MUCKLESHOOT INDIAN TRIBE
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April 15, 2010

Ms. Jenifer Young
SR 520 Project Office
600 Stewart Street, Suite 520
Seattle, WA 98101

RE: SR 520, I-5 to Medina, Bridge Replacement and HOV Project, Supplemental Draft Environmental Impact Statement

Dear Ms. Young:

T-001-001 The Muckleshoot Indian Tribe Fisheries Division (MITFD) has reviewed the Supplemental Draft Environmental Impact Statement (SDEIS) and associated documents for the SR 520, I-5 to Medina Bridge Replacement and HOV project. The attached comments are provided in the interest of protecting and restoring the Tribe's treaty fisheries resources and access to those resources.

We recognize that a Preferred Alternative has not yet been selected by WSDOT. The Tribe neither opposes nor supports any particular alternative at this time. Regardless of which alternative is ultimately selected, it is most important that mitigation sequencing requirements be fully met and mitigation be provided for any unavoidable impacts to fish and fish habitat. It will be very important that WSDOT work with the Tribe to develop mutually acceptable measures to avoid or offset impacts to Muckleshoot Tribal fishing access as a result of the project.

T-001-002 As noted in the attached comments, we believe that potentially significant project impacts are not fully analyzed or discussed in the SDEIS. As one especially significant example, the potential impacts of the new floating bridge structure on lake limnology, stratification, and circulation patterns, and the resulting impacts on water quality and fish survival could be an important impact shared by all of the alternatives.

T-001-003 The project's geographic location and its large physical and temporal scope creates the potential for significant and unique impacts to treaty protected fisheries resources and Muckleshoot tribal

T-001-004 fishing access. In order to evaluate these potential impacts, we will need more detailed information for each alternative than is currently available in the SDEIS. We have noted some of these information needs in our comments. Ultimately the Tribe, WSDOT, and the FHWA will need to work together in a government-to-government manner towards resolving some of these complex issues.

T-001-001

Thank you for your review of the Supplemental Draft Impact Statement (SDEIS) and associated discipline reports and studies for the SR 520, I-5 to Medina Bridge Replacement and HOV project. The constructive comments provided in your letter and during ongoing coordination between Muckleshoot Indian Tribe Fisheries Division (MITFD) staff and the SR 520 project team have helped strengthen our analysis.

Informed by the SDEIS findings and the subsequent tribal, agency and public comment process, FHWA and WSDOT identified a Preferred Alternative for the I-5 to Medina Project on April 30, 2010. The Final EIS provides updated analysis and enumeration of operational and construction effects based on the Preferred Alternative. In accordance with your request, more detailed information has been provided wherever feasible. Appropriate mitigation measures, which have been determined through coordination with project partners including affected tribes, are identified in the Conceptual Aquatic Mitigation Plan and the Conceptual Wetland Mitigation Plan (Attachment 9 to the Final EIS).

Throughout the course of this project, MITFD staff have been generous in providing their time to attend coordination meetings and review project documentation. They have been engaged in the Regulatory Agency Coordination Process and related technical working groups (TWGs), including the In-Water Construction TWG, the Stormwater TWG, the Mitigation TWG, and the Bridge Maintenance Facility TWG. Following identification of the Preferred Alternative, MIFTD staff were an integral part of the Natural Resources TWG, which refined impact assessment approaches and mitigation measures for adverse effects on aquatic resources. The group's findings are principally reflected in the Conceptual Aquatic Mitigation Plan and the Conceptual Wetland Mitigation Plan (Attachment 9 to the Final EIS) and also in the Ecosystems Discipline Report Addendum (Attachment 7 to the Final EIS).

We appreciate the opportunity to review this SDEIS. Please contact Karen Walter at 253-876-3116 if you any questions about these comments.

Sincerely,

Glen St. Amant
Habitat Program Manager

Attachment

Cc: Mike Grady, NMFS
Michael Lisitza, NMFS
Emily Teachout, USFWS
Jack Kennedy, US Army Corps of Engineers
Elaine Somers, US EPA
Stewart Reinbold, WDFW
Joe Burcar, WDOE
Caroline Corcoran, WDOE
Ben Perkowski, Seattle DPD

Following the identification of the Preferred Alternative, WSDOT and FHWA initiated formal government-to-government consultation with the Tribe. This consultation has addressed the following topics:

- Developing an agreement to formalize WSDOT commitments related to project effects on tribal treaty fishing.
- Developing a Programmatic Agreement under Section 106 of the National Historic Preservation Act to mitigate for effects on cultural resources.

Although many of the concerns identified in your comment letter have been addressed through these ongoing efforts, WSDOT is committed to continuing to work with the Tribe through detailed project design and construction to identify ways of monitoring and assessing project effects that cannot be avoided.

T-001-002

Specific concerns included in the Muckleshoot Indian Tribe comment letter, including the issues identified here, are addressed individually in subsequent comment responses.

T-001-003

WSDOT appreciates the Muckleshoot Indian Tribe's comments regarding the project's potential effects given the geographic location and physical and temporal scope of the project. WSDOT understands these concerns represent important issues which merit unique consideration.

T-001-004

As noted in the response to comment T-001-001, FHWA and WSDOT have identified a Preferred Alternative that is similar to Option A, but

SR 520, I-5 TO MEDINA BRIDGE REPLACEMENT AND HOV SDEIS COMMENTS

The following comments are specific to the SDEIS by chapter and page number. These comments are followed by specific Discipline Reports (DRs), which are also shown by specific DR and page numbers.

Chapter 1:

T-001-005 Page 1-8, The description of the MITFD staff involvement in the impact assessment and mitigation planning process is overstated. We have had limited opportunities to review draft work products and provide input into the impact assessment and mitigation planning process. Several of our concerns identified at various meetings were not included in the SDEIS or DRs as discussed further in our comments below.

T-001-006 Page 1-9, There have been limited discussions regarding the project's potential impacts on fishing access, in part due to the lack of a preferred alternative with a defined footprint.

T-001-007 Page 1-16, The section regarding the substantive collaboration with agencies and tribes is also overstated. There have been no work products generated from the TWGs that establish the methodologies to assess in-water construction effects short of the SDEIS and its Discipline Reports (DRs), which are incomplete as discussed in comments below. In addition, on page 1-17, the SDEIS describes a project impact plan that includes project mitigation, which has not been provided to the MITFD for review and comments.

T-001-008 Page 1-18, Please note that the National Marine Fisheries Service's participation in the Mediation Group was not as a representative of the Muckleshoot Indian Tribe and did not necessarily represent the Tribe's fishing interests.

T-001-009 Page 1-20, To our knowledge, the Legislative workgroup did not solicit advice from the Muckleshoot Indian Tribe regarding project designs, potential impacts to the Tribe and mitigation measures.

T-001-010 Page 1-32, Please clarify if mitigation costs are included in the cost estimates listed on this page. If so, the estimated mitigation costs should be identified separately on this page. If not, they should be added to this page in the FEIS.

T-001-011 Page 1-44, The MITFD expects to be working closely with WSDOT, FHWA, the resource agencies, and the affected jurisdictions once a preferred design option is chosen so we can better determine project impacts to Tribal fishing access and fisheries resources protected by treaty.

Chapter 2:

T-001-012 Pages 2-4, The FEIS should discuss how stormwater generated from the floating bridge portion will be treated prior to release to Lake Washington.

incorporates design refinements that respond to comments on the SDEIS by agencies, tribes, and the public. See Sections 1.1 and 1.6 of the Final EIS for a description of the planning process and Chapter 2 of the Final EIS for a description of the Preferred Alternative. The SDEIS acknowledged that the level of analysis necessary to identify specific mitigation measures would not be possible prior to identification of the Preferred Alternative.

Following the identification of the Preferred Alternative, WSDOT and FHWA initiated formal government-to-government consultation with the Muckleshoot Indian Tribe. Through this process and the other venues described in the response to comment T-001-001, WSDOT and FHWA have worked with the Tribe throughout the project toward resolving issues of concern. WSDOT and FHWA are committed to continuing government-to-government consultation with the Muckleshoot Indian Tribe and will formalize commitments through written agreements with the tribe, a Section 106 Programmatic Agreement, and measures to be outlined in the Record of Decision.

T-001-005

Please see the responses to comments T-001-001 and T-001-004. As a Section 106 consulting party, the Muckleshoot Indian Tribe received the Final Cultural Resources Assessment and Discipline Report and the Section 106 Programmatic Agreement for review. The Muckleshoot Indian Tribe provided comments on the Ecosystems Discipline Report, the Initial Aquatic Mitigation Report, and the Initial Wetland Mitigation Report further below in this comment letter. As described in the responses to those comments, the Final EIS, the Conceptual Aquatic Mitigation Plan, the Conceptual Wetland Mitigation Plan, and addenda to the discipline reports include additional analysis of issues raised by the Muckleshoot Indian Tribe. The Muckleshoot Indian Tribe will continue to receive and review the mitigation plans as part of the permitting process.

T-001-013 Page 2-33, It is our understanding that the proposed maintenance dock on the eastside will not include a wave barrier.

T-001-014 Page 2-37, The FEIS should discuss if mitigation will also be phased if the project needs to be phased.

Chapter 3:

T-001-015 Page 3-38, Exhibit 3-16, The bridge cross section and anchor system shown in this exhibit should include the distance or width needed to construct the project as shown in this cross section. For example, page 5-50 indicates that the wider bridge deck, supplemental stabilization pontoons, and anchor piles will span from 450 to 600 feet wider than the existing bridge but the total distance is not disclosed. The schematic should show the actual maximum width needed for these structures.

T-001-016 Page 3-41, Exhibit 3-18, The Port of Seattle site is within the Tribe's Usual and Accustomed area. Additional details about the use of this site for pontoon storage and outfitting is needed so that we can evaluate this proposal for potential impacts to tribal fishing and fish habitat.

T-001-017 Page 3-42, Navigation impacts are not the only potential impact for the anchors and cables to the floating bridge. As we have identified in previous meetings and comments, there is potential for the cables and anchors for the floating bridge to preclude MIT fishers from successfully using their fishing gear and may outright eliminate existing fishing area as a result. Since the cables and anchors are needed over a larger area than the existing bridge, the new bridge will have greater potential for impact. Additional details will be needed once a preferred bridge option is selected so this impact to Tribal fishing can be evaluated.

T-001-018 Page 3-44, The number of piles and overwater coverage for the maintenance facility should be added to this page in a new table. Also, it is our understanding that the maintenance facility dock will not have a wave barrier.

Chapter 4:

T-001-019 Page 4-22, As we noted in previous comments, the SDEIS statement regarding treaty rights in Lake Washington is incomplete and possibly misleading, and should be revised.
The Tribe's treaty rights include fishing rights, as well as hunting, gathering, and other rights reserved under the Treaties of Point Elliott and Medicine Creek.

T-001-020 Page 4-57, Washington's 303(d) list of polluted waters is not comprehensive as not all waters of the State are monitored for water quality and many have limited or no water quality data. Some water bodies including Lake Washington have data and are known to be impaired but are not included on the state 303(d) list .

Page 4-58, King County has also monitored Lake Washington continuously since the 1940s. Their data set should also be used.

Exhibit 8 in the Agency Coordination and Public Involvement Discipline Report Addendum (in Atacchment 7 of the Final EIS) lists individual meetings with tribes since publication of the SDEIS, providing an update to Exhibit 7 of the 2009 Agency Coordination and Public Involvement Discipline Report (in Attachment 7 of the SDEIS). WSDOT and FHWA appreciate Muckleshoot Indian Tribe Fisheries Division staff involvement in reviewing and commenting on draft work products, impact assessments, and mitigation plans.

T-001-006

Please see the response to Comment T-001-001.

T-001-007

Please see the responses to comments T-001-001 and T-001-004. The Conceptual Aquatic Mitigation Plan and the Conceptual Wetland Mitigation Plan, which include input from the MITFD through the Natural Resource TWG process, are included as Attachment 9 to the Final EIS.

T-001-008

Comment noted. This has been changed in Chapter 2 of the Final EIS to say "National Marine Fisheries Service (also representing U.S. Fish and Wildlife Service and fishery interests)."

T-001-009

Comment noted.

T-001-010

The estimated project costs disclosed in the Draft EIS, SDEIS, and Final EIS all include costs for mitigation. Mitigation costs are always included in the preliminary engineering cost-estimating exercises that are used to help WSDOT accurately estimate and manage the costs of large projects. The costs of mitigation include costs associated with avoidance

T-001-021 Page 4-58, Seattle Parks staff have indicated that the culverts under Lake Washington Boulevard are potentially fish passage barriers. If these culverts are impacted by the project, then they should either be made fish passable if they are not currently or alternative mitigation provided.

T-001-022 Page 4-58, This page should also note that water temperatures have been increasing in Lake Washington (see Arhonditsis et al. 2004).

T-001-023 Page 4-65, The Muckleshoot Indian Tribe will likely also need to be consulted regarding the towing and moorage of the pontoons, particularly if the Port of Seattle site is used since it is within the Tribe's Usual and Accustomed area.

T-001-024 Page 4-65, The Treaties of the 1850s did more than just reserve the right for tribes to fish within their usual and accustomed fishing and hunting grounds. There are other rights reserved as a result of these treaties.

T-001-025 Page 4-65, Please identify the fish passage barriers associated with SR 520 that affects Arboretum Creek and the potential project activities that may affect these barriers.

T-001-026 Page 4-67, Currently, NOAA Fisheries recognizes two chinook populations in Lake Washington: Cedar River and Sammamish. The Sammamish population includes fish spawning in Issaquah Creek, and in tributaries to the Sammamish River and north Lake Washington.. This section should note the population trend information discussed in NMFS (2008).

T-001-027 Page 4-77, The MITFD requests to receive copies of the additional Lake Washington sediment sampling data and an opportunity to provide any additional comments that we may have based on this data.

Chapter 5:

T-001-028 Page 5-38, The two existing docks on the parcels purchased on the eastside for the maintenance facility should be removed as part of the project.

T-001-029 Page 5-50, The statements regarding impacts to the Muckleshoot Indian Tribe's usual and accustomed fishing area are incorrect and incomplete. As we have explained previously in meetings and in writing, there are potential adverse impacts to Muckleshoot treaty fishing access that can occur as a result of construction activities, including but not limited to the type and location of equipment; vessel and barge movement; work bridges and cofferdams; location of pontoon or other staging areas; and the duration of construction. For example, if pontoons are stored on Port of Seattle property within the Muckleshoot Usual and Accustomed Areas (U&A), these structures may displace Tribal fishing areas. Further, the transport of these structures via water has the potential to interfere with access to MIT tribal fishing sites outside the immediate construction area (i.e. in Elliott Bay, Lake Union, and the Ship Canal). Project phasing may increase impacts to Tribal fishing by extending the construction duration.

T-001-030 Construction activities may also impact treaty fisheries resources by limiting the availability of fish for ceremonial, subsistence, and commercial purposes. Fish kills, sublethal effects on

and minimization measures which may be difficult to distinguish from the overall project construction costs. Compensatory mitigation costs are typically not identified separately because they involve not only construction permit and approval commitments not known until the environmental document is complete, but also agency and tribal agreements not easily estimated until near completion.

T-001-011

Please see the response to Comment T-001-001.

T-001-012

A description of stormwater treatment methods on the floating bridge is included in Chapter 2 of the Final EIS. This topic is discussed in greater detail in the Water Resources Discipline Report and Addendum (Attachment 7 to the Final EIS).

T-001-013

The comment is correct. As described in Chapter 2 of the Final EIS, the design of the maintenance facility in the Preferred Alternative does not include a wave barrier.

T-001-014

Mitigation measures would be undertaken concurrently with the portion of the project causing the impact.

The SDEIS discussed the possibility of constructing the project in separate phases over time, with the vulnerable structures (the Evergreen Point floating bridge, west approach bridge, and Portage Bay bridge) built first. This "Phased Implementation scenario" was analyzed for each environmental resource. As discussed in Section 2.8 of this Final EIS, due to the funding shortfall, FHWA and WSDOT still believe it is prudent to evaluate the possibility of phased construction of the corridor should

T-001-030 population productivity; habitat loss and impairment; and disruption of migration of adults and juvenile fish should all be included as potential project construction-related impacts affecting treaty fishing. In addition, project construction activities will result in potentially significant temporal impacts to the Tribe's treaty fisheries resources and fishing as a result of having one bridge in place while another bridge under construction. Years of overlap will occur while the new bridge is being constructed.

Once construction is completed and the existing bridge removed, the new bridge will have permanent impacts on Muckleshoot tribal fishing opportunity and access, including but not limited to: a larger footprint area; potential bridge security and operations that restrict vessel movement and fishing opportunities; permanent bridge impacts (larger footprint, more shade, potentially more nighttime lighting) that increase juvenile salmon migration times and exposure to predation losses that could reduce future fishing opportunities; and a new larger overwater

T-001-031 Eastside maintenance dock that may displace fishing area. The new dock may also eliminate existing beach habitat for beach spawning sockeye salmon and adversely affect juvenile chinook using the nearshore area by increasing predator habitat and predation opportunities.

T-001-032 Pages 5-77 through 5-79, The effect of nighttime lighting to add illumination to the waterbodies needs to be fully discussed. Roadway lighting has the potential to light up areas directly and also be reflected under cloud cover that results in increased predation opportunities of juvenile salmon. The SDEIS should consider these potential impacts on these pages.

T-001-033 Page 5-119, Table 5.10-1 should indicate the extend of pollutant generating surfaces that will be left untreated post construction.

T-001-034 Page 5-122, More information is needed about how the stormwater lagoons will be enclosed. This additional information should include: 1) the duration of stormwater storage and treatment in the lagoons, 2) the process of removing pollutants in the lagoons, and 3) how the stormwater will be discharged to Lake Washington from the lagoons.

T-001-035 Page 5-124, Table 5.10-3, The net change in pollutant loads compared for all alternatives is useful, but there should also be a table that shows the actual pollutant loads by TDA and alternatives so the reader can evaluate the potential reduction levels and the resultant pollutant loads.

T-001-036 Page 5-131, The potential impact from shade is more likely a result of a sharp edge from light to dark areas as a result of the bridge, not a reduction in plant growth.

T-001-037 Also, the juvenile chinook data collected by Celedonia and others is a good start to explore juvenile migration issues; however, the data is limited and does not include the combined effect of the existing bridge, the work bridges and piers and the construction of the new bridge that will occur overlapping in time and area. The actual juvenile fish behavior may differ from the research results for the existing bridge.

full project funding not be available by 2012. Currently committed funding is sufficient to construct the Evergreen Point floating bridge and landings; a Request for Proposals has been issued for this portion of the project, with proposals due in June 2011. Accordingly, this Final EIS discusses the potential for the floating bridge and landings to be built as the first phase of the SR 520, I-5 to Medina project. This differs from the SDEIS Phased Implementation scenario, which included the west approach and the Portage Bay bridge in the first construction phase.

T-001-015

Exhibit 3-16 has been updated in Exhibit 3-12 of the Final EIS to include more information on distances of the anchor cables at the lake bottom from the pontoons at water surface. The maximum cross section of the existing bridge, from anchor to anchor, is approximately 960 feet, whereas the maximum cross section from anchor to anchor for the proposed bridge would be approximately 1,500 to 1,600 feet. Anchor cables descend through the water column at a constant angle, extending from the connection to the pontoons above the waterline to approximately 200 feet water depth and 750 feet away.

T-001-016

For pontoon construction, moorage and storage activities, the project may use existing facilities in the Ports of Grays Harbor, Olympia, Tacoma, Seattle, Everett, and Bellingham, provided this use and activity is consistent with the current, established uses of those facilities. Site selection criteria for those facilities include facilities that provide existing deep water berths with appropriate infrastructure, and no improvements requiring in-water work be required to complete project activities. As specific construction, moorage, and outfitting sites for pontoons are identified, WSDOT will continue to consult with the Tribe, NMFS, USFWS, and WDFW and provide additional and new information as it develops.

T-001-038 Page 5-132, The statements regarding effects on tribal fishing are incomplete. Please see our previous comments regarding potential impacts to tribal fishing.

T-001-039 Page 5-133, Option K with the new cut and cover tunnel would impact tribal fishing access during construction and may also affect access if any tunnel maintenance work requires barges, piers or other maintenance activities within the water that limit or obstruct navigation through the Montlake cut.

T-001-040 Page 5-134, There are more potential impacts to salmon than just shading and loss of habitat that may affect salmon survival and reproduction. Impacts to salmon survival and reproduction can adversely affect fishing opportunities for Muckleshoot Tribal fishers.

T-001-041 Page 5-136, Table 3-8 on page 3-37 notes that 2 cross pontoons will be 34.5 feet deep, which is deeper than the numbers discussed on page 5-136. Please clarify.

T-001-042 Pages 5-136 and 5-137, The potential shading impacts sentence fails to consider the location of the new larger bridge with deeper pontoons that is closer to the Ship Canal bottleneck. Since all of the adult and juvenile salmon must go through this bottleneck, impacts as a result of the bridge will likely be compounded based on its location.

T-001-043 Lake circulation issues must also be considered as part of the potential barrier or migration delay for juvenile salmon attempting to outmigrate, subjecting them to risks of residualization and increased predation. There is no basis to suggest that the wider and deeper bridge would **not** substantially alter Lake Washington's surface water and stratification processes. See our comments to the Ecosystem DR for more potential impacts that should be analyzed.

T-001-044 Page 5-137, There will be a permanent loss of access to fishing area within the Muckleshoot Indian Tribe's U&A as a result of the larger bridge.

T-001-045 Page 5-138, More information is needed regarding the methodology that identifies the amount and location of beach spawning habitat that would be permanently lost due to the support columns.

T-001-046 The bridge maintenance facility dock may also create additional predator habitat, due to vertical piles and overwater cover providing shaded areas that results in increased predation of juvenile salmon. The two existing docks need to be removed as part of this project to reduce coverage and existing vertical piles. Additional mitigation may also be needed; once more details emerge for the new dock.

T-001-047 Page 5-139, Some elements of the project's potential impacts are unknown; therefore, it is premature to make conclusions regarding the lack of negative effects to salmon populations in Lake Washington as a result of the project.

T-001-017

Please see the response to Comment T-001-015.

T-001-018

The design of the maintenance facility and dock under the east approach bridge for the Preferred Alternative does not include a wave barrier. Information regarding the number of piles has been included in the Final EIS. Please see Chapter 2 and Section 6.11 of the Final EIS for additional details on the design of the maintenance facility and dock.

T-001-019

The Final EIS includes clarification of tribal treaty rights in Lake Washington and the project area, including the activities of hunting, gathering and other rights reserved under the Point Elliott and Medicine Creek treaties. Please note that the last sentence on page 4-22 of the SDEIS stated: "...in addition, Lake Washington is part of the Muckleshoot Indian Tribe's usual and accustomed fishing areas and has treaty rights for their protection and use. In addition to fishing rights, treaty rights include hunting, gathering, and other rights, reserved under the treaties of Point Elliott and Medicine Creek."

T-001-020

The Water Resources Discipline Report Addendum (Attachment 7 to the Final EIS) presents data applicable to the Seattle project area that are available from the Washington State Department of Ecology and were used in developing the 2008 Water Quality Assessment. Additional data available from King County as part of their Major Lakes Monitoring Program are presented in this addendum to show the existing water quality conditions in the project area.

T-001-021

The culverts on Arboretum Creek under Lake Washington Boulevard

T-001-048 Page 5-144, The MITFD has not been involved in the development of mitigation for the project. We had limited opportunity to review the initial mitigation plans and had no input into their drafting, the criteria used to select sites, and the initial sites proposed.

T-001-049 Page 5-146, Before the SR 520 bridge project designs night time lights based on the I-90 bridge, additional information is needed to determine if these lights are providing any direct or indirect lighting of Lake Washington and what design improvements can be made to reduce direct or indirect lighting on the water

T-001-050 Pages 5-161 and 5-164 , The language on these pages regarding impacts to the Muckleshoot Indian Tribe's usual and accustomed fishing areas in incorrect and incomplete.

Chapter 6:

T-001-051 Page 6-33, The section on construction impacts to Tribal fishing is incomplete. See previous comments.

T-001-052 Page 6-37, While we appreciate WSDOT's expansion of the environmental justice issues to consider potential impacts to the Muckleshoot Tribal fishers, this section is incomplete both for impacts and proposed mitigation measures. In addition, the description of construction impacts to salmon is incomplete in the third bullet. The in-water work window was established to protect juvenile salmon and does necessarily protect returning adult salmon, particularly chinook and sockeye salmon. Construction impacts to adult salmon could result in changes in migration behaviors that reduce fishing success and/or cause migration delays that could result in sublethal impacts, reduced egg fecundity, or increased pre-spawning mortality.

Page 6-71, The project should reduce the duration of construction activities that could adversely affect migration of adult and juvenile salmon. For example, construction activities that produce the highest noise levels should be limited during outmigration and returning adult migration to provide salmon an opportunity to migrate without construction noise.

T-001-053 Page 6-77, Spills of pollutants can result in direct fish kills, not just "serious damage". Please clarify what construction activities will result in high pH levels that require mitigation for aquatic species.

T-001-054 Page 6-78, Construction water and slurry within containment systems should be removed, treated, and pumped to a discharge location that avoids impacting aquatic species.

T-001-055 Page 6-79, The location of staging and stockpiling areas needs to be fully disclosed for the preferred alternative and located well away from streams and lakes.

T-001-056 Page 6-79, Reduction of water quality in the bottleneck area would be a concern for salmon as there are existing conditions that already stress returning adults.

T-001-057 Page 6-86, The in-water work window is established to protect juvenile salmon, not necessarily adults as discussed in our comments above. Furthermore, WSDOT has indicated that they would

would not be affected by the construction of the project and will not be replaced. Some improvements to Arboretum Creek may occur as part of mitigation for impacts to the Arboretum.

T-001-022

The warming trends documented for Lake Washington are included in the Water Resources Discipline Report Addendum (Attachment 7 to the Final EIS), along with the King County Major Lakes Monitoring Program data for surface water temperatures in the project area.

T-001-023

Please see the response to Comment T-001-016. When the specific pontoon moorage sites are determined, WSDOT will coordinate with the Muckleshoot Indian Tribe to develop a plan for coordinating on pontoon mooring and towing to prevent conflicts with tribal fishing activities.

T-001-024

See the response to Comment T-001-019.

T-001-025

Please see the response to Comment T-001-021. Project activities will not affect Arboretum Creek.

T-001-026

The requested Chinook population trend information discussed by NOAA NMFS is included in Table 3-1 of the Conceptual Aquatic Mitigation Plan (Attachment 9 to the Final EIS). The numeric data are at a greater level of detail than is appropriate for the EIS.

T-001-027

WSDOT will make the sediment sampling data and the geotechnical

T-001-057 like to seek extensions of the work window to accommodate the proposed construction schedule, which may overlap further with returning adult salmon and result in further impacts to adult salmon returning to Lake Washington over the project's construction periods.

T-001-058 Cofferdams will also eliminate fish habitat areas for the duration that they are in place.

T-001-059 The FEIS should discuss potential noise impacts to salmon as a result of constructing substructure foundation types described on page 6-86. The proposed BMPs should also be identified.

T-001-060 Page 6-87, The proposal to use cofferdams to remove piers should be described further including where these cofferdams would be located and how much area would be dewatered by them.

T-001-061 Nighttime construction lighting can have substantial impacts to salmon due to increased predation risk.

T-001-062 Page 6-88, Table 6.11-3, Please explain how these numbers were derived and if they include the all of the potential sources of shade, i.e. construction bridges, finger piers, and barges.

T-001-063 Page 6-89, The extent of dewatered area/habitat needs to be quantified for the proposed cofferdams used to construct the permanent bridge support structures for Portage Bay.

T-001-064 Page 6-90, The extent of shading due to construction barges in the Montlake Cut should be estimated for Alternative A.

T-001-065 Also, the extent of dewatered area/habitat needs to be quantified for the proposed cofferdam that will encompass the entire SPUI footprint for Alternative K.

T-001-066 Page 6-91, The extent of shading due to construction barges in the Montlake Cut should be estimated for Alternative L.

T-001-067 Page 6-92, We reserve the right to provide additional comments based on the additional information on noise effects and mitigation that will be included in the FEIS.

T-001-068 Pages 6-92 and 6-93, These pages should also include a discussion of estimated dewater area/habitat that will occur as a result of cofferdams that could be used for each alternative.

T-001-069 Page 6-93, Additional information is needed regarding the extent of area in Lake Washington that will be impacted when there are two bridges and construction bridges and barges. This page identifies an estimate of the overlap time period, but is missing discussion about the extent of area of overlap.

T-001-070 Page 6-94, The FEIS should clarify when the placement of the fluke and gravity anchors will occur.

report available to the Muckleshoot Indian Tribe when it is completed and provided to the contractor.

T-001-028

These docks will be removed as a part of this project. Please refer to the Conceptual Aquatic Mitigation Plan in Attachment 9 to the Final EIS.

T-001-029

The discussion of tribal fishing in Chapter 5 of the SDEIS related only to project effects during operation; effects during construction were discussed in Chapter 6. The Final EIS includes clarification of tribal treaty rights in the project area, including potential effects on treaty rights from pontoon towing routes, outfitting and moorage sites. Updated information on construction effects of the Preferred Alternative, including activities within Lake Washington and elsewhere within the usual and accustomed fishing areas of the Tribe, is provided in Chapter 6 in the Final EIS. See the response to Comment T-001-014 regarding phased implementation. Chapter 6 of the Final EIS includes a discussion of potential construction effects associated with revised potential phasing.

T-001-030

Please see the response to Comment T-001-029 regarding construction effects. Chapter 5 in the Final EIS provides an updated discussion of operational effects of the new floating bridge on tribal fishing, based on additional coordination with MITFD staff since publication of the SDEIS. Mitigation to address project effects on tribal fishing will be formalized in an agreement between WSDOT and the Tribe that is currently under development through the government-to-government consultation process (see the response to Comment T-001-001).

T-001-031

The potential sockeye beach spawning area near the east approach was

T-001-071 Page 6-94, The extent of dewatered area/habitat needs to be quantified for the cofferdams in the East Approach area.

T-001-072 Page 6-94, It is not clear that all available beach sockeye spawning data has been considered. Please clarify.

T-001-073 Page 6-95, This page has does not discuss the largest potential impacts to salmon, which include the potential disruption to migration (both adult and juvenile), potential increases to predation, and spills that could cause harm to an entire salmon run due to the location of the project relative to the bottleneck in the Ship Canal.

T-001-074 Page 6-100, The potential mitigation measures for unavoidable impacts do not consider impacts to migration, increased predation risks and potential increases in residualization of salmon.

T-001-075 Page 6-101, The project needs to ensure that construction impacts to groundwater resources do not result in any increases in surface water temperatures in the Ship Canal (including the Montlake Cut) and Lake Washington within the project area.

T-001-076 Page 6-107, The proposed closure of the Montlake Cut for a period of at least 9 days needs to occur outside of periods of Muckleshoot Tribal fishing.

T-001-077 Page 6-108, The Muckleshoot Indian Tribe should also receive notice from the Coast Guard for any navigation alerts issued to commercial and recreational boating communities.

T-001-078 Page 6-108, See previous comments about additional information regarding pontoon storage and potential impacts to the Muckleshoot Tribal fishing and fisheries resources. The stored pontoons will create shade and overwater coverage wherever they are stored and this potential impact needs to be discussed in the SFEIS.

T-001-079 Page 6-111, The pontoon transport scheduling needs to be coordinated with the Muckleshoot Indian Tribe to avoid conflicts between towing the pontoons and Tribal fishing.

T-001-080 Page 6-112, Construction impacts that may occur at the CTC facility should also be discussed on this page. There are a variety of salmon species that could be affected by construction at this facility.

T-001-081 Page 6-115, The potential mitigation measures for impacts to Muckleshoot Indian Tribal fishing listed in Table 6.16-1 is a start, but is incomplete and additional measures will likely be needed.

T-001-082 Page 6-122, Table 6.16.1, Ecosystems, This section lacks any summary of potential construction impacts to fish.

T-001-083 Also this table should quantify the amount of habitat that will be impacted by construction of work bridges, finger piers, and cofferdams.

described on page 4-66 of the SDEIS, and the project's potential effects on sockeye using this area were discussed on page 5-138 of the SDEIS. Chapter 2 of the Final EIS contains an updated description of the east approach and maintenance facility dock, and Section 5.11 of the Final EIS updates the discussion of the project's potential effects on sockeye the spawning habitat.

T-001-032

Roadway lighting was one of the topics discussed in the Natural Resources Technical Working Group following identification of the Preferred Alternative. Updated information on lighting for the Preferred Alternative is provided in the Potential Effects section of the Ecosystems Discipline Report Addendum (Attachment 7 to the Final EIS). Chapter 2 of the Final EIS contains a description of the roadway lighting proposed for the Preferred Alternative, and Section 5.11 contains a discussion of its potential effects.

T-001-033

All pollution-generating impervious surfaces (PGIS) either replaced or added as part of the SR 520, I-5 to Medina project would be treated. The specific acreage of PGIS under the Preferred Alternative is presented in Section 5.10 of the Final EIS and in the Water Resources Discipline Report Addendum (Attachment 7 to the Final EIS).

T-001-034

Additional information with revised graphics has been included in Section 5.10 of the Final EIS. A complete description of the function of the containment lagoons in treating and discharging stormwater to Lake Washington is presented in the final All Known, Available, and Reasonable Technologies (AKART) report approved by the Washington State Department of Ecology. The AKART report and the Ecology conditional approval letter of the AKART report are available at

T-001-084 Please clarify if the shade totals include barges in the assessment of shading of aquatic habitat.

T-001-085 Page 6-126, Table 6.16-1, Mitigation measures for navigation should also include notice the Muckleshoot Indian Tribe regarding closures of the Montlake Cut.

Chapter 7:

T-001-086 Page 7-5, There are documented declines for chinook and steelhead salmon populations in Lake Washington; therefore, any impacts as a result of the project that adversely affects these populations will likely be in addition to other impacts affecting these populations. The cumulative effects assessment did not adequately consider impacts to chinook and steelhead populations.

T-001-087 Page 7-14, Exhibit 7-4d, Redmond Land Use, This exhibit should also include the Novelty Hill Road NE widening project which will complete its NEPA and permitting this year or next.

T-001-088 Page 7-21, It is premature for this project to conclude that the project would not adversely affect the Muckleshoot Indian Tribe. If there are adverse impacts to Lake Washington salmon populations that reduce an entire year class or run, then it is reasonable to expect that this impact would limit future fishing opportunities for the Muckleshoot Indian Tribe.

T-001-089 Page 7-22, There is no technical basis for the statement that "the effects of long-term fisheries trends and stressors that contribute to cumulative effects would not be measurable". There are several potential impacts that we have identified, many of which have not been studied or discussed; therefore, the statement has no basis. Furthermore, there will be a permanent loss of area that is currently accessible to Muckleshoot Tribal fishers that will occur as a result of the project.

T-001-090 Page 7-32, The cumulative impacts analysis failed to consider the potential for water quality violations to occur if the stormwater pumps needed for Alternative K fail.

T-001-091 Page 7-34, Additional information is needed that analyzes how stormwater is routed currently to wetlands to support the statement that water quality functions of wetlands will be improved as a result of the project.

T-001-092 Page 7-34, It is premature to state that this project and other reasonably foreseeable projects will not result in a cumulative impacts to wetlands. Mitigation measures to date have not demonstrated to be capable of avoiding cumulative impacts. In addition, there will be temporal losses at a minimum and may be some subbasins that experience cumulative losses if wetland impacts are mitigated out of the subbasin. Finally, we have no basis to conclude that watershed-based mitigation and mitigation banking will be effective in protecting the resource.

T-001-093 Page 7-35, WDSOT missed the potential for delayed impacts to occur if there are impacts to salmon populations as a result of impacts to adult and juvenile migration. The project has a significant potential to result in indirect effects.

www.wsdot.wa.gov/Projects/SR520Bridge/Library/technical.htm under Environmental Reports.

T-001-035

The pollutant loading tool used to develop Table 5.10-3 is appropriate for making relative comparisons between options, but is not intended for predicting the absolute levels of pollutants discharged. Net reduction compared to the No Build Alternative was used to assess project effects compared to existing conditions, and is included in the Water Resources Discipline Report Addendum.

T-001-036

The potential effects of shade on the behavior of migratory fish are discussed in greater detail in the Final EIS. Please refer to Section 5.11 of the Final EIS and the Ecosystems Discipline Report Addendum (Attachment 7 to the Final EIS) for more information.

T-001-037

The work by Celedonia and others provides site-specific information regarding juvenile salmonid behavior in the project area. Although limited, this data is the best available science concerning juvenile salmonid outmigration behavior in the study area. Please refer to the Ecosystems Discipline Report Addendum (Attachment 7 to the Final EIS) for details.

T-001-038

Please see the response to Comment T-001-029.

T-001-039

The construction effects of Option K on tribal fishing resources are addressed in Chapter 6 (page 6-33) of the SDEIS. Section 5.3 of the SDEIS addresses operational effects on tribal fishing. The description of

ATTACHMENT 7: DISCIPLINE REPORTS COMMENTS

The comments that follow are organized by each of the Discipline Reports (DR) we reviewed where we have comments. They follow in the order of the reports and correspond to page numbers in that specific DR as shown on the CD to the Supplemental DEIS.

Agency Coordination Discipline Report

T-001-094 Page 11, third bullet, This bullet overstated the MITFD staff involvement. We were unable to provide comments to documents due to the short deadlines (generally two weeks or less), overlapping deadlines and multiple documents to review. Furthermore, there was no opportunity to discuss the methodologies used for the SDEIS analysis.

T-001-095 Page 12, first bullet, To our knowledge, there has been no government to government consultation meetings regarding the Tribe's fisheries resources.

T-001-096 Page 46, The MITFD has never been given an opportunity to discuss the project's environmental mitigation costs nor have we seen any estimates to determine if the costs will be sufficient to mitigate for project impacts.

Construction Discipline Report

T-001-097 Page 2, The description of the usual and accustomed fishing areas are incorrectly characterized on this page. The Muckleshoot Indian Tribe is the only federally recognized tribe with a fishing usual and accustomed area in Lake Washington.

T-001-098 Page 26, Exhibit 12, Please clarify what the specific inwater construction activities would be in the Montlake Cut for tunneling and the bascule bridge options. There is nothing on pages 43-49 to suggest inwater work in the Montlake Cut.

T-001-099 Page 51 and Exhibit 22, This exhibit should also include the amount of area that will be dewatered due to cofferdams. Exhibit 12 shows cofferdams at the West approach.

T-001-100 Page 55 and Exhibit 6, The pontoon outfitting shown as the Port of Seattle is within the Muckleshoot Indian Tribe's Usual and Accustomed Fishing Area. If used for pontoon outfitting, this activity may interfere with the Tribe's fishing access by displacing fishing areas. Additional information will be needed if this location is used including the exact location of the property, the number of pontoons that will be outfitted here, and the timing and duration of the outfitting.

T-001-101 Page 56, Exhibit 23, the horizontal distance from end of anchor to end of anchor should be shown in the bottom figure (cross section) of this exhibit.

Page 57, Exhibit 24, This exhibit should also include the amount of area that will be dewatered due to cofferdams. Exhibit 12 shows cofferdams at the East approach.

Page 58 Exhibit 26, The details/dimensions about the proposed dock should be included in a separate table following this exhibit.

effects on tribal fishing has been updated in the Final EIS. Maintenance of the Option K tunnel would occur from inside the tunnel.

T-001-040

The Ecosystems Discipline Report Addendum specifically addresses the operational and permanent effects of the project on fish and aquatic habitat. Fish survival and reproduction can be affected by any project effects to habitat quality, availability, food resources or predation pressures. Shading and loss of habitat are the primary potential effects on fish use of the project area from operation of the bridge and therefore are the key issues discussed. These potential effects are measurable and may influence the degree of predation on juvenile salmonids. Other effects such as, water quality, underwater noise, predation and lighting are also discussed. While these effects could have direct effects on juvenile survival, they are not expected to have a substantial direct effect on the distribution of adult fish subject to harvest. Therefore, they are unlikely to reduce tribal harvest. These effects are discussed in detail in the Ecosystems Discipline Report Addendum (Attachment 7 to the Final EIS).

WSDOT is continuing to work with the Muckleshoot Indian Tribe to assess and mitigate for potential effects on tribal fishing.

T-001-041

The numbers discussed on page 5-136 refer to the draft (depth below water) of the pontoons when they are floating, not to their actual dimensions. The dimensions provided in Table 3-8 are correct.

T-001-042

Although the Lake Washington Ship Canal bottleneck is a critical passageway that all migratory fish must pass through, the factors influencing migration by juvenile or adult fish through the Ship Canal are

Ecosystems Discipline Report

T-001-102 Page 1-4, second bullet, Decreased plant growth due to shaded aquatic habitat area is not the only potential impact to fish habitat. Shaded areas could provide predatory fish species with more habitat to use to ambush juvenile salmon. Shaded areas may also affect outmigration of juvenile salmon causing outmigration delay. An increase in outmigration delay can result in increased predation or increased residualization in Lake Washington for juvenile chinook, coho and sockeye. These impacts would be larger during construction of the bridge as a result of the footprint of the existing bridge, the work bridges and piers, and the construction of the new bridge overlapping in time and space. The duration of these structures must also be considered as work bridges and piers could be in place for 4.5 years, which means that an entire generation of salmon species could be affected by this project as both juveniles and adults. Also on Page 3-44, the DR notes that it will be 12-16 months overlap when there will be the new and existing floating bridges.

T-001-103

T-001-104 Page 1-4, third bullet, As stated here, water quality for most parameters will be improved; however, total and dissolved copper will increase for Options K. Dissolved copper would also increase in Lake Washington under Option L. These increases occur even with stormwater treatment compared to existing conditions. (See page 5-123 of SDEIS). Metals such as copper and zinc are highly toxic to salmonids (e.g., Meador et al., 2006). Recent research has found that levels of copper as low as 2µg/l can cause sublethal effects on coho and other salmonids. Low copper concentrations are shown to impair sensory physiology and predator avoidance in salmon (http://www.fish4thefuture.com/pdfs/Copper_Abstracts.pdf.).

T-001-105 Page 1-4, fifth bullet, Option K's profile as shown on page 2-25 of the SDEIS is equal to or lower than the existing bridge profile and includes inwater fill in the boat section. The first sentence of this bullet is not an accurate characterization of Option K for most of its profile as shown on page 2-25.

T-001-106 Page 1-5, first bullet, This assessment may not be accurate when one considers juvenile salmon predation risk impacts as a result of shading due to the existing bridge, work bridges and piers and the construction of the new bridge. Also, the differential rates of predation between the vegetated nearshore and the deeper open portions of the Lake Washington are currently unknown. Shading impacts in the nearshore are better documented than the offshore areas.

T-001-107 The potential shading impacts in the offshore areas are unknown. Also, a larger shaded area across the bridge project may be sufficient to deter outmigration and result in an increase in residualization of juvenile salmon. Residualization of juvenile salmon like chinook has implications for the Lake Washington populations as there is likely more mortality in freshwater than marine waters. For example, Lake Washington is open year round for trout fishing, which increases the by-catch risk for chinook.

T-001-108 Page 1-5, second bullet, This bullet is incomplete and should discuss in more detail about the potential impacts to fish behavior that could affect successful migration and spawning of returning adult salmon, in particular chinook and sockeye. As we have mentioned in past meetings, the construction activities at or near the Montlake Cut could encourage returning adult

believed to be primarily related to water quality (temperature, dissolved oxygen and salinity). The new bridge may affect movement of some fish in Lake Washington due to shading or the presence of pontoons, however the bridge is not expected to measurably affect water quality (temperature, dissolved oxygen or salinity) and therefore impacts to fish are unlikely to be affected by the bridge's proximity to the Ship Canal. See the Ecosystems Discipline Report Addendum in Attachment 7 to the Final EIS.

T-001-043

In response to MITFD concerns regarding lake circulation, as expressed in this comment and during the Natural Resources TWG, WSDOT conducted follow-up studies on this topic with regional experts on on Lake Washington limnology and fisheries. These studies provided more information on the potential effects on lake circulation of the deeper, longer, and wider floating bridge. These new study results are included in the effects section of the Ecosystems Discipline Report Addendum in Attachment 7 to the Final EIS. The study found that predicted effects on mixing of the surface and subsurface water layers are small compared to other natural processes influencing lake circulation and stratification. These effects are not expected to cause detectable changes to water temperatures in the surface layers nor influence salmonid temperature dependent processes, including juvenile growth rates, adult energy depletion, or juvenile competition with other planktivores.

T-001-044

The discussion of environmental justice effects on page 5-50 of the SDEIS acknowledged the reduced access to tribal fishing areas resulting from the larger bridge. An updated discussion of the effects of project operation on usual and accustomed fishing areas is provided in Section 5.3 of the Final EIS and in the Environmental Justice Discipline Report Addendum (Attachment 7). WSDOT and FHWA will continue to coordinate closely with the Muckleshoot Indian Tribe to quantify the

T-001-108 salmon to head back towards the Locks. The standard fish work window overlaps with returning adult salmon migration for several salmon species returning to Lake Washington. The longer time spent in the entire Ship Canal could mean an increase both direct and delayed mortality of adult chinook and sockeye as a result of increased exposure to the high water temperatures and low dissolved oxygen levels found there.

T-001-109 Also, while pile driving is likely a large source of inwater construction activities that could adversely affect salmon, there will be overall construction noise and lighting that could also affect outmigrating juvenile salmon and returning adults. These impacts were not identified; and additional mitigation measures will likely be needed. For example, it would beneficial to restrict construction activity from dusk to dawn to allow juvenile and adult salmon to migrate through the construction areas.

T-001-110 Page 1-7, Exhibit 1-1, The new bridge maintenance pier will result in permanent piles that will displace aquatic habitat and may increase predator habitat. Also it is our understanding that the proposed wave barrier is no longer a design consideration for this new pier.

T-001-111 Page 1-8, Exhibit 1-1, This section on pontoon construction and transport is incomplete. The SDEIS identified additional areas besides Grays Harbor, where pontoons may be outfitted and stored. One of these potential sites is the Port of Seattle property shown on Exhibit 1-7. Storage of pontoons in this area may affect (albeit temporarily) the nearshore habitat for salmon.

T-001-112 Page 1-8, fourth bullet, This bullet incorrectly characterizes the usual and accustomed area for treaty fishing. The Muckleshoot Indian Tribe is the only federally recognized tribe with fishing rights in Lake Washington. In addition to fishing rights, the Tribe has other treaty rights to other resources that can be found within the Lake Washington watershed.

T-001-113 Page 2-17, The DR should indicate if there are any wetlands at the potential pontoon outfitting location for the Port of Seattle.

T-001-114 Page 2-20, The DR should describe in detail how many finger piers would be constructed, the location of these finger piers, the dimensions of these piers, including # of piles, decking, length, width, etc.

T-001-115 Page 2-44, paragraph 4, The stormwater pollutant loading information in this is different from the information provided in the SDEIS and Table 5.10-3 for copper and zinc. Please clarify.

T-001-116 Page 3-2, The Muckleshoot Indian Tribe's Usual and Accustomed Fishing Area includes an area larger than just the Ship Canal and Lake Washington.

T-001-117 Page 3-3, As we have noted in comments on other WSDOT projects, King County's Level 1 stream survey method is insufficient to use to assess habitat because it is not rigorous (limited repeatability) and it tends to over-estimate pools by failing to consider residual pool depth compared to bankfull width. The method is also insufficient to adequately measure wood, wood volumes, and location of wood to determine functionality and impacts. It is nearly impossible to

extent to which the wider bridges will affect access to the tribe's usual and accustomed areas and to develop mitigation for adverse effects on treaty fishing activities.

T-001-045

No information is currently available that identifies the exact location or size of sockeye spawning habitat in the east approach area. Therefore, it was assumed that all in-water columns would be located in viable spawning habitat, and mitigation was determined on this basis. The Ecosystems Discipline Report Addendum in Attachment 7 to the Final EIS and Section 5.11 of the Final EIS contains discussions of potential effects and mitigation measures; more detail on mitigation assumptions is provided in the Conceptual Aquatic Mitigation Plan (Attachment 9 to the Final EIS).

T-001-046

Potential effects of the maintenance dock on predator habitat in the east approach area were identified in Section 5.11 of the SDEIS and in the Ecosystems Discipline Report in Attachment 7 to the SDEIS. This discussion is updated for the Preferred Alternative in Section 5.11 of the Final and in the Ecosystems Discipline Report Addendum in Attachment 7 to the Final EIS. As compensation for such effects, WSDOT has committed to the identified mitigation measures in the Conceptual Aquatic Mitigation Plan (Attachment 9 to the Final EIS). These measures include removal of the two existing docks.

T-001-047

WSDOT assessed effects on salmonid populations in the SDEIS based on the then-current design concepts and the best available science. The Ecosystems Discipline Report Addendum and Section 5.11 of the Final EIS provide updated discussions of potential effects based on additional detail developed for the Preferred Alternative.

T-001-117 compare streams using these methodologies. A better approach would be to use the updated versions of Pleus et al. (1999) and Schuett-Hames et al. (1999). Both recommended methodologies are available at http://www.nwifc.wa.gov/TFW/documents/.

T-001-118 Page 3-10, Shoreline habitat preferences for fry and fingerling chinook should be described further on this page. This section is also missing informatin about preferred habitat types and what predators prefer. There is some initial information but should be described further.

T-001-119 Page 3-11, In the first paragraph, the description of "young Chinook" maturing needs modification. Mature chinook implies sexually mature chinook, which is not the life history that is outmigrating. It would be better to state that fingerling sized chinook getting ready to outmigrate are the ones that move offshore to deeper water. A more definitive description would be to use the actual fish lengths as described in Roger Tabor's and Mark Celedonia's work.

T-001-120 The DR should have citation for predators' preference for waterlilies sentence.

T-001-121 Also the DR needs much more detail about Lake Washington/Montlake Cut/Ship Canal water temperatures. The location of the water temperature data provided on page 3-12 should be described. The Lake Washington stratification process is more complex than described on this page. Both the US Army Corps and King County have collected extensive water temperature data for the Ship Canal. These data should be incorporated in the analysis of impacts for this project since water quality is already marginal for salmon in this area before the advent of any new construction. The University of Washington has a robust, decades-long dataset for Lake Washington water quality in the vicinity of the bridge, and King County has a number of water quality sites throughout the lake.

T-001-122 The wind patterns that affect Lake Washington and discussed on page 3-11 should based on literature with citations.

T-001-123 Pages 3-11 and 12, While the effects of the existing SR 520 and I-90 bridges on water movements and biological resources may not be clearly defined in this report, there are unquestionable impacts to lake circulation from these two bridges. The lake's original 20 miles of fetch has been broken up by these two bridges, which effectively function as floating breakwaters. These breakwaters also create a vertical mixing zone in the lake when transverse wave action is abruptly channeled into deeper parts of the lake. One of the several concerns with this "mixing zone" effect is that warm surface waters end up mixing with cooler, deeper water which results in less cool water under the bridges. The disruption of the lake fetch affects wave action and beach scour processes that help maintain beach spawning habitat. This fetch also maintains complex currents called seiches that go from one end of the lake to the other. The impact of the bridges breaking the lake fetch up into three discrete areas has never been addressed. These impacts, especially as they relate to biological resources, need to be considered. It is certain that a larger deeper bridge will have more impacts than the existing bridge since it will be over 100% deeper, as well as significantly wider.

T-001-048

Please see the response to Comment T-001-001. Mitigation site selection was discussed in detail during the Natural Resources TWG meetings that occurred in 2010, following the identification of the Preferred Alternative. MITFD staff attended these meetings and had opportunities to review the projects included in the conceptual mitigation plans, as well as to comment on the methods used to assess impacts.

T-001-049

Please see the response to Comment T-001-032. The nighttime lighting for the bridge is designed to provide adequate safety for pedestrian and vehicle traffic while minimizing the amount and intensity of light that reaches the water surface. The amount of light reaching the water surface from the new bridge would be substantially less than existing conditions.

T-001-050

The discussion of the project's analysis and effects relative to the Muckleshoot Indian Tribe's Usual and Accustomed area has been updated in the Final EIS to refer to all of Lake Washington, the Ship Canal, and other areas where pontoons would be outfitted and transported.

T-001-051

The discussion on page 6-33 of the SDEIS was a summary of project effects for purposes of assessing whether project construction effects on tribal fishing would be disproportionately high and adverse as defined by the Executive Order on Environmental Justice. For further information, the text referred readers to more detailed impact discussions in Section 6.11 of the SDEIS.

The Final EIS provides more information on the health of the fishery and

T-001-124 The greatest potential impact is making the lake warmer. This could occur if the loss of fetch results in less mixing, and more stratification of the lake during the summer. The result could be the lake gets warmer sooner, causing warm-water predators such as bass to eat more salmon. The lake may heat up more and stay warmer longer, exacerbating temperature problems for migrating adult salmon. The Lake is warming at depth even in the winter. A larger, deeper bridge structure may exacerbate this condition, which has profound implications for biological resources, including salmon.

T-001-125 The description in the report of phytoplankton, zooplankton, and juvenile sockeye growth rates in Lake Washington is too simple. Although these growth rates are robust, the implication that increased water temperatures are automatically good is a fallacy. There are currently problems with Lake Washington sockeye survival, not necessarily growth rates. One theory is that the warming of the lake has created a timing disconnect between sockeye and their prey resource, leading to survival issues for the fish. Lake water temperatures also clearly increase the metabolic needs of fish predators that prey upon juvenile salmon.

T-001-126 The authors' use of existing literature on potential problems with water quality, plankton, and fish distribution as the source of other factors that *"may have a substantially greater effect on these characteristics than the presence of the bridges"* ignores the potential impacts that could be attributed to the bridge and are within the control of WSDOT. The purpose of the SDEIS is to identify potential impacts associated with the existing bridge and the proposed bridge that will be wider and deeper. The potential impacts to lake circulation and the Lake's limnology in general as a result of the existing bridges and the new wider and deeper SR 520 bridge must be fully evaluated as part of the NEPA process.

T-001-127 The section on other limnological changes on page 3-12 should consider the contributions that WSDOT roadways have made with respect to changing alkalinity in Lake Washington. For example, elsewhere in the SDEIS documents, WSDOT identified the SR 520 and I-90 bridges as a source for the increase urbanization that occurred on the eastside of Lake Washington. Other WSDOT roadways connect to these two highways, which further facilitated urbanization that all runs off to Lake Washington. Another example is water temperature as discussed above. The increases in water temperatures that are cited in Arhonditsis et al. (2004) looked at water temperature data trends and modeling, but did not evaluate the effect of the bridge(s). The water temperature information needs to be further analyzed to determine if the bridge(s) impact lake circulation and water temperatures as we have suggested and what it means to have a wider, deeper floating bridge at SR 520. As we mentioned at previous meetings, we highly recommend that WSDOT to work with Jonathan Frodge at the Seattle Public Utilities and staff from King County's SWAMP program to evaluate the potential impacts to water temperature in Lake Washington as a result of wider, deeper bridge.

T-001-128 Pages 3-17 and 3-18, There are two Chinook populations in Lake Washington for ESA purposes: Sammamish and Cedar river populations. Also, the NOAA (2008) reference on this page is missing from the reference section.

access to fishing locations within the Muckleshoot Indian Tribe's usual and accustomed area, and these considerations as part of the environmental justice analysis. Section 6.3 of the SDEIS has been updated in the Final EIS and now summarizes the likely construction effects on fish habitat and the fishery as well as on tribal fishing access. Detailed information about effects on the fishery is contained in Section 6.11 of the Final EIS, as well as in the Ecosystems Discipline Report Addendum (Attachment 7 to the Final EIS).

WSDOT will continue coordinating with the Muckleshoot Indian Tribe to identify important access points to usual and accustomed fishing areas in areas where proposed structures would be built and to avoid construction conflicts with tribal fishers harvesting salmon in Portage Bay, Union Bay, and Lake Washington. Sections 6.3 and 6.11 of the Final EIS describe the project's avoidance and minimization measures, as well as the proposed fishery and fishing access mitigation measures to which WSDOT is committing. Additional mitigation measures are discussed in the Ecosystems Discipline Report Addendum as well as the Conceptual Wetland Mitigation Plan and the Conceptual Aquatic Mitigation Plan.

T-001-052

Please see the response to Comment T-001-051.

T-001-053

Comment acknowledged. As noted on page 6-77 of the SDEIS under "What measures would be used to protect water quality during construction?" the production of concrete can generate high pH levels that could result in impacts if not properly contained. To minimize this risk, WSDOT will require the contractor to implement a concrete containment and disposal plan.

While in-water demolition has the potential to affect water quality,

T-001-129 Page 3-20, Culverts can do more than block fish passage and alter flow. See the WDFW Fish Passage Guidelines for a list of impacts that can be attributed to culverts.

T-001-130 Page 3-28, The amount of area impacted due to inwater piles is underestimated for Alternative A. It should be at least 9090 square feet based on 24 inch sized piles, consistent with Exhibit 3-11. It may be larger if larger diameter piles are used.

T-001-131 Page 3-30, Additional information is needed for the finger piers built in addition to construction bridges within aquatic areas.

Page 3-33, Additional information is needed for the amount of aquatic habitat that would be affected by cofferdams as part of construction for each alternative. This information should be provided as a separate exhibit that follows Exhibit 3-11.

Page 3-44, Additional information is needed for the proposed use of temporary anchors, particularly if pile anchors used.

Page 3-45, Additional information is needed regarding the cofferdams to be used for the eastside approach. There is also potential for the cofferdam to affect upwelling processes and adversely affect beach spawning habitat.

T-001-132 Page 3-45, Please provide the substrate data gathered for the sockeye spawning survey and the criteria used to determine that the surveyed areas do not provide preferred spawning areas.

T-001-133 Page 3-46 Additional information is needed for the construction of the concrete columns for the bridge maintenance dock. For example, it is not clear if these columns will be constructed using drilled shafts or some other technique.

T-001-134 Page 3-47, It is our understanding that the proposed wave barrier is no longer part of the maintenance dock. Please clarify.

T-001-135 Page 3-47 and 3-48, The adult salmon timing information was collected without a construction project of this magnitude occurring in this location. We do not how adult salmon will respond to the construction activities here and any delay in migration could result in prespawning mortality, particularly for adult chinook and sockeye. Other construction noise, vibration, lighting, etc. could all cause adult salmon to alter their migration behavior. Any delay in the existing high water temperatures near the project site could result in direct mortality or prespawning mortality. There is no basis to conclude that construction noise impacts to migrating adults will be minor and the BMPs for pile driving will not address these other potential construction impacts.

T-001-136 Page 3-53, It is not clear how the DR concluded that the construction lighting impacts to fish would be the same under all options. Since Option K involves inwater filling and more vegetation removal and a longer construction period than the other options, it seems that Option K has a greater potential to have more impacts as a result of construction lighting.

Section 6. 10 of the SDEIS and the Water Resources Discipline Report (Attachment 7 to the SDEIS) described best management practices that would minimize this potential. Section 6.2.1.5 of the Biological Assessment (Attachment 18 to Final EIS) provides further discussion regarding activities that could affect water quality. This section notes that underwater concrete cutting has some potential to increase localized pH; however, effects are expected to be minimal.

T-001-054

Please see the response to comment T-001-053. WSDOT will avoid or minimize adverse effects on surface water bodies during construction by implementing water quality pollution control measures outlined in the Temporary Erosion and Sediment Control (TESC) and Spill Prevention, Control, and Countermeasures (SPCC) plans and by following permit conditions. WSDOT will not discharge untreated slurry or concrete-laden water into any waters of the state.

T-001-055

Chapter 3 of the Final EIS describes the locations of staging areas. Staging areas are sited as far from streams and lakes as practicable given the availability of land and the requirements of the construction process. Best management practices will be used at all staging areas, as well as in all construction areas, to minimize potential effects on water resources and aquatic habitat. See Section 6.10 for more information regarding construction effects on water resources.

T-001-056

Returning salmonids travelling through the Lake Washington Ship Canal can experience water quality conditions that can intensify their already stressful condition. However, migrating salmonids typically pass through the project site relatively quickly (hours or days), so exposure to the warmer water temperatures is limited in duration; please see the

T-001-137 Page 3-53, Additional information is needed about the use of cofferdams for existing bridge demolition work, including location, area within dam, duration of cofferdam, etc.

T-001-138 Pages 3-66 and 3-67, The statement regarding the lack of available information to indicate that the increased depth and width of the new bridge will not substantially alter the surface water of Lake Washington implies that WSDOT thoroughly reviewed all available information which does not appear to be the case. As MITFD staff suggested at several meetings, WSDOT should have researched this issue further with available scientists knowledgeable of the Lake Washington, its circulation and temperature issues. It is premature to conclude that there will be no substantial impacts due to the pontoons, which will extend into greater depths compared to current conditions.

T-001-139 Page 3-68 Street lights for nighttime lighting should not be used on the maintenance dock similar to the roadway due to potential impacts to juvenile salmon from increased predation and the lower height of the maintenance dock compared to the roadway.

T-001-140 Exhibit 3-21, The actual pollutant loading both current and proposed should be shown in this exhibit, not the net change. There is no way to verify the numbers.

T-001-141 Page 3-74, The details of the removal of the two docks at the eastside maintenance dock need to be identified so the reviewer can determine if there will be an increase or decrease in overwater coverage and pile numbers/sizes. In addition, the SDEIS states that these two docks *may* be removed, suggesting there is no commitment to do so.

T-001-142 Page 3-75, Before mitigation plans can be developed for impacts to fish resources, there needs to be technical agreement regarding the potential project impacts. As the SDEIS and the DR have not addressed all potential issues in our comments, there are potential project impacts that remain outstanding.

T-001-143 **Cultural Resources Discipline Report**
Page 1- MIT fishing U&A is described incorrectly here again.

T-001-144 **Environmental Justice Discipline Report**
Page 3, last bullet, The description of impacts to the Muckleshoot Indian Tribe's U&A is incomplete. The bullet needs to be modified. The Muckleshoot Indian Tribe is the only federally recognized tribe who has treaty rights to fish in Lake Washington where the construction will occur. The project's construction footprint will eliminate fishing areas while inwater work is occurring for the project for several years. The project proposes to close down the Montlake Cut to all boat traffic for nine days to construct the new bridge under Alternative A or L. This closure would need to be done during a time when the Tribe is not using the Cut to access its fisheries resources in Lake Washington. Also, there may be a need to mitigate for impacts to the fisheries resources that may occur due to construction (migration delay leading to residualization of juveniles; increased predation of juveniles; avoidance of adults going through construction area to Lake Washington leading to prespawn mortality and lost fishing opportunity; and spills

Ecosystem Discipline Report Addenda for further detailed discussion. In addition, much of the project vicinity does not provide preferred habitat for adult salmonids, and their primary spawning areas are located at considerable distances from the SR 520 corridor; therefore, it is unlikely that these adults would choose to remain in the area after entering the lake.

WSDOT is committed to protecting water quality throughout the project area. Specific water quality protection plans and BMPs will be developed to minimize any potential effects from project activities. Project-specific in-water work windows have been developed to minimize the potential for any project activities to affect juvenile or adult salmonids. Refer to the Conceptual Aquatic Mitigation Plan (Attachment 9 to the Final EIS).

T-001-057
Please see the response to Comment T-001-051.

T-001-058
Comment acknowledged, however the purpose of the cofferdams is to isolate particular in-water construction activities to minimize the overall effects of construction on fish and fish habitat. Although some short-term loss of habitat may occur, no long-term effects from the use of cofferdams are expected.

T-001-059
The potential effects of in-water construction noise on salmonids (particularly pile-driving) were addressed in the SDEIS. Additional information is included in the Final EIS and the Ecosystems Discipline Report Addendum (Attachment 9 to the Final EIS). See Section 6.11 of the Final EIS and the Ecosystems Discipline Report Addendum for discussions about the potential effects of construction noise on

T-001-144 that lead to changes in behavior, injury or mortality). The location of the pontoon outfitting may also result in impacts to the Tribe's fishing areas if it includes commercial vessel facilities in the Tribe's U&A (e.g., Port of Seattle, Elliott Bay or Duwamish river shipyards).

T-001-145 Page 4, first bullet, As noted here the project's constructed footprint will be larger than the existing bridge, which means a permanent loss of fishing area to the Muckleshoot Indian Tribe. The new bridge maintenance dock would also result in new overwater coverage and permanent loss of fishing area for the MIT. These are unavoidable impacts that will require mitigation acceptable to the Tribe. Option K could have additional impacts to the Tribe such as maintenance for the tunnels that may require additional inwater work or barges in the Montlake Cut obstruct fishing access in the future. This issue was not considered in this DR.

T-001-146 Page 5, bullet 4, The description of the Muckleshoot Indian Tribe's usual and accustomed area is incorrect again.

T-001-147 Page 63, Please identify the other parties that expressed concerns with culverts for the Eastside HOV and Transit projects and the concerns expressed. In our opinion, the Navigational DR does
T-001-148 not adequately address all of the potential impacts to MIT fishing and navigation issues for MIT members accessing their fishing sites.

T-001-149 Page 71, The discussion of impacts to Muckleshoot Tribal fishers is incomplete.

T-001-150 Page 80, The impacts to Muckleshoot Tribal fishers and fisheries resources is incomplete. All of Lake Washington is within the Tribe's Usual and Accustomed Area. MIT tribal fishers can fish anywhere in the Lake as permitted by the Tribe's fishing regulations. Fishing areas used today do not necessarily reflect places where they fished in the past or could fish in the future. The last sentence is not relevant to the U&A question and potential impacts to tribal fishing and fish.

T-001-151 Page 91, first bullet, This bullet is inaccurate. The SDEIS does not identify all potential impacts to the Tribe's fishing access and fisheries resources and all mitigation measures have not been identified. In addition, there may changes to the project that arise as part of construction activities by the contractor that are unknown at this time but could affect the Tribe's access to its fisheries resources or the fish.

T-001-152 Page 93, the list of mitigation measures for impacts to the Tribe is incomplete.

T-001-153 Page 96, There will be a permanent loss of fishing area for the Muckleshoot Indian Tribe which will occur as a result of a larger bridge than exists today.

T-001-154 **Hazardous Materials Discipline Report**
Page 3, The MIT U&A language needs to be changed.

T-001-155 Page 48, The MITFD requests copies of all future sediment sampling work for the project. We may have additional comments based on the findings from this work.

salmonids. BMPs are listed in the mitigation section of the Ecosystems Discipline Report Addendum.

T-001-060

For the Preferred Alternative, the Portage Bay Bridge would include mudline footings for the three westerly in-water pier bents. The footings would be constructed inside of cofferdams measuring about 130 feet by 40 feet, each. These three cofferdams would occupy a total area of about 0.4 acre of substrate habitat. Additional geotechnical studies in the east approach area since the SDEIS was published found unsuitable lake bed substrate and upwelling along the shoreline, which resulted in a design change of the east approach bridge footings (see the Geology and Soils Discipline Report Addendum in Attachment 7 to the Final EIS). Therefore, for the Preferred Alternative, a 16,000-square-foot cofferdam would be installed to construct the two mudline footings to support the substructure and superstructure of the east approach, with one footing each for the eastbound and westbound structures. This information is included in Section 6.11 of the Final EIS under "East Approach Area."

T-001-061

An updated discussion of the potential effects of nighttime construction lighting is provided in Section 6.11 of the Final EIS. See also the response to Comment T-001-033.

T-001-062

The estimates of shading from construction were determined using the square footage of the fixed structures (e.g., construction bridges and finger piers), but not movable structures such as barges. Portions of the fixed structures in areas that would later be shaded by permanent bridge structures were excluded from this calculation because these areas are estimated, and mitigated for, as permanent losses. Over-water shading by barges was not quantified because the number, location, and duration

T-001-156 **Indirect and Cumulative Effects Discipline Report**
Page 3, fourth bullet, U&A language needs to be changed.

T-001-157 Page 18, We disagree with the following statement:

"The analysts did recognize, however, that in the case of a resource already under severe environmental stress, short-term construction effects added to the effects of other past, present, and reasonably foreseeable future actions could tip the balance and adversely affect the resource. No such case was found in the cumulative effects assessments conducted for this project."

T-001-158 Exhibits 17a-d, There are other proposals in and along waterways proposed either through SEPA notices and/or permit notices that are not shown on these figures. Several involve new or replacement piers and docks, and there is one proposal to "subdivide" a waterfront property in Portage Bay in Seattle into multiple lots for future houseboats. These proposals should be identified and included in the analysis. It is very important to identify other potential inwater projects within or near the project area as these projects could also impact the incoming and outgoing migration of adult and juvenile salmon.

T-001-159 Exhibit 18b-This exhibit is missing the widening of Novelty Hill Road proposed by King County and WSDOT through its Highways and Local Programs office. This road project occurs within WRIA 8, the watershed impacted by the SR 520 bridge replacement project.

T-001-160 Page 64, We disagree with the statement on this page that "Project operation would have no disproportionately high and adverse effects on minority populations". Statements regarding impacts to the MIT on page 66 are also incorrect. The larger SR 520 bridge project will remove more open water area that would otherwise be available for Muckleshoot Indian Tribal fishers to access for their fisheries resources. This impact is unique to the Tribe and is disproportionately higher than would be to other groups.

T-001-161 Page 68, The authors need a better understanding of the difference between access to fishing in usual and accustomed areas and impacts to fish habitat. While there may be some overlap in these two issues, they are not necessarily the same thing. Structures and operations that are located in and near water can interfere with the fishers accessing these areas and/or interfere with fishing gear's ability to successfully fish in these areas. Piers and docks and the vessels that use these structures can force tribal fishers to locate farther waterward in fishing areas exposing them and their gear to navigational traffic that can damage gear or endanger fishers. These are some examples of impacts to fishing access.

T-001-162 Page 68-69, While some progress has been made in the last 5 -10 years to do salmon restoration projects in the Lake Washington basin per the recovery plan and early actions, recovery planning implementation is slow and insufficiently funded. Furthermore, the King County Council's recent legislation regarding the placement of wood in salmon projects and the Corps of Engineers' policies on levees and vegetation will likely restrict or negate some of the benefits

of their use will not be known until a contractor has been identified. However, it is assumed that barges will function to temporarily off-load supplies to the work bridges and be in one location for a period of days to a few weeks in total duration. See Section 6.11 of the Final EIS for updated shading effects from construction of the Preferred Alternative.

T-001-063

The substrate area affected by cofferdams is provided in Section 6.11 of the Final EIS.

T-001-064

Barge use in the Montlake Cut to support construction would be limited to approximately three weekend periods when barges would be used to support delivery and placement of moveable bridge segments. Please also see response to T-001-062.

T-001-065

The SDEIS provided a comprehensive analysis of project effects based on information available at that time when the SDEIS was published. The effects are analyzed to a level of detail that allows decision-makers to compare the environmental effects of the alternatives and design options. If Option K were identified as the Preferred Alternative in the future, WSDOT would complete the necessary documentation as part of final design and permitting and ensure that negative effects associated with the cofferdams are mitigated to the extent practicable.

T-001-066

See the response to Comment T-001-062 regarding why shading effects of barges were not calculated.

T-001-067

MITFD staff participated in the test pile program conducted in October

T-001-162 derived from these restoration projects whenever they are finally completed. Finally, there is no comprehensive assessment of fish passage barriers and plans to repair these barriers in WRIA 8.

T-001-163 Page 70, We do not agree with the following statement on this page:

"The 6-Lane Alternative is expected to contribute slight benefit to water quality and fish habitat; however, the effects on long-term fisheries trends or stressors would not be measurable."

T-001-164 Also on this page, we disagree with the statement that:

In summary, the SR 520 project's contribution to the overall condition of fish and aquatic resources within the study area would not measurably influence the overall cumulative effect on these resource.

T-001-165 The authors continue to miss the point that the location of the bridge matters in addition to the size of the structure. A new larger bridge farther north and nearer to the Ship Canal and Montlake Cut, a bottleneck for salmon coming from and going to Lake Washington. The project may adversely affect juvenile salmon from successfully outmigrating to the Ship Canal and on to Puget Sound. These juvenile salmon may residualize and never leave the lake and/or they may be preyed upon by salmon fish predators that benefit from a larger structure producing more shade. The new larger bridge will also likely impact lake circulation patterns as discussed in previous comments that has implications for biological resources.

T-001-166 Page 101,This section on Lake Washington water quality does not address available information that the lake's water temperatures are rising as discussed in the Ecosystems DR.

T-001-167 Page 102, The statements regarding improvements in water quality would reduce pollutant runoff is not the case for every pollutant examined. Depending on the alternative, there will be increases in the loading of dissolved zinc and copper in some Threshold Discharge areas even with the stormwater improvements.

T-001-168 Page 107, It is premature to state that "the projects contribution to cumulative effects of wetlands within WRIA 8 is anticipated to be minor to negligible" since the wetland mitigation plan has not been finalized or agreed to by the MITFD and the resource agencies. See also our comments on the mitigation plans.

T-001-169 Page 108, It is premature to state that *"long-term programs such as watershed-based mitigation and mitigation banking also aid in the protection of the resource"* in WRIA 8.

T-001-170 Page 108, The statement on this page

"In addition, the analyst did not identify any potential effect of the project on fish and aquatic habitat that would occur later in time than the project activity causing the effect. Therefore, the 6-Lane Alternative is not expected to result in measurable indirect effects on fish and aquatic habitat."

This sentence fails to address the issues raised regarding potential residualization, predation, migration impacts that could reduce juvenile survival and reduce salmon populations further in

2009 and in subsequent discussions of impacts and mitigation as part of the Natural Resources Technical Working Group in 2010. WSDOT and FHWA are committed to continued consultation with the Muckleshoot Indian Tribe through the duration of the project.

T-001-068

See the response to comment T-001-065. The Ecosystems Discipline Report Addendum (Attachment 7 to the Final EIS) includes more detail regarding the use of cofferdams in Portage Bay and the East Approach for the construction of the Preferred Alternative.

T-001-069

This analysis has been updated in the Ecosystems Discipline Report Addendum (Attachment 7 to the Final EIS). In addition see Chapter 3 of the Final EIS for a discussion of the extent of overlapping areas and timing of the various construction stages.

T-001-070

The anchors would be placed during the approved in-water construction period for this portion of the project area. Please see the response to Comment T-001-052.

T-001-071

The Ecosystems Discipline Report Addendum includes more details regarding the use of cofferdams for the construction of the Preferred Alternative.

T-001-072

Additional geotechnical studies were conducted and results were described and referenced in the Geology and Soils Discipline Report Addendum (Attachment 7 to the Final EIS). The studies showed that substantial upwelling of cold groundwater occurs along the eastern

T-001-170 WRIA 8. There may also be a spill or release of hazardous material that could affect salmon immediately and the population over time. The construction time period will overlap with an entire life-cycle of salmon.

T-001-171 Pages 113-114, We disagree with the statement that the proposed bridge design changes are minor. The pontoons will be substantially deeper than what exists today which we believe will have significant changes to lake circulation at least in that portion of Lake Washington. These changes could affect temperature, biological productivity, thermacline depth, etc. The potential construction impacts are longer than a generation for most salmon populations in Lake Washington. The proposed mitigation measures are not comprehensive enough to address these impacts. Furthermore, the proposed mitigation measures for the built bridge are not sufficient to date. Finally, the DR fails to acknowledge that the Ship Canal and Montlake Cut are a bottleneck for all salmon populations coming and going within the Lake Washington basin. All of these potential direct and indirect impacts were not sufficiently considered in this DR or the Ecosystems DR.

T-001-172 **Navigable Waterways Discipline Report**
Page 4, fourth bullet, This bullet regarding treaty fishing is incorrect and needs to be modified.

T-001-173 Page 45, *Overall, construction-related barge trips would not interfere with the movement of commercial or recreational vessels, but may disturb the fishing activities of the Muckleshoot Tribe. (Barge and pontoon movement could possibly delay or interfere with movement of the Muckleshoot tribal fishing vessels.)*
Barge traffic and pontoon movement has the potential to interfere with tribal members ability access their fishing sites, damage their gear or alter fish migration which can reduce the success of tribal fishers who are fishing for commercial, ceremonial and subsistence purposes.

T-001-174 Page 46, Shifting the bridge farther north may cause additional area to be lost to Tribal fishing access due to the location of the navigational channel, the restrictions associated with the bridge and the larger bridge footprint. The result could be a reduction in Muckleshoot Tribal fishing opportunities.

T-001-175 Page 46, The DR should discuss the potential for operations and maintenance activities that may require inwater work which could affect navigation.

T-001-176 Page 51, There is no mitigation measures proposed for construction impacts to the Tribe.

T-001-177 **Noise Discipline Report**
This DR acknowledges that sound travels across reflective surfaces (such as water or pavement) with minimal attenuation, yet, fails to consider potential operational noise impacts to aquatic environment and fish.

shoreline of Lake Washington at Medina. Based on previous information regarding potential spawning habitat in this location (see page 4-66 of the SDEIS) and the presence of cold groundwater exchange, WSDOT assumed that potential sockeye spawning habitat is available in the vicinity of the shoreline. More detail on mitigation assumptions is provided in the Conceptual Aquatic Mitigation Plan (Attachment 9 to the Final EIS).

T-001-073

This section was intended to confirm that the potential effects of the project on Endangered Species Act-listed anadromous fish species would be similar to the effects discussed for all anadromous fish species on pages 6-85 through 6-94. Please also see the response for T-001-040. For updated information on potential impacts to salmon during construction, please see the Ecosystems Discipline Report Addendum (Attachment 7 to the Final EIS) and Section 6.11 of the Final EIS.

T-001-074

As described in previous responses, WSDOT has continued to work with the MITFD following the publication of the SDEIS and has developed more specific mitigation measures to address the effects of the Preferred Alternative during project construction and operation. Section 6.11 of the Final EIS and the Ecosystems Discipline Report Addendum summarize the updated effects and mitigation information. Additional details are included in the Conceptual Aquatic Mitigation Plan. WSDOT continues to work with the Tribe to identify appropriate mitigation for project effects on tribal fishing.

T-001-075

Groundwater effects from construction of the Preferred Alternative would be minimal compared to the SDEIS options, particularly Option K. Groundwater dewatering and discharge into local receiving environments

T-001-178 **Water Resources Discipline Report**
Page 7, fourth bullet, This bullet regarding tribal fishing is incorrect.

T-001-179 Page 27, Lake Union and Portage Bay and the rest of the Ship Canal are more than just rearing areas for outmigrating salmon. They also are the migratory corridors for all returning adult salmon species that come back to Lake Washington basin to spawn.

T-001-180 Pages 37 and 38, water temperatures in the Ship Canal can approach near lethal levels for returning adult salmon.

T-001-181 Page 80, *The 6-Lane Alternative would increase the amount of land covered by PGIS in the study area; however, this increase would not cause a detectable change to groundwater recharge.* Please provide the analysis to support this statement.

T-001-182 Page 80, *Constructing the depressed interchange as part of Option K would result in the short diversion of groundwater flow to Lake Union and the ship canal. However, this would not prevent the amount of groundwater from flowing into these receiving environments and, as such, would not require any additional project compensation.*
Please clarify how this option avoids permanently piping and routing groundwater away from Lake Union and the Ship Canal.

T-001-183 Page 80- The proposed stormwater discharges from the floating bridge to the lagoons and dilution zones may not be sufficient to protect juvenile salmon. If the bridge actually attracts juvenile salmon as suggested by some of the data from Celedonia and others, then juvenile salmon will be directly exposed as a result of the stormwater discharges due to their proximity to the bridge. This potential impact was not considered in this DR, the Ecosystems DR, or the Indirect/Cumulative Impact DR.

T-001-184 **Attachment 9: Aquatic and Wetland Mitigation Plans**
I. Initial Aquatic Mitigation Plan
General Comments
It is premature to narrow the mitigation sites down to the proposed 30 sites for aquatic resources and the 11 wetlands. From the information in the Initial Plans, WSDOT has completed this work outside of the SR 520 Technical Working Groups and did not include the MITFD, which is contrary to the purpose of these groups and our involvement in them. The Initial Mitigation Plans have not been sufficiently discussed in the Mitigation Technical Working Group (TWG) as they were being developed. There should have been a discussion about the initial impact analysis identified as Appendix C to verify that this analysis is complete and accurate. In addition, Appendix D of the individual sites and potential mitigation actions is lacking sufficient details about existing conditions and potential mitigation actions. The Aquatic Resources Mitigation Plan should use a similar detailed approach (i.e. existing conditions described and potential mitigation work) as was used in the Wetland Mitigation Plan. Once this work was completed, then the mitigation plan framework, screening criteria, and potential sites should have been identified and meetings held with the Mitigation TWG to discuss these components, and resolve concerns. This process has not occurred to date.

under the Preferred Alternative will be regulated by a construction stormwater permit issued by the Washington State Department of Ecology. This permit will contain requirements to limit any temperature increases to within the state standard for the receiving environment in the project area.

T-001-076

The closure described on page 6-107 of the SDEIS was two 24-hour periods and two weekends, for a total of 6 days of closure spread over a period of at least 9 days. This page also noted that curing of the concrete bridge deck would require a 3-week period during which the bascule bridge would not be able to be opened and would therefore restrict passage to vessels with a vertical clearance of less than 46 feet . Section 6.14 of the Final EIS the same total of 6 days of closure spread over at least 9 days, but that an additional 6 weeks of limited navigation restrictions may be necessary, depending on the final treatment of the bridge deck (grated versus concrete). WSDOT continues to coordinate with the Muckleshoot Indian Tribe to develop minimization and mitigation measures for effects such as these to prevent conflicts with tribal fishing activities.

T-001-077

WSDOT will provide the Coast Guard with the necessary information to include in the "Local Notice to Mariners." The Muckleshoot Indian Tribe can register with the Coast Guard to receive this notice at http://www.navcen.uscg.gov.

T-001-078

Please see the response to Comment T-001-016.

T-001-079

Please see the response to Comment T-001-023.

T-001-185 As a result, the MITFD requests that technical working group meetings be held soon to discuss project impacts first to ensure that we have the complete list of impacts and any quantification of these impacts. Per our comments on the SDEIS and DRs, we believe that several potential adverse impacts have not been adequately considered. For example, there are potential impacts associated with noise and nighttime construction lighting and bridge lighting that may require mitigation. In addition, the specific details of potential mitigation actions and a quantification of these actions are missing from the initial list of mitigation sites. The Initial Aquatic Resources Mitigation Plan clearly states that there will be a future detailed analysis that will establish and document the quantitative basis for the appropriateness and sufficiency of the mitigation plan to replace lost or impaired habitat functions resulting from the project. Once there is a complete list of impacts and quantification where possible, the meetings that follow would involve the potential mitigation framework, criteria to be used to evaluate sites, and a list of sites.

T-001-186 Without a detailed analysis to establish and document impacts and mitigation needs, we cannot provide comprehensive comments at this time. Finally, should a new or modified Westside SR 520 alternative that is not considered in the SDEIS emerge and go through the environmental review process resulting in changes to impacts and mitigation needs, we will need a chance to review this new alternative and proposed mitigation. For all the reasons above, we reserve the right to provide additional comments on the mitigation planning process and subsequent documents.

T-001-187 Page Specific Comments to the Initial Aquatic Mitigation Plan
Page 4-5, 4.3.3, This section of the plan should have additional discussion about the potential combined effect of low dissolved oxygen on the bottom of the Ship Canal and Lake Union and the water temperatures in the surface waters of Ship Canal, Lake Union, and Lake Washington that can reach lethal and non lethal levels on adult salmon migration (particularly chinook and sockeye). The point to make is that there can be times when there is only a narrow band of water column suitable for adult migration. If there are any construction noise, pollutant discharge, spills that affect this band, then adult salmon may not migrate through the area successfully and die while waiting to migrate or die prior to spawning.

T-001-188 Page 4-6, A new section should be added that describes the substantial number of piers and docks with small and large vessel moorage, and residential houseboats on piers and docks within the Ship Canal. The existing pier and dock data from Toft et al. (2003) work (a reference cited in the mitigation plan on page 7-2) should be added here. Any other information that identifies and quantifies "the highly modified habitat conditions" in the Ship Canal should also be added here, if it is relevant for the project's impact assessment.

T-001-189 Page 4-7, There is available information for local streams that suggests that cutthroat populations have increased in Lake Washington streams compared to coho populations (i.e. Furstenberg and Luchetti, 1993).

T-001-190 Page 5-1, The length of the temporal impact as a result of the construction bridges/piers/detour bridge and the existing and the new bridge should be discussed on this page. The wetlands

T-001-080

CTC is an existing and independently permitted facility that is used to build concrete structures. Pontoons would be constructed in a manner consistent with current permitted uses of the facility. Project related effects resulting from construction of supplemental stability pontoons are expected to be consistent with existing permit conditions. The use of CTC was evaluated in WSDOT's SR 520 Pontoon Construction Project Final EIS (December 2010), and construction of supplemental stability pontoons at this facility was evaluated in the SDEIS Ecosystems Discipline Report.

T-001-081

Please see the response to comments T-001-001, T-001-004, T-001-048, and T-001-052. Mitigation developed for the Preferred Alternative is presented in detail in the Conceptual Aquatic Mitigation Plan (Attachment 9 to the Final EIS).

T-001-082

Table 6.16-1 in the SDEIS was a summary that identified the primary differences between the options. Please see the Ecosystems Discipline Report Addendum and the revised table in Section 6.11 of the Final EIS for details concerning the effects of the Preferred Alternative on fish.

T-001-083

Please see the response to Comment T-001-082.

T-001-084

Please see the response to Comment T-001-062. The estimates of shading from construction did not include movable structures such as barges, because barge use is temporary and does not result in significant impacts on aquatic habitat in the area. Barge moorages in individual locations may vary in length from a few days to a few weeks in

T-001-190 mitigation plan indicates that work bridges will be in place 5 years. The period of overlap also needs to be discussed.

T-001-191 Page 5-2, This page needs to discuss the potential for a wider structure with more shade to create a wider sharp shadow edge and increase the potential of juvenile salmon predation by ambush piscivorous predators. In addition, the increased shaded area may trigger a delayed migration response by juvenile salmon as they seek ways around the structure by swimming laterally along the new bridge instead thorough the pontoon gaps towards the Ship Canal and Puget Sound.

T-001-192 Page 5-6, Section 5.1.2- This section is a bit confusing and it implies that there will anchors set in both Portage Bay and deeper waters of Lake Washington. Also, there is no discussion about the other construction areas that may not have the same calm waters as Portage Bay.

T-001-193 Page 5-7, Section 5.1.4- To be consistent with the sections that precede it, the stormwater section should discuss why stormwater is a concern for fish and other aquatic organisms and how potential impacts will be addressed as a result of stormwater management activities.

T-001-194 Page 5-7, The last statement seems overly broad and not yet supported by the information we have reviewed. Some options of the new bridge may have a smaller in-water footprint than the existing bridge due to fewer large columns; however, there are increases in shade impacts and width of the bridge (wider sharper shadow) and deeper pontoons that may not result in a reduction in impacts compared to the existing bridge.

T-001-195 Page 5-8, Given the potential length of construction in and overwater (5 years or more), the temporal overlap of existing bridge, construction bridges, and construction of the new bridge, the mitigation approach may not be able to successfully mitigate for its impacts by relying solely on habitat creation or improvement projects. There may be a need to more directly enhance fish populations as a partial mitigation measure.

T-001-196 Page 5-8, Sockeye salmon are also fairly well studied in Lake Washington and should be another "key" species considered in the mitigation process. Also, impacts to returning adult salmon must be mitigated as part of this project. Per this page and the rest of the plan, only juvenile salmon life history stages were considered. For example, lines 683-685 state:

> *"These functions are refugia, rearing areas, foraging areas, and migratory corridors that are important for juvenile salmonid survival in littoral, nearshore, or lotic areas of the Lake Washington basin."*

T-001-197 Page 5-9, line 740 uses the word "lack" when it should probably be "lake".

T-001-198 Page 5-10, 5.2.3, Without a study of potential increases in predation due to increases in juvenile migration delays or potential residualization, it is premature to state that *"Overall, these short delays are unlikely to result in detectable changes in survival of Chinook or other juvenile salmon as they migrate through Lake Washington and the Ship Canal."* We also don't know the combined effect of multiple bridges overlapping in time and space within the outmigration corridor for juvenile salmon.

total duration; these durations are expected to be too brief to result in significant impacts to aquatic habitat.

T-001-085

Please see the response to comments T-001-076 and T-001-077.

T-001-086

The cumulative effects analysis has been updated to reflect both the sensitive status of ESA listed salmon stocks and the potential for short-term construction effects - in particular work bridges and impact pile driving - to contribute to cumulative effects. The updated analysis is in Chapter 7 of the Final EIS and in the Final Cumulative Effects Discipline Report (Attachment 7 to the Final EIS).

T-001-087

The purpose of identifying reasonably foreseeable actions is to determine the cumulative effect on a resource, rather than to create a comprehensive list of projects. Council on Environmental Quality (CEQ) and WSDOT guidance does not provide explicit requirements for how to identify other present and reasonably foreseeable actions. Rather, it allows agencies to determine the level of analysis appropriate for their projects. The CEQ guidance does not require an inclusive list of projects, but instead suggests evaluating both individual actions, when they are reasonably well known, and groups of actions, which are typically included in documents such as transportation plans and master plans.

The SDEIS included an extensive group of reasonably foreseeable future actions (projects). In the Final EIS, WSDOT determined that, consistent with the CEQ and WSDOT guidance, most of these projects would be more appropriately evaluated within groups of reasonably foreseeable actions. To identify groups of reasonably foreseeable actions, WSDOT relied on adopted regional and local land use and

T-001-199 Page 5-10, line 769 should be rewritten to say that the third outmigration option is passage through the large and small locks.

T-001-200 Pages 7-3 and 7-4, The order of priorities listed on this page should be reversed.

T-001-201 Page 7-6, We do not view WSDOT's proposal to fund incentive programs and public education and outreach programs as meaningful mitigation for this project. The project needs to focus on specific measurable mitigation measures that increase salmon habitat and productivity that could be adversely affected by this project.

T-001-202 Page 7.6, We are concerned that work completed by the "local agency group" was not sufficiently discussed with the Mitigation Technical Working Group.

T-001-203 There should be additional criteria that discusses if the proposed list of sites/parcels already contains mitigation or restoration projects and, if so, these areas should be excluded unless there are compelling reasons to include the site and sufficient safeguards are created to avoid double counting. For example, restoration work has been completed at the Lions Club site on the Cedar River.

T-001-204 Page 8.2, Table 7, It is premature to narrow the initial mitigation list down to 30 sites. Furthermore, the majority of the 30 sites are public parks that may have too many constraints to accommodate meaningful restoration for fish. These constraints include, but are not limited to, trails and public access, public views, active recreation, parking lots, piers and docks, restrictions on the types of vegetation that can grow, etc. Also the Black River pumping station is in WRIA 9 not WRIA 8. It should be excluded because it is not in the Study area and not within the impacted WRIA. Finally, as stated previously, we request the opportunity to work with WSDOT and the Mitigation TWG to review the Tier 1 list of 280 properties and the screening criteria to discuss what properties should be considered for mitigation.

T-001-205 Page 8-5, Table 8, We do not view WSDOT's proposal to fund incentive programs and public education and outreach programs as meaningful mitigation for this project. Projects need to focus on specific measurable mitigation measures that increase salmon habitat and productivity that could be adversely affected by this project.

T-001-206 II. Initial Wetland Mitigation Plan Comments
General comments
Similar to the Aquatic Mitigation plan, there is much more information needed regarding the wetland mitigation actions and the impacts they attempt to provide mitigation for before we can provide comprehensive comments. For example, the Plan states that "*the reader should note that the ratios shown in Table 2 reflect only one type of wetland effect (filling) and one potential mitigation activity (wetland creation). As a result, the data presented in this section do not necessarily reflect the final mitigation ratios and areas that would be used in the compensatory mitigation for the I-5 to Medina: Bridge Replacement and HOV Project.*"

transportation plans, consistent with CEQ guidance. These plans provide information on the intended development of jurisdictions and transportation networks over a long planning horizon, encompassing multiple future projects that collectively have the potential to influence resource trends.

These regional planning documents (such as PSRC's Vision 2040 and Transportation 2040), and local planning documents (such as the City of Seattle Comprehensive Plan and the King County Roads Services Capital Improvement Program) provide estimates of future growth and development that encompass many individual projects. Therefore, it is appropriate for the cumulative effects analysis to rely on these planning documents in identifying regional trends rather than to attempt to catalogue all foreseeable projects in the region. In this way, actions such as the Novelty Hill Road NE widening project, although not evaluated individually, were considered as part of the trends affecting the resources into the future.

In the SDEIS, the reasonably foreseeable actions were presented on maps. In the Final EIS, the projects are presented in a list for greater clarity. See Chapter 7 of the Final EIS for further discussion of how reasonably foreseeable actions were identified.

T-001-088

As discussed in the Environmental Justice Discipline Report Addendum (Attachment 7 to the Final EIS), WSDOT anticipates executing an agreement with the Muckleshoot Indian Tribe to mitigate for the project's effects on tribal treaty fishing. If the agreement is executed, WSDOT expects that the project would not have a disproportionally high and adverse effect relative to tribal fishing during construction or operation. WSDOT will continue to work through government-to-government consultation with the Muckleshoot Indian Tribe on an agreement to fully and fairly resolve issues associated with the impacts

T-001-206 It should be noted that the MITFD expects to be included when the "temporary effects" mitigation ratio conversations occur. The initial plan suggests that this decision is solely for federal and state agencies and the City of Seattle.

The criteria screening process used for the potential site list and paring process seems reasonable; however, WSDOT should have been working through the Mitigation Technical Working Group (TWG) as each element/step was developed. The Mitigation Planning Working Group needs to meet with the TWG to go through the details of the initial wetland mitigation plan before further work towards decision-making is completed.

T-001-207 Page Specific comments
Page 5-14, Section 6.1- Please explain why site W7 on the UW campus is being considered a mitigation site if wetland restoration has already been completed.

T-001-208 Page 6-9, Section 6.3.1.3, Site W1, This section should be expanded to identify all potential constraints for this site to be used as mitigation. For example, the section notes that public access may be required during construction but should also note if public access/trails will be required post construction as part of a master plan for the Arboretum. Also, wetland mitigation at this site may have limited benefits to any fish species because it is our understanding that the Lake Washington Boulevard culvert crossing of Arboretum Creek (downstream of the mitigation sites) is a fish passage barrier.

T-001-209 Page 6-13, Section 6.3.2.3, Site W2, There should be enough information now to know if proposed restoration is consistent with the master plan.

Figure 5, Please explain the definition of a candidate site as shown on this figure, the details of these candidate sties, and how these sites were screened to date.

T-001-210 Page 6-17, Section 6.3.3.3, Site W4, There should be enough information now to know if proposed restoration is consistent with the master plan.

T-001-211 Page 6-33, 6.3.7.3, Site W10, The site limitations section should discuss the potential for wetlands and buffers to be sprayed with pesticides when Seattle City light maintains the corridor.

T-001-212 Page 6-41, 6.3.9.3, Site W13, This section should discuss the existing trail and public access as a potential constraint on mitigation activities.

References

Arhonditsis, G.B., M.T. Brett, C.L. DeGasperi, and D.E. Schindler. 2004. Effects of climatic variability on the thermal properties of Lake Washington. *Limnology and Oceanography* 49:256-270.

of the project on treaty rights. When this agreement is in place, no negative effects of the project on treaty rights would remain.

T-001-089

The Final Indirect and Cumulative Effects Discipline Report and Chapter 7 of the Final EIS include cumulative effects on representative fish species, as well as the expected project contribution to that cumulative effect, in greater detail and with quantification where feasible.

T-001-090

The effect noted in the comment would be a direct effect, rather than a cumulative effect. The depressed structures are not part of the Preferred Alternative. However, if Option K were identified as the Preferred Alternative in the future, project design would include back-up pumping systems that would need to be maintained and monitored to reduce the risk of failure.

T-001-091

By providing stormwater treatment, the project would maintain and may improve the water quality in wetlands hydrologically connected to Lake Washington. Aquatic bed wetlands in Portage Bay and in Union Bay near MOHAI and the UW boat house would receive treated storm water which would have improved water quality relative to existing conditions.

T-001-092

WSDOT engaged regulatory agencies in collaborative technical working groups to assist in the development of appropriate mitigation for project effects. Project mitigation was discussed in detail during the NRTWG meetings held from June to October 2010, which comprised federal, state, and local regulatory agencies, the University of Washington, and the Muckleshoot Indian Tribe. The goal of the meetings was to identify the sites that would be the best candidates for mitigating the types and

Celedonia, M.T., R.A. Tabor, S. Sanders, D.W. Lantz, and J. Grettenberger. 2008. Movement and Habitat Use of Chinook Salmon Smolts and Two predatory Fishes in Lake Washington and the Lake Washington Ship Canal. 2004-2005 Acoustic Tracking Studies. U.S. Fish and Wildlife Service, Lacey, WA. December 2008. http://www.fws.gov/westwafwo/fisheries/Publications/2004_2005%20Acoustic%20Final%20Report.pdf.

Lucchetti, G. and R. Fuerstenberg. 1993. Management of coho salmon habitat in urbanizing landscapes of King County, Washington, U. S. A. Pages 308–317 *in* L. Berg and P. W. Delaney, editors. Proceedings of the 1992 Coho Workshop, Nanaimo, British Columbia. The Department of Fisheries and Oceans, Vancouver, Canada.

NMFS. 2008. ESA – Section 7 Consultation Biological Opinion and Magnuson-Stevens Fisheries Conservation and Management Act Essential Fish Habitat Consultation, Operation and Maintenance of the Lake Washington Ship Canal Lower Sammamish River 171100120301, Cedar River 171100120302 and Shell Creek 171100190401, King County, Washington State. NMFS Tracking No. 2001/01298. March 31, 2008.

amounts of project effects.

Mitigation sites underwent detailed analysis prior to inclusion in the Conceptual Wetland Mitigation Plan (Attachment 9 to the Final EIS). The wetland mitigation plan incorporated field investigations, scientific research, and the collective knowledge from the NRTWG and the project mitigation team. WSDOT would rehabilitate, create, or restore wetland mitigation areas according to mitigation ratios agreed to at the Natural Resources TWG meetings. These ratios were derived by using standard ratios in the joint guidance (refer to the Ecosystems Discipline Report Addendum for further discussion and reference to guidance) plus modifiers agreed to by the agencies with jurisdiction over wetlands. The standard ratios typically result in greater than 1:1 impact to mitigation ratio, because they take into account such factors as temporal loss of functions and uncertainty of success. The Natural Resources TWG by approving the proposed mitigation ratios was expecting successful mitigation and that no cumulative loss of wetland resources would occur.

T-001-093

Please see the response to Comment T-001-086.

T-001-094

Please see the responses to comments T-001-001 and T-001-004.

T-001-095

Please see the responses to comments T-001-001 and T-001-004.

T-001-096

Please see the response to Comment T-001-010.

T-001-097

The Construction Techniques and Activities Discipline Report Addendum

(Attachment 7 to the Final EIS) have been updated to reflect this incorrect characterization. This text now reads: "Usual and accustomed fishing areas of the Muckleshoot Indian Tribe, which has historically used the area's fisheries resources and has treaty rights for its protection and use."

T-001-098

The Preferred Alternative would not require a tunnel under the Montlake Cut. The bascule bridge proposed for the Preferred Alternative would require barges for its assembly, but would not involve in-water construction.

T-001-099

Please see the response to Comment T-001-060. The substrate area affected by cofferdams is provided in Section 6.11 of the Final EIS and the Biological Assessment (Attachment 18 of the Final EIS) discusses the effects of cofferdams in greater detail.

T-001-100

Please see the response to Comment T-001-016.

T-001-101

Exhibits 23, 24, and 26 in the Construction Techniques and Activities Discipline Report Addendum (Attachment 7 to the Final EIS) have been revised as requested in the comment.

T-001-102

The Ecosystems Discipline Report Addendum (Attachment 7 to the Final EIS) includes additional information on the potential effects of migration delay, altered migration paths, and altered habitat conditions and their relationship to predation of juvenile salmonids.

T-001-103

The Ecosystems Discipline Report Addendum (Attachment 7 to the Final EIS) provides more information on the durations of construction activities and their effects on habitat. A detailed construction schedule for the Preferred Alternative is provided in the Construction Techniques and Activities Discipline Report Addendum.

T-001-104

A pollutant loading analysis is presented in the Water Resources Discipline Report Addendum in Attachment 7 to the Final EIS. For the total study area, the Preferred Alternative and the three SDEIS options show a predicted net reduction for all five stormwater pollutants - total suspended solids (TSS), total zinc, dissolved zinc, total copper, and dissolved copper - compared to the No Build Alternative. Project-wide, the net reduction in dissolved copper was essentially the same for the Preferred Alternative and the three SDEIS options.

T-001-105

The statement that “Most of the proposed bridge structures under the options would be similar or higher than the existing bridge structures” is accurate. The floating bridge and Portage Bay Bridge would be a similar height with Options A, K, and L. The statement is part of the summary of key points; detailed effects are described later in the report and include effects related to the depressed profile of Option K in the Montlake and West Approach areas.

T-001-106

Please see the response to T-001-102.

T-001-107

Please see the response to T-001-102.

T-001-108

Additional information on pile-driving effects and the test-pile study has been included in the Ecosystems Discipline report Addendum (Attachment 7 to the Final EIS).

T-001-109

During the Natural Resources Technical Working Group coordination process, the project was divided into eight zones, based on expected fish species or life-stage use, overall biological functions, and the types of project construction activities that would occur there. Based on this evaluation, specific in-water work windows and best management practices were developed for each zone to minimize the potential effects to the species and life-stages expected to occur. These same zones and fish use characteristics were also used to assess the potential effects of the project and appropriate mitigation measures. The conditions in large areas of Union Bay (Zone 4) and Portage Bay (Zone 2) are currently not considered good habitat for salmonids due to the dense aquatic vegetation in the shallow shoreline areas. Therefore, construction activities in these areas are expected to have fewer and less severe effects on salmonids than activities in areas with less vegetation. Additional discussion of project effects from construction activities, including in-water noise and nighttime lighting, were included in the Ecosystems Discipline Report Addendum (Attachment 7 to the Final EIS).

T-001-110

The statement that the new bridge maintenance pier would result in permanent piles is correct. Mitigation measures for new in-water structures (largely determined through the Natural Resources Technical Working Group process) will address effects on aquatic habitat that result from the project, including construction and operation of the dock at the bridge maintenance facility. The Preferred Alternative does not

include a wave barrier for the maintenance facility dock. Please see the Conceptual Aquatic Mitigation Plan in Attachment 7 to the Final EIS.

T-001-111
Please see the response to Comment T-001-016.

T-001-112
Please see the response to Comment T-001-097.

T-001-113
Please see the response to Comment T-001-016. As specific construction, moorage, and outfitting sites for pontoons are identified, WSDOT will continue to consult with the Tribe, NMFS, USFWS, and WDFW and provide additional and new information as it develops.

T-001-114
The area of the work bridges, including the finger piers, is included under the construction shading effects section in the Ecosystems Discipline Report Addendum (Attachment 7 to the Final EIS).

T-001-115
Please see the response to T-001-104.

T-001-116
The Environmental Justice Discipline Report Addendum (Attachment 7 to the Final EIS) better addresses the Muckleshoot Indian Tribe's usual and accustomed fishing area, which includes locations where the tribe harvests adult salmon pursuant to adjudicated recognized treaty rights as interpreted by the Boldt Decision of 1974. These areas include Lake Washington, the Ship Canal, the upper Puyallup, Green, Cedar, Black,

Stuck, Carbon and White rivers and their tributaries (including Soos Creek, Burns Creek and Newaukum Creek) and secondarily Elliott Bay.

T-001-117
The King County Level 1 stream surveys were adequate methods to assess general habitat conditions, potential use of the streams by salmonids, and potential effects on these species. Because of the generally low quality of the stream habitat, upstream blockages and only minor improvements to one outfall on the Unnamed Tributary to Fairweather Bay, the project team did not feel that more detailed surveys to estimate such biological parameters as pool habitat, in-stream wood, or carrying capacity would provide additional information needed for the analysis.

T-001-118
The requested change was not made in this section because this is a general overview section. However, more detailed discussions of habitat preferences were included throughout the remainder of the Ecosystems Discipline Report (Attachment 7 to the SDEIS) and habitat preferences have been evaluated in more detail in the Conceptual Aquatic Resources Mitigation Plan (Attachment 9 to the Final EIS).

T-001-119
Use of the appropriate terminology regarding Chinook size has been incorporated in the Ecosystems Discipline Report Addendum (Attachment 7 to the Final EIS), where appropriate.

T-001-120
Please see response to Comment T-001-109.

T-001-121
The Ecosystems Discipline Report Addendum includes an updated

section on water quality effects, including information from the King County sampling sites for the Ship Canal and the west approach. See the Water Resources Discipline Report Addendum (Attachment 7 to the Final EIS) for more detailed discussion of the potential water quality effects of the project. Also see the response to Comment T-001-043, which addresses the lake circulation study that includes analysis of stratification processes. The results and analyses are summarized in the Final EIS.

For more information on existing temperature conditions, please see Seattle Public Utilities' *Synthesis of Salmon Research and Monitoring, Investigations Conducted in the Western Lake Washington Basin* (2008), which is referenced in the Ecosystems Discipline Report

T-001-122
More information about wind driven circulation patterns, including references, has been included in the Ecosystem Discipline Report Addendum (Attachment 7 to the Final EIS). In addition see response to T-001-043.

T-001-123
Please see the response to Comment T-001-043.

T-001-124
Please see the response to Comment T-001-043.

T-001-125
Please see the response to Comment T-001-043.

T-001-126
Please see the response to Comment T-001-043.

T-001-127

The effects on fish habitat and populations of increased development in the Lake Washington watershed over time are discussed in the Chapter 7 of the Final EIS and in the Final Indirect and Cumulative Effects Discipline Report (Attachment 7 to the Final EIS). The analysis of direct effects in this discipline report pertains only to the SR 520, I-5 to Medina project. As discussed in the response to Comment T-001-043, WSDOT has undertaken additional studies of lake circulation and temperature, the results of which are described in the Ecosystems Discipline Report Addendum.

T-001-128

The North Lake Washington population is the term used in National Marine Fisheries Service references. The NOAA reference was omitted from the SDEIS, but it has been included in the errata sheet to the Ecosystems Discipline Report. The errata sheet is Attachment 1 to the Ecosystems Discipline Report Addendum (in Attachment 7 to the Final EIS).

T-001-129

Comment acknowledged.

T-001-130

Comment acknowledged; there was an error on page 3-28. The Ecosystems Discipline Report Addendum, in Attachment 7 to the Final EIS, includes the correct impact total for in-water piles.

T-001-131

The Preferred Alternative is analyzed in the Final EIS, which includes updated information on the work bridges (including the finger piers), the area affected by cofferdams, anchor use, and updated design information on the east approach. See the Ecosystems Discipline Report

Addendum (Attachment 7 to the Final EIS) for a discussion of in-water construction.

T-001-132

The Final Shoreline Habitat Report Technical Memorandum, which contained the requested data, was provided to the Muckleshoot Indian Tribe Fisheries Division in 2009. However, geotechnical studies following publication of the SDEIS showed that substantial upwelling occurs along the eastern shoreline of Lake Washington. Consequently, WSDOT has assumed that potential sockeye spawning habitat is available near the east approach structure. Please also see the response to comment T-001-072.

T-001-133

Under the Preferred Alternative, the maintenance facility dock would be constructed in a similar manner as described for the SDEIS options. The dock would extend approximately 100 feet offshore to moor maintenance vessels. However, the wave barrier is not part of the Preferred Alternative. Eliminating the wave barrier is expected to reduce the potential effects on fish, particularly with regard to the migration behavior of juvenile fish in the area. The modified T-shaped dock would be supported on four 3-foot-diameter concrete columns, with textured concrete and grated steel decking, providing mooring space for two maintenance vessels. Construction techniques associated with the dock are similar to in-water techniques previously described in the 2009 Ecosystems Discipline Report (Attachment 7 to the SDEIS) for other fixed portions of the bridge.

T-001-134

A wave barrier is not part of the Preferred Alternative. See Chapter 2 of the Final EIS and the Description of Alternatives Discipline Report Addendum in Attachment 7 to the Final EIS.

T-001-135

Adult salmon run timing is not expected to be influenced by the construction project. Past instances of pre-spawn mortality in the Lake Washington system have been associated with high water temperatures in the Lake Washington Ship Canal during migration. The construction project will not affect water temperatures in the Ship Canal. Construction noise, vibration and lighting associated with the project are similar to vessel noise and dock lighting along much of the Lake Washington Ship Canal and therefore expected to elicit similar behavioral responses by adult salmon.

WSDOT has identified best management practices that minimize the potential for construction lighting, underwater noise, turbidity and other project construction effects to affect adult salmon. Of all construction activities, pile driving has the most potential to injure adult fish due to the amount of pile driving needed and the underwater noise levels generated. Best management practices evaluated for pile driving will result in noise levels that could only harm fish if they are within 40 feet of the noise source. See the Ecosystems Discipline Report Addendum (Attachment 7 to the Final EIS) for results of the Test Pile Study.

Most other in-water construction activities would be conducted within cofferdams, silt/turbidity curtains, or other isolation barriers. Therefore, it is unlikely that substantial noise or other disturbances would be transmitted to the water column. Overall, the construction associated with the project is not expected to measurably affect the migration rates of adult salmonids through the project area. These conclusions are discussed further in the Ecosystems Discipline Report Addendum and in Section 5.11 of the Final EIS.

T-001-136

The analysis concluded that construction lighting effects on fish would be similar for Options A, K, and L. The Ecosystems Discipline Report

Addendum updates the description of construction lighting effects, but also concludes that effects would be similar. The addendum explains that construction lighting would be used to a greater extent between late summer and early spring, and that fish expected in the study area during this portion of the year generally do not include juvenile salmonids. In addition, the depressed profile of Option K is in a location that is not generally used by salmonids. Therefore, it notes that substantial effects from construction lighting would be minimal, and effects would be similar for the Preferred Alternative and SDEIS options. See the Ecosystems Discipline Report Addendum (Attachment 7 to the Final EIS) for a description of effects from lighting in the Preferred Alternative.

T-001-137
Please see the response to Comment T-001-060.

T-001-138
Please see the responses to Comment T-001-043.

T-001-139
The design of the maintenance facility dock has changed since the SDEIS was published, as a result of coordination with resource agencies and the MITFD. The lighting on the dock is consistent with safety and navigation requirements. The refined dock design eliminates all but two luminaires (overhead light stanchion) on the maintenance dock, compared to the design described in the SDEIS. Overhead lighting would be shielded to limit light spillage. The other luminaires would be replaced with low-level path lighting to minimize the amount of incident light reaching the water surface. Lighting would be on-demand and would be used only when needed. These changes are discussed in the Ecosystems Discipline Report Addendum (Attachment 7 to the Final EIS).

T-001-140

Detailed information on pollutant loading was provided in the Water Resources Discipline Report (Attachment 7 to the SDEIS) and therefore was not repeated in the Ecosystems Discipline Report. Exhibit 3-21 was updated in the Ecosystems Discipline Report Addendum to summarize the data for the Preferred Alternative, and facilitate understanding about the potential effect of the project on aquatic species. Updated detailed information on existing and future pollutant loading is provided in the Water Resources Discipline Report Addendum (Attachment 7 to the Final EIS).

T-001-141

The size of the maintenance dock is similar for Preferred Alternative and all SDEIS options. The two docks near the eastside maintenance facility would be removed and partially offset the effects of the new maintenance facility dock. Information on these docks, including dimensions and number of piles, is included in the Conceptual Aquatic Mitigation Plan in Attachment 9 to the Final EIS.

T-001-142

Please see the responses to comments T-001-001 and T-001-004. Since identification of the Preferred Alternative, WSDOT has coordinated with resource agencies and the MITFD through the Natural Resources Technical Working Group to determine how effects are calculated. The effects and appropriate mitigation are summarized in the Final EIS and Ecosystems Discipline Report Addendum. Please refer to Sections 5.11 and 6.11 in the Final EIS and to the Ecosystems Discipline Report Addendum in Attachment 7 to the Final EIS for details. Details of the mitigation for aquatic resources are included in the Conceptual Aquatic Resources Mitigation Plan (Attachment 9 of the Final EIS).

T-001-143

The errata sheet for this discipline report has been updated to reflect the correct U & A information.

T-001-144

The Environmental Justice Discipline Report Addendum addresses potential impacts of the project on the Muckleshoot Tribe's usual and accustomed fishing places (see the Environmental Justice Discipline Report Addendum in Attachment 7 to the Final EIS). The addendum acknowledges the impacts on access through the Montlake cut for tribal fishing access, effects on fish migration and spawning, and the disruption to tribal fishing depending on the location used to store pontoons. Please see the responses to comments T-001-001, T-001-004, T-001-016, T-001-019, T-001-030, T-001-044, T-001-088 and T-001-116 regarding mitigation for impacts to the Muckleshoot Tribe's usual and accustomed fishing places.

T-001-145

Please see the response to Comment T-001-144 regarding effects on tribal fishing, and T-001-039 regarding maintenance of the Option K tunnel. Maintenance would occur from inside the tunnel.

T-001-146

The errata sheet for this discipline report has been updated to reflect the correct U & A information.

T-001-147

Three parties expressed interest in culverts on the SR 520, Medina to SR 202: Eastside Transit and HOV Project culverts – EPA which expressed support for culvert replacements; WDFW which expressed interest in long term fish passage and maintenance of culverts; and MIT which expressed interest in structure design. Adjacent property owners

have also shown interest in culvert and stream design, as well as the potential regulatory constraints associated with providing fish passage to segments of streams where fish barriers currently exist. Please refer to the SR 520, Medina to SR 202: Eastside Transit and HOV Project Environmental Assessment and Finding of No Significant Impact for information regarding that project.

T-001-148
The Navigable Waterways Discipline Report Addendum (Attachment 7 to the Final EIS) more clearly reflects potential effects on tribal fishing and navigation.

T-001-149
Because WSDOT is continuing to coordinate with the Muckleshoot Indian Tribe on mitigation for adverse effects on tribal fishing, the text of the discipline report generally discusses the range of potential impacts. As noted in the response to Comment T-001-004, WSDOT expects to enter into an agreement with the Tribe subsequent to Final EIS publication regarding mitigation for effects on tribal fishing.

T-001-150
The Environmental Justice Discipline Report Addendum (Attachment 7 to the Final EIS) does not include the statement about fishing north of the bridge and properly characterizes the usual and accustomed fishing area.

T-001-151
Please see the response to Comment T-001-149.

T-001-152
Please see the response to Comment T-001-149.

T-001-153
Comment acknowledged. Please see the response to Comment T-001-149.

T-001-154
The errata sheet for this discipline report has been updated to reflect the correct U & A information.

T-001-155
WSDOT will share the results of any additional sediment sampling with the MITFD.

T-001-156
The discipline report and errata sheet have been updated to reflect the correct U & A information.

T-001-157
The analysis was updated for the Final EIS, and the Final Indirect and Cumulative Effects Discipline Report notes that In two cases—aquatic resources and greenhouse gas emissions—WSDOT found that construction effects would persist over the long term and make minor contributions to cumulative effects.

T-001-158
See the response to Comment T-001-087 regarding how reasonably foreseeable actions were identified and presented. Actions that are not on the SDEIS or Final EIS list, such as the replacement piers and docks and subdivision of a waterfront property, although not evaluated individually, were considered as part of groups of reasonably foreseeable actions through the use of adopted regional and local land use plans and were considered in the trends affecting the resources into the future. Chapter 7 of the Final EIS includes extensive discussions of

historic trends for aquatic resources and the cumulative effect of current and reasonably foreseeable actions on aquatic resources without the SR 520, I-5 to Medina project. These discussions account for past, present, and future trends in shoreline alteration. Please refer also to the Ecosystems Discipline Report and Addendum (Attachment 7 to the Final EIS) for a more detailed discussion of the salmon species that use Lake Washington and development trends affecting their status.

T-001-159

Please see the response to Comment T-001-087 regarding why the Novelty Hill Road widening project is not listed individually as a reasonably foreseeable action. Chapter 7 of the Final EIS notes that the cumulative effect of current and reasonably foreseeable actions with or without the SR 520, I-5 to Medina project is likely to be gradual and steady improvement in water quality due to requirements for improved stormwater management and treatment of new development projects, and the improvement in stormwater treatment technologies. The Novelty Hill Road project is subject to stormwater management and treatment requirements, and is thus consistent with this trend. Also see the response to Comment T-001-158 regarding the cumulative effects assessment for water resources and ecosystems.

T-001-160

Please see the response to comment T-101-088. WSDOT will continue to work through government-to-government consultation with the Muckleshoot Indian Tribe on an agreement to fully and fairly resolve issues associated with the impacts of the project on treaty rights. When this agreement is in place, no negative effects of the project on treaty rights would remain.

T-001-161

The Final Indirect and Cumulative Effects Discipline Report (Attachment

7 to the Final EIS) has been updated to make a clearer distinction between effects on access to fishing in usual and accustomed areas and effects on fish habitat.

T-001-162
WSDOT has identified several of the WRIA 8 priority restoration sites as the mitigation sites in the Conceptual Aquatic Mitigation Plan. These sites include the Cedar River floodplain restoration, Taylor Creek restoration, Seward Park shoreline restoration and Bear Creek restoration. By implementing restoration on these sites, WSDOT would accelerate the implementation of the restoration on sites identified through the recovery planning process.

WSDOT recognizes that urban development and habitat restoration have some potential conflicts, however WSDOT has evaluated the King County's Procedures for Considering Public Safety When Placing Wood in King County Rivers and determined that this policy is limited to actions undertaken by King County's Department of Natural Resources and Parks and therefore will not necessarily affect WSDOT's mitigation actions.

T-001-163
Comment noted.

T-001-164
Comment noted.

T-001-165
Please see the response to comments T-001-040, T-001-042, and T-001-043.

T-001-166
Please see the response to Comment T-001-043.

T-001-167
Please see the response to Comment T-001-140.

T-001-168
Impacts and mitigation have been defined in greater detail with agency and tribal inputs as a result of the Natural Resources TWG, and the finding is still valid. See the responses to comments T-001-001 and T-001-004 for more information on coordination processes. The Muckleshoot Indian Tribe has reviewed the conceptual wetland mitigation plan as part of the federal permit submittal packages. Their comments will be addressed in the final wetland mitigation plan that will be part of the permit approvals. The Conceptual Wetland Mitigation Plan is included in Attachment 9 to the Final EIS.

T-001-169
The success of regional recovery is outside of the scope of this project. Please see the response to Comment T-001-162.

T-001-170
Please see the response to comments T-001-040, T-001-042, and T-001-043.

T-001-171
Please see the response to comments T-001-040, T-001-042, and T-001-043.

As noted in previous responses, WSDOT is continuing to work with the Muckleshoot Indian Tribe on appropriate mitigation for impacts to tribal fishing. Details of the mitigation for aquatic resources are included in the

Conceptual Aquatic Resources Mitigation Plan (Attachment 9 of the Final EIS).

T-001-172
The discipline report and errata sheet have been updated to reflect the correct U & A information.

T-001-173
Because tribal fishing is not a project effect on navigation channels themselves, it was not included in the Navigable Waterways Discipline Report. However, the Navigable Waterways Discipline Report Addendum (Attachment 7 to the Final EIS) includes a cross reference to the Environmental Justice Discipline Report regarding project effects on tribal fishing.

T-001-174
The Navigable Waterways Discipline Report focuses on effects to navigation channels, such as vertical and horizontal clearance restrictions. The Environmental Justice Discipline Report Addendum (Attachment 7 to the Final EIS) includes expanded discussion of tribal fishing access.

T-001-175
Any in-water work during operation of the Preferred Alternative would consist of routine maintenance that would also be required with the No Build Alternative and would not likely close or measurably limit navigation channels. If routine maintenance were expected to limit navigation channels, WSDOT would provide appropriate notification.

T-001-176
Please see the response to comments T-001-001 and T-001-004.

T-001-177
The SDEIS options and the Preferred Alternative are expected to reduce noise for wildlife during operation. This is discussed in the wildlife section of the Ecosystems Discipline Report Addendum (Attachment 7 to the Final EIS).

T-001-178
The discipline report and errata sheet have been updated to reflect the correct U & A information.

T-001-179
Comment acknowledged. A reference to this migration corridor has been added to the Water Resources Discipline Report Addendum in Attachment 7 to the Final EIS.

T-001-180
Please see the response to comment T-001-020.

T-001-181
To determine the potential for pollutant generating impervious surface to affect groundwater recharge, the percentage of increase in impervious surface was calculated for each basin. The percentage of land covered by new impervious surface was less than 1 percent in each basin, leading to a determination that any change in the groundwater recharged by stormwater would be undetectable. The Water Resources Discipline Report Addendum (Attachment 7 to the Final EIS) contains a more complete discussion.

T-001-182
Option K would have some unique geologic considerations due to constructing the depressed SPUI structures below the lake level. If Option K were identified as the Preferred Alternative in the future,

WSDOT would complete the necessary documentation as part of final design and permitting and ensure that negative effects associated with the depressed structures are mitigated to the extent practicable.

T-001-183

According to the All Known, Available, and Reasonable Technologies (AKART) study, the resulting concentrations in the receiving water are predicted to meet all the applicable acute water quality criteria in the spill lagoons, and all chronic water quality criteria at the 50-foot mixing zone boundary. This mixing zone limit has been conditionally approved by the Department Ecology. Please see the Water Resources Discipline Report Addenda and AKART study for further information on approved water quality criteria.

Juvenile fish attraction to the structure's presence is not expected to increase compared to the existing bridge. Juvenile salmon tend to be shoreline oriented during their rearing and migration in Lake Washington, whereas the stormwater discharges from the floating bridge occur in water depths in excess of 50 feet. The existing bridge has no stormwater treatment, and water is discharged directly to the lake without dilution. Furthermore, the downspouts on the existing bridge have been documented as a significant source of zinc and copper in stormwater effluent. The replacement plans include design measures to ensure downspouts and conveyance pipes are not a future source of pollutants. The stormwater lagoons in the Preferred Alternative are confined spaces between the pontoons that the juvenile fish are unlikely to enter. The potential exposure to stormwater would occur at the outlet of the lagoons and after some dilution has occurred. In addition, the lagoon outlets are at the bottom of the pontoons approximately 20 feet below the water surface. Refer to the Water Resources Discipline Report Addendum for more detailed discussion of the AKART study results (Attachment 7 to the Final EIS).

T-001-184

Please see the responses to comments T-001-001 and T-001-004. Mitigation ratios for permanent and long-term construction effects were discussed in detail during the Natural Resources Technical Working Group meetings that occurred after the identification of the Preferred Alternative. Mitigation ratios developed with input from TWG participants were used in preparing the Conceptual Aquatic Mitigation Plan and Conceptual Wetland Mitigation Plan, which are in Attachment 9 to the Final EIS and are part of project permit applications. These plans supersede the mitigation plans included with the SDEIS.

T-001-185

Please see the response to Comment T-001-184.

T-001-186

Please see the response to Comment T-001-184.

T-001-187

Effects from project construction activities, including noise, pollutant discharges, and lighting, will be contained to areas near the construction activity. Construction activities west of Foster Island tend to be in shallow water that do not provide suitable habitat for migrating adult salmon due to high water temperatures when temperatures in the Ship Canal are elevated. East of Foster Island adult fish have access to Lake Washington where water quality conditions suitable for adult salmon are consistently available. Therefore, we anticipate the project will not be a significant source of stress or migration delay for adult salmon. Please see the response to comments T-001-108 and T-001-135.

T-001-188

The existing shoreline conditions in the Ship Canal are more clearly

presented in the Conceptual Aquatic Mitigation Plan (Attachment 9 to the Final EIS).

T-001-189
Information about the increases in cutthroat populations in Lake Washington streams has been included in the Conceptual Aquatic Mitigation Plan (Attachment 9 to the Final EIS).

T-001-190
Please see the response to Comment T-001-103.

T-001-191
Please see the response to Comment T-001- 040.

T-001-192
Permanent anchors are only needed for the floating bridge. This section of the Conceptual Aquatic Mitigation Plan has been revised. See Attachment 9 to the Final EIS.

T-001-193
The Conceptual Aquatic Mitigation Plan has been clarified to include potential effects of stormwater on fish. See Attachment 9 to the Final EIS.

T-001-194
The Conceptual Aquatic Resources Mitigation Plan (Attachment 9 to the Final EIS) evaluates in detail the effects of the Preferred Alternative that was identified April 30, 2010. This plan recognizes that some operational aspects of the new bridge may increase effects to natural resources and proposed mitigation for those aspects. Please also see the response to Comment T-001-040.

T-001-195

WSDOT does not plan to directly enhancing fish populations as a partial mitigation measure. The temporal effects described in the comment have been taken into account in developing the mitigation plans and early or concurrent construction of mitigation sites is expected to offset construction impacts. The mitigation plans include input from the MITFD through the Natural Resource TWG process. During project construction, WSDOT will implement BMPs that have been developed in coordination with the Muckleshoot Indian Tribe and the permitting agencies. WSDOT will monitor and maintain the effectiveness of these BMPs throughout the construction process. WSDOT will also implement the aquatic mitigation plan, which has been developed in coordination with the Muckleshoot Indian Tribe. This mitigation plan is designed to mitigate for short and long-term project effects.

T-001-196

The Conceptual Aquatic Mitigation Plan identifies the salmon species and life stages that benefit from each mitigation action. The mitigation measures described in the Conceptual Aquatic Mitigation Plan are designed to address overall aquatic habitat effects of the project and consider the potential effects to all species and life stages, including juvenile and adult salmonids. Refer to the Conceptual Aquatic Mitigation Plan (Attachