UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Washington State Habitat Office
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LACEY, WASHINGTON 98503

September 26, 2006

RECEIVED
SEP 28 2006

Kate Stenberg
Alaska Way Viaduct Environmental Manager
Washington State Department of Transportation
AWV Project Office (Wells Fargo Building)
999 Third Avenue, Suite 2424
Seattle, Washington 98104-4019

Dear Ms. Stenberg,

F-008-001

The National Marine Fisheries Service (NMFS) has reviewed the Supplemental Draft Environmental Impact Statement (SDEIS) for the State Route (SR) 99, Alaskan Way Viaduct and Seawall Replacement Project located in the City of Seattle, King County, Washington. NMFS appreciates the opportunity to review and comment on the SDEIS.

The FHWA, WSDOT, and the City propose to replace the existing Alaskan Way Viaduct (SR 99) and Alaskan Way Seawall (Seawall). Three alternatives are evaluated in the SDEIS: Tunnel, Elevated Structure, and the No Build. The Tunnel Alternative is the preferred alternative. In general, the Tunnel Alternative would construct SR 99 in a stacked six lane highway (three lanes in each direction). The Elevated Structure Alternative would rebuild SR 99 with a six lane highway. In both the Tunnel and Elevated Structure Alternatives, the seawall will be replaced. Although the seawall would not be replaced with the No Build Alternative, it would still need to be replaced due to its deteriorating condition.

NMFS commends the FHWA, WSDOT, and the City for a clear and well-written SDEIS. A thorough review of the different alternatives and the benefits, impacts, and effects of these alternatives was provided.

NMFS provided comments to the Federal Highway Administration (FHWA), Washington State Department of Transportation (WSDOT), and the City of Seattle (City) on the Draft Environmental Impact Statement (DEIS) in e-mails from Bob Donnelly to Allison Ray, WSDOT, on February 27, June 7, and August 17, 2004. The following comments from the DEIS are still pertinent to the SDEIS:

F-008-002

1. The DEIS or its appendices do not contain a discussion of the actions that would be taken if some or all of the existing seawall were to collapse during construction of the new seawall (just inland of the existing seawall). NMFS thinks there is a probability of some form of collapse during construction given the vibration associated with construction. Please provide additional information concerning how sediment (or contaminated sediment) will be contained or retrieved and how the piece(s) of the existing seawall will be recovered. In addition, please discuss what Best Management Practices (BMPs) will be implemented in the event that a

F-008-001

FHWA, WSDOT, and the City of Seattle appreciate receiving your comments and value your participation in the project through the resource agency meetings.

F-008-002

The lead agencies have identified the Bored Tunnel Alternative as the preferred alternative for this project. This alternative has been analyzed in the 2010 Supplemental Draft EIS and Final EIS, and would not include the replacement of the seawall. Under this alternative, the replacement of the seawall would be a separate project led by the City of Seattle.

For the Cut-and-Cover Tunnel and the Elevated Structure Alternatives that do include the replacement of the seawall, maintaining the stability of the seawall during construction of the new wall sections is a key design consideration and performance measure. The design team has carefully incorporated the design elements, such as bracing or tiebacks, needed to ensure the stability of the structure during construction. In addition, an extensive settlement and vibration monitoring program would be developed to be conducted both during and after construction to measure indicators of movement and instability.

F-008-002 collapse occurred during the time of the year when juvenile Chinook salmon are present.

F-008-003 2. The DEIS describes the use of grouting to stabilize the ground behind the existing seawall. NMFS thinks there is a high probability that some of that grout will find its way into the waters of Elliot Bay adjacent to the existing seawall. This is based on the last time grout was used in the same area to stabilize material behind the existing seawall. Please provide information about the BMPs that will be implemented in the event that grout got into Elliott Bay during the time of the year when juvenile Chinook salmon are present.

F-008-004 3. There is mention of environmental mitigation associated with the project. However, the DEIS does not contain any details on mitigation and mentions this will be discussed at a later date. Please provide more detail on this subject so we may analyze the functions that could be obtained through mitigation actions.

F-008-005 4. The subject of groundwater is given very little attention. Essentially it states that groundwater will find its own way into Elliott Bay. Please provide more detailed information on this subject. For example, where will the groundwater enter Elliott Bay? In addition, there was some discussion of using the groundwater in at least one of the mitigation proposals. How would this impact groundwater management?

F-008-006 5. Page 48, No. 25: The DEIS states that the area adjacent to the seawall and between Pier 48 to Colman Dock could have areas of essential fish habitat (EFH). This area and all of Elliot Bay has been identified as EFH. Please describe all EFH areas and the project effects to EFH.

F-008-007 6. Appendix R: Fisheries, Wildlife, and Habitat Discipline Report: Page 1, Chapter 1: Appendix R states that the Green/Duwamish Chinook salmon stock is currently listed as healthy based on escapement levels. This text was gathered from the 1992 Washington State Salmon and Steelhead Stock Inventory report. The Biological Review Team's Draft Status Review (2003) (available at http://www.nwfsc.noaa.gov/trt/brt/brtrpt.cfm) states that the Green/Duwamish Chinook salmon stock escapement levels consist of 70 percent, on average, hatchery strays. This indicates that the wild portion of the stock may not be considered healthy. Please update this information for subsequent documents.

F-008-008 7. Appendix R: Fisheries, Wildlife, and Habitat Discipline Report: Page 8, Chapter 2: Please provide the source(s) for the data identified in the Anadromous Fish Run Data section.

F-008-009 8. Appendix R: Fisheries, Wildlife, and Habitat Discipline Report: Page 23, Chapter 4: Section 4.1.3 states that the Magnuson-Stevens Act regulates salmon, groundfish, and pelagic fish. The Magnuson-Stevens Act regulates salmon, groundfish, and pelagic fish that fall under a Federal fisheries management plan.

F-008-003

Since publication of the 2006 Supplemental Draft EIS, a new containment strategy has been developed to prevent grout and other contaminants from entering the water in Elliott Bay. The containment method was developed in the September 2006 Tunnel Constructability workshop and includes the following procedures and applies to the Cut-and-Cover Tunnel and Elevated Structure Alternatives only:

1. The existing seawall would be surveyed for size and location of cracks and other potential leakage points.
2. Temporary repairs would be made to the existing seawall to retain upland grout when it is placed.
3. A turbidity curtain would be installed to minimize turbidity in the construction area and prevent water quality impacts outside the work area.
4. A movable containment panel would be installed adjacent to the existing seawall, including impervious mat to be placed over the riprap adjacent to the seawall. The size and location of the panel-mat system would be determined by the secant pile installation and grouting operations.

In certain areas, a sheet pile wall may be necessary for containment. A turbidity curtain would be installed prior to installation of the sheet pile wall or removal of riprap for placement of the sheet pile wall. The turbidity curtain will minimize or prevent turbid water from leaving the construction area and impacting water quality.

F-008-004

Information related to mitigation and proposed habitat enhancements was provided in the 2010 Supplemental Draft EIS and can be found in Chapter 8 of the Final EIS.

F-008-009 In Washington State, this includes various life-history stages of 46 species of groundfish, four species of coastal pelagics, and three species of Pacific salmon. Please update this section of the document.

F-008-010 9. Appendix R: Fisheries, Wildlife, and Habitat Discipline Report: Page 25-26, Chapter 4: Please include the following groundfish to Exhibit 4-5: California skate (*Raja inornata*), rosethorn rockfish (*Sebastes helvomaculatus*), and sablefish (*Anoplopoma fimbria*). Essential fish habitat is also designated for three species of salmon: Chinook salmon, coho (*Oncorhynchus kisutch*), and Puget Sound pink salmon (*O. gorbuscha*). Please include these fish in the EFH analysis.

F-008-011 10. Appendix R: Fisheries, Wildlife, and Habitat Discipline Report: Page 59, Chapter 9: Appendix R states that in-water construction along the Elliott Bay shoreline is likely to be prohibited from March 15 to July 15. The correct dates that in-water work will be prohibited in Elliott Bay are February 16 to July 15. In Lake Union, work would be prohibited from April 16 to September 30.

