There are a number of studies that have examined the effects of TRC (Post 1987; Buckley 1976) on fish; however, no directed studies that have examined the effects of TRC on marine mammals or sea turtles have been conducted. The EPA has set the Criteria Maximum Concentration (CMC or acute criteria; defined in 40 CFR 131.36 as

equals the highest concentration of a pollutant to which aquatic life can be exposed for a short period of time (up to 96 hours) without deleterious effects) at 0.019mg/L.

As noted above, the “end-of-pipe” concentration (i.e., the concentration of TRC in the effluent as it discharges into the receiving water) required by the permit is 0.013mg/L. The anticipated TRC level at the outfall satisfies the EPA’s ambient water quality criteria and is lower than TRC levels known to be protective of aquatic life. While TRC limits protective of sea turtles and marine mammals are not known, NMFS has no information to indicate that the EPA maximum concentration designated for the protection of aquatic life would not also be protective of these species. Additionally, TRC levels are likely to be even lower in Buzzards Bay and Cape Cod Canal where the majority of sea turtles and marine mammals are likely to be found as rapid mixing of the effluent and ambient Canal water is likely to occur which will facilitate further dilution of the effluent.

pH

The permit requires that the discharge maintain a pH of 6.5 – 8.5. A pH of 6.5 – 9.0 is harmless to most marine organisms (Ausperger 2004) and is within the normal range of pH for seawater. As such, no adverse effects to listed species are likely to occur as a result of the discharge of water of this pH into the Canal.

Oil and grease

High concentrations of petroleum products such as oil and grease can be toxic to aquatic life, including whales and sea turtles. EPA’s “Red Book” (i.e., the source document for most aquatic life standards), summarizes the best available information on lethal toxicities of various petroleum products to aquatic organisms. No information is available for marine mammals or sea turtles as effects are caused by physical coating, entanglement, or incorporation of hydrocarbons through the food chain. The document does indicate that lethal levels of gasoline for finfish are 91mg/L and for waste oil are 1700mg/L. The limits of the proposed permit (15mg/L for Outfall 002 and 10mg/L for Outfall 001) are well below these limits. In addition, as the permit prohibits the discharge of levels of oil and grease at levels that are visible, levels are not likely to reach those where there is a risk of coating or entanglement. As such, no adverse effects to marine mammals or sea turtles are likely to occur as a result of these levels of oil and grease being discharged into the receiving waters.

Copper

Copper is an essential metal for normal metabolism; however, at high enough levels it can be acutely toxic (EPA 1980). While copper levels have been reported for green turtles (Sakai et. al. 2000 in Lutz et. al. 2003) no information on toxic levels is available. No information on copper toxicity for marine mammals is readily available. The CMC set for copper in saltwater set by EPA is 0.0048mg/L. EPA has set a permit limit of 1.0mg/L for copper in the metal cleaning waste discharge in the Station. This discharge is highly diluted before it reaches any of the Outfalls from which it is discharged into the Canal and the end-of-pipe discharge must satisfy the EPA CMC criteria. While copper limits protective of sea turtles and marine mammals are not known, NMFS has no information

to indicate that the EPA maximum concentration designated for the protection of aquatic life would not also be protective of these species.

Iron

Similar to copper, iron is an essential metal for normal metabolism yet at high enough levels is can be toxic (EPA 1980). No information on iron toxicity for marine mammals or sea turtles is readily available. The CMC set for iron by EPA is 1.0mg/L. EPA has set a permit limit of 1.0mg/L for iron in the metal cleaning waste discharge in the Station. This discharge is highly diluted before it reaches any of the Outfalls from which it is discharged into the Canal and the end-of-pipe discharge must satisfy the EPA CMC criteria. While iron limits protective of sea turtles and marine mammals are not known, NMFS has no information to indicate that the EPA maximum concentration designated for the protection of aquatic life would not also be protective of these species.

Based on the above analysis of water quality effects and the determination that all effects, if adverse, will be insignificant or discountable, NMFS is able to concur with EPA's determination that the proposed reissuance of the NPDES permit for this facility is not likely to adversely affect listed whales or sea turtles. Therefore, no further consultation pursuant to Section 7 of the ESA is required.

As you know, NMFS, USFWS, and EPA are currently engaged in Section 7 consultations on EPA's water quality standards and aquatic life criteria. Those consultations may reveal effects of EPA's program that NMFS did not consider in this evaluation or they may change national water quality criteria and standards in ways that affect the water quality program for the State of Massachusetts. Either outcome might require NMFS to reconsider the conclusions reached in this letter. In addition, should project plans change, a new species be listed or critical habitat designated, or should new information become available that changes the basis for this determination, consultation should be reinitiated.

Response XIII.A:

EPA appreciates NMFS' review of this permit and will notify NMFS if any substantive changes occur that may require further consultation under the Endangered Species Act.