F-008-012 11. Appendix R: Fisheries, Wildlife, and Habitat Discipline Report: Page 61, Chapter 10: Please update this section to read as follows: Section 7(a)(2) of the ESA requires Federal agencies to consult with the Services, as appropriate, to ensure that their actions are not likely to jeopardize the continued existence of endangered or threatened species or adversely modify or destroy their critical habitats. Furthermore, the DEIS should state: Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation is defined as the use of all methods and procedures which are necessary to bring any endangered or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary.

F-008-013 12. Appendix S: Water Resources Discipline Report: Page 4, Exhibit 1-2 and Page 39, Section 4.1. These two sections appear to contradict each other. Page 39 states that because the proposed project will treat stormwater the total amount of pollutant loading from the project area will be reduced relative to existing conditions. In Exhibit 1-2 zinc and copper loading stays the same or increases in Puget Sound and Lake Union. Please accurately describe which pollutant loading is being reduced. Please describe why the pollutant loading for zinc and copper actually goes up using the Convey and Treat Approach in Puget Sound.

F-008-014 NMFS reviewed the alternatives and sections of the SDEIS, including the appendices, that described effects on threatened and endangered species and their critical habitat. Specific concerns and issues that were reviewed include the replacement of the Seawall and associated habitat improvements, construction of the overwater structure between Pier 48 and Colman Dock, stormwater effects, and re-suspension of contaminants in the sediments. These aspects of the project will have the most significant impacts on listed species.

F-008-005

The existing Alaskan Way Viaduct Replacement Project area is part of a highly developed downtown urban corridor along the Elliott Bay waterfront. The project area has been developed for more than 100 years and is assumed to be 100 percent impervious. The specific location for discharge of groundwater to Elliott Bay is not known. Based on observations of groundwater seepage to Puget Sound in other locations, groundwater discharge likely occurs as diffuse seepage along the contact between the aquifer material (sand and gravel soils) and Elliott Bay.

Groundwater reinjection has been proposed to potentially mitigate the impacts of construction dewatering of excavations. Groundwater pumped from the construction dewatering system would be treated and then reinjected through wells into the soil outside the excavation. From a groundwater management perspective, the result of using groundwater for this purpose is a net reduction in the groundwater being removed from the underlying aquifers.

F-008-006

Descriptions of and potential effects to essential fish habitat are included in the biological assessment developed for the project. Species that have essential fish habitat in Elliott Bay are identified in Final EIS Appendix N, Fisheries, Wildlife, and Habitat Discipline Report and Chapter 4 of the Final EIS.

F-008-007

Thank you for the clarification. Subsequent documents incorporated this information, as appropriate.

F-008-008

Data were obtained from Weitkamp and Ruggerone (2000) and from the

F-008-014 NMFS understands that the SDEIS does not provide an in-depth analysis of potential impacts to threatened and endangered species. The FHWA and WSDOT will be consulting with NMFS under section 7 of the Endangered Species Act. A more thorough review of the impacts to threatened and endangered species will be required at that time.

The following are comments on the SDEIS:

F-008-015 1) Throughout the SDEIS (Page 25, No. 8; Page 33, No. 18; Page 104, No. 23; etc.) the SDEIS states that FHWA, WSDOT and the City will work with the regulatory agencies to improve any fish and wildlife habitat affected by the project, to evaluate conservation measures to avoid, minimize, rectify, or compensate for impacts to species and their habitat, and review mitigation plans. NMFS has been coordinating with the FHWA, WSDOT and the City throughout the project design to identify and minimize potential impacts to fish and wildlife. NMFS will continue to be available to provide technical assistance for the identification of any mitigation, restoration and enhancement projects to improve habitat for listed species. We look forward to a list of all project effects to listed fish and their critical habitat and conservation measures to avoid and minimize these effects in the biological assessment required for the Endangered Species Act section 7 consultation on the project.

F-008-016 2) Page 68, No. 15: The SDEIS states that a temporary 15,000-square-foot access bridge would be constructed instead of a permanent 33,000-square-foot overwater pier between Pier 48 and Colman Dock. It is unclear from the SDEIS how long the temporary access bridge would be in place (additional information on the access bridge was given on Pages 76 and 101). On Page 101, the SDEIS states that the bridge would be constructed within the first 30 months and would remain until construction is complete. A temporary bridge constructed and used for six to eight years could have significant impacts to the aquatic environment, even with a smaller surface area. Please analyze these effects on listed species and their critical habitat.

F-008-017 3) Page 68, yellow box in lower right corner: This box identifies new species and habitat that are evaluated in the SDEIS. Resident killer whales (*Orcinus orca*) are identified, but proposed critical habitat for the killer whales is not. Please analyze the effects of the project on proposed critical habitat for killer whales.

F-008-018 4) Page 69, No. 16: The SDEIS states that stormwater from any impervious surfaces that are replaced by the project will be treated before it's discharged. On page 70, the SDEIS states that stormwater runoff generated within the project area will be collected and either directed to the combined sewer system and sent to a treatment plant, or treated using best management practices (BMPs) consistent with applicable stormwater codes. NMFS is not clear on how the stormwater will be treated, what performance standards or specific BMPs will be employed and what are the contaminant removal efficiencies of these BMPs. This information will be needed to determine effects of water quality on listed species and their habitat.

WDFW Salmonid Stock Inventory website:
http://wdfw.wa.gov/webmaps/salmonscape/sasi/full_stock_rpts/1160.pdf.

F-008-009

Comment noted. Subsequent applicable reference to the Magnuson-Stevens Act incorporated this information, as appropriate.

F-008-010

Comment noted. A discussion of the effects of the project on EFH is provided in the biological assessment, as appropriate. The preferred Bored Tunnel Alternative would not replace the seawall or require in-water work that would disturb EFH.

F-008-011

Comment noted. The Elliott Bay work window included in Appendix R was for salmon, and it did not include the work window for bull trout. Work window discussions in the Final EIS include the salmon and bull trout work windows. However, no in-water construction activities are expected to occur in Lake Union as part of the project.

F-008-012

Comment noted. The appropriate text is included in Section 2.2 of Appendix N, Wildlife, Fish and Vegetation Discipline Report, of the Final EIS. Detailed discussion of the project effects on ESA species is provided in the biological assessment for the project.

F-008-013

The Convey and Treat Approach has not been carried into the Final EIS. Based on detailed modeling, continued design, and coordination efforts, a single approach to stormwater management is now being proposed for all of the alternatives evaluated in the Final EIS.
This approach is described in the Final EIS Appendix O, Surface Water

F-008-019

5) Page 76, No. 6, Building the Colman Dock Ferry Terminal Access Road: The SDEIS states that the temporary over-water bridge to provide vehicle access to the ferry terminal would be constructed by placing steel or precast concrete piles. NMFS recommends that concrete piles be used over steel piles to minimize pile driving impacts to listed species.

F-008-020

6) Page 77, Step 2 and Page 79, Step 2: The SDEIS states that crews may remove riprap adjacent to the seawall. It further states that once the riprap is removed, a sheet pile wall, silt curtain, or equivalent protective measure would be installed. NMFS recommends that a silt curtain be placed in-water prior to the removal of the riprap. Removal of the riprap can create significant turbidity and result in impacts to aquatic species.

F-008-021

7) Page 101, No.19: The SDEIS states that project partners are considering the feasibility of constructing temporary over-water pedestrian walkways between some piers. No further information or analysis on the effect of these walkways on listed species or the habitat was provided. Additional information on their location, type of construction material used, how long they will be used, etc. is needed to determine effects of the walkways on listed species.

F-008-022

8) Page 102, No. 19: The document states that a temporary sheet pile wall, silt curtain, or equivalent measure would be installed to protect water quality in Elliott Bay. The document further states that in the DEIS the use of a silt curtain was proposed, but a temporary sheet pile wall was not included. It is the understanding of NMFS from meetings held with the action agencies that it may not be possible to install a sheet pile wall because of the existing riprap and other material placed along the Seawall. The SDEIS should accurately describe how water quality in Elliott Bay will be protected because the installation of a sheet pile wall with an impact pile driver, if needed, may have adverse affects to listed fish species.

F-008-023

9) Page 102, No. 20: The second paragraph states that temporary turbidity impacts could result from disturbing the bottom sediments, which could be contaminated, during installation of the sheet pile wall. We could not find a description of these contaminants or their effects on aquatic species. Please provide this information.

F-008-024

10) Page 102, No. 20: This section identifies the need to disturb and rebuild portions of the City's and King County's existing combined sewer and separated storm drainage systems within the project area. No analysis on the effects from combined sewer outfall discharges was provided in the SDEIS based on the project. Please analyze these effects on listed species and their habitat.

Discipline Report, and is most similar to the BMP Approach presented in the 2004 Draft EIS. An updated pollutant load analysis is also included in the Final EIS Appendix O.

Compared to existing conditions, all build alternatives would reduce the overall amount of pollutant-generating impervious surface, which is expected to improve water quality. Some portions of the project area currently discharge to Elliott Bay and Lake Union without treatment. All of the build alternatives would provide water quality treatment for pollutant-generating impervious surfaces in these areas.

F-008-014

The potential effects on federally-listed threatened and endangered species are discussed in the biological assessment for the project, the Final EIS, and Appendix N, Wildlife, Fish, and Vegetation Discipline Report.

F-008-015

The lead agencies appreciate the involvement of NMFS during the course of this project. A biological assessment has been prepared for this project and it discusses the current project effects to endangered species. Your biological opinion was received on January 27, 2010.

F-008-016

The temporary over-water structure that could be in place for up to 8 years with the Cut-and-Cover Tunnel or Elevated Structure Alternatives, could impact the aquatic environment, depending on the water depth and orientation of the structure. Assessment of potential effects associated with a temporary over-water structure is included in the Final EIS Appendix N, Wildlife, Fish, and Vegetation Discipline Report. The preferred Bored Tunnel Alternative does not require the temporary structure referred to in this comment.

F-008-025

11) Page 103, No. 23, Fish, Aquatic Resources, and Water Quality: The SDEIS states that an Aquatic Resource Mitigation Plan will be developed to address construction-related effects to Elliott Bay habitat and water resources. The Aquatic Resource Mitigation Plan should also address construction-related effects to Lake Union.

F-008-026

12) Appendix R; Fisheries, Wildlife, and Habitat Discipline Report: Page 2, 1.2 Proposed Project: The first paragraph states that Appendix R focuses on the Seawall portion of the project along the edge of Elliott Bay because the only fish, wildlife, and vegetation resources that occur within the project area are those associated with Elliott Bay and its shoreline. As stated in Comment 13 below, there are potential effects to listed fish, designated critical habitat, and other aquatic resources in Lake Union during construction and operation and maintenance of SR-99. The SDEIS and Appendix R should identify and describe all impacts to listed species and their critical habitat in both Elliott Bay and Lake Union.

13) Appendix R; Fisheries, Wildlife, and Habitat Discipline Report: Page 7, 2.2 Existing Environment: Appendix R states that designated Chinook salmon critical habitat includes the nearshore areas of Elliott Bay. The SDEIS states that treated stormwater or dewatering water could be discharged to Lake Union using a temporary outfall or through existing outfalls. Lake Union and the Lake Washington Ship Canal are designated critical habitat for Chinook salmon. Please analyze the effects of the project on Chinook salmon and designated Chinook salmon critical habitat in both Elliot Bay and Lake Union.

F-008-027

14) Appendix R; Fisheries, Wildlife, and Habitat Discipline Report: Page 23, 5.4 Benefits: Bullet #3 states that numerous creosote-treated piles would be removed along the face of the existing seawall. Further information is needed regarding these piles. The SDEIS discusses the removal of contaminated soil. If the soil has greater than 5 percent woody debris consisting of creosote-treated piles, the soil will be removed and transported to a landfill. Are these old creosote-treated piles that are no longer used and were just left in Elliot Bay, are they supporting piles that will be replaced, or wood used to construct the existing seawall that will be removed? Please describe these creosote-treated piles and evaluate the potential effects of the re-suspension of the creosote on listed fish and the prey species.

F-008-028

15) Appendix R; Fisheries, Wildlife, and Habitat Discipline Report: Page 26, 6.2 Pile Driving: This section describes the potential effects of pile driving and sound pressure levels or sound exposure levels on fish. This section does not describe sound attenuation measures such as bubble curtains or Gunderbooms (fabric and bubble curtain combined) that can be used to reduce pile driving effects to fish. NMFS recommends that sound attenuation devices be used to minimize impacts to fish resulting from impact pile driving of piles.

F-008-017

The lead agencies have identified the Bored Tunnel Alternative as the preferred alternative. This alternative would not replace the seawall or require in-water work. For the Cut-and-Cover Tunnel Alternative and Elevated Structure Alternative, which would both include replacement of the seawall, project construction activities will occur in areas shallower than 20 feet, which is outside of the designated critical habitat for killer whales. In addition, killer whales are unlikely to occur in the nearshore areas along the Seattle waterfront, due to the extensive anthropogenic activities and the multiple piers and piles. While the primary mechanism of potential effects of project operations on critical habitat is through stormwater discharge, the project is expected to improve water quality conditions in Elliott Bay or Puget Sound, compared to existing conditions.

F-008-018

The Convey and Treat Approach and the associated treatment facility have not been carried into the Final EIS. Based on detailed modeling, continued design, and coordination efforts, a single approach to stormwater management is now being proposed for all of the alternatives evaluated in the Final EIS. This alternative is described in Appendix O, Surface Water Discipline Report, of the Final EIS and is most similar to the BMP Approach presented in the 2004 Draft EIS.

Specific BMPs will not be determined until later in the design and permitting process. BMPs will be designed to meet the Basic Treatment Requirements as defined in the WSDOT Highway Runoff Manual, which is equivalent to the Ecology Manual 2005, or the applicable stormwater manual at the time of permitting. Both the WSDOT and Ecology Manuals have several BMPs that meet the requirements of Basic Treatment.

An updated pollutant load analysis that summarizes total annual loading is included in Appendix O of the Final EIS. Potential toxicity of

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Thank you again for the opportunity to review the SDEIS. If you have any questions or need clarification on any comment, please contact Jim Muck of NMFS at (206) 526-4740.

Sincerely,

Steven W. Landino
Washington State Director
for Habitat Conservation

stormwater discharges is discussed in the Biological Assessment prepared for the preferred alternative.

F-008-019

No steel piles will be used for temporary bridge construction. Please note that constructing an access road to Colman Dock is not necessary for the preferred Bored Tunnel Alternative but would be required for the Cut-and-Cover Tunnel or Elevated Structure Alternatives.

F-008-020

In areas where it is necessary to remove riprap for construction, a turbidity curtain or equivalent protection will be installed prior to removing the riprap to minimize turbidity and impacts to aquatic species.

F-008-021

With the Cut-and-Cover Tunnel and Elevated Structure Alternatives, walkways are proposed to facilitate adequate pedestrian access to the waterfront businesses so they can continue to operate. The effects of these temporary overwater pedestrian walkways between the central waterfront piers are discussed in Chapter 6 of the Final EIS and in Appendix N (Wildlife, Fish, and Vegetation Discipline Report). The effects of the project on listed species are discussed in the biological assessment. The preferred Bored Tunnel Alternative does not include these walkways.

F-008-022

Since publication of the 2006 Supplemental Draft EIS, a new containment strategy has been developed to prevent grout and other contaminants from entering the water in Elliott Bay. The containment method was developed in the September 2006 Tunnel Constructibility workshop and includes the following procedures and applies to the Cut-and-Cover Tunnel and Elevated Structure Alternatives only:

1. The existing seawall would be surveyed for size and location of cracks and other potential leakage points.
2. Temporary repairs would be made to the existing seawall to retain upland grout when it is placed.
3. A turbidity curtain would be installed to minimize turbidity in the construction area and prevent water quality impacts outside the work area.
4. A movable containment panel would be installed adjacent to the existing seawall, including impervious mat to be placed over the riprap adjacent to the seawall. The size and location of the panel-mat system would be determined by the secant pile installation and grouting operations.

In certain areas, a sheet pile wall may be necessary for containment. A turbidity curtain would be installed prior to installation of the sheet pile wall or removal of riprap for placement of the sheet pile wall. The turbidity curtain will minimize or prevent turbid water from leaving the construction area and impacting water quality.

F-008-023

Additional sediment sampling was conducted along the Seattle waterfront to enhance the sediment contaminant characterization in the area. Sediment sampling information is provided in Appendix Q, Hazardous Materials Discipline Report, of the Final EIS. The potential effects of these compounds on aquatic biota in the project area are reviewed and discussed in the Final EIS and Appendix N, Wildlife, Fish, and Vegetation Discipline Report.

F-008-024

All project improvements with the build alternatives would be independent of the combined sewer and separated storm drainage

systems. By design this project will not modify current operation of these systems or constrain future improvements undertaken by the City of Seattle. Therefore there is no effect on the combined or separated sewer systems to evaluate. The Biological Assessment prepared for this project evaluated stormwater runoffs related to the project following accepted methodologies.

F-008-025

No Aquatic Resource Mitigation Plan will be prepared for the preferred Bored Tunnel Alternative, as there is no proposed in-water work. The Final EIS addresses potential impacts (temporary and permanent) and proposed avoidance, minimization, and mitigation measures relative to both Elliott Bay and Lake Union habitat. However, direct construction effects on Elliott Bay and Lake Union habitat are not expected, as no in-water or nearshore work would occur as part of the project. The primary potential effects of construction activities on Lake Union habitat would be from stormwater runoff from the construction area. However, it is assumed that construction BMPs will be adequately installed and appropriately monitored to minimize or eliminate any discharge of construction site runoff to Lake Union. Detailed descriptions of runoff BMPs are provided in the Surface Water Discipline Report, Appendix O of the Final EIS.

F-008-026

Since 2006, the project has evolved and the Bored Tunnel Alternative has been identified as the preferred alternative. As a result, the anticipated effects of the project on listed species and their critical habitat as discussed in the 2006 Supplemental Draft EIS have also changed. The project's biological assessment discusses the effects associated with the preferred alternative. Current anticipated project effects are also presented in Appendix N, Wildlife, Fish, and Vegetation Discipline Report, and summarized in Chapters 5 and 6 of the Final EIS.

F-008-027

The Bored Tunnel Alternative does not include the replacement of the existing seawall or any in-water construction activities, so none of the creosote piles and timbers would be removed as part of the preferred alternative.

There are a number of creosote piles and timbers in the project area that could be removed during construction of the Cut-and-Cover Tunnel or Elevated Structure Alternatives. The removal of a portion of the overwater structure at Pier 48, as prior mitigation for constructing the temporary overwater ferry access bridge, would result in the removal of piles from the nearshore habitat. In addition, there are a number of wooden piles that support the overhanging sidewalks along the waterfront. These would be removed and replaced with cantilever sidewalk support structures. With the Cut-and-Cover Tunnel and Elevated Structure Alternatives, the removal of the existing seawall face would also result in the removal of a number of support piles and associated timbers. The removal of such material is part of the mitigation for the project, leading to long-term beneficial effects on aquatic resources in the area. Potential in-water construction activities associated with the Cut-and-Cover Tunnel and Elevated Structure Alternatives are discussed in the Final EIS Appendix N, Wildlife, Fish, and Vegetation Discipline Report.

F-008-028

Sound attenuation measures would be used when driving piles in water with the Cut-and-Cover Tunnel or Elevated Structure Alternatives. However, current project design for the preferred Bored Tunnel Alternative does not call for any in-water pile driving. The description of mitigation measures, including BMPs, for the potential impacts of the project on the aquatic environment are included in the Final EIS Appendix N, Wildlife, Fish, and Vegetation Discipline Report. Mitigation for the project is also discussed in Chapter 8 of the Final EIS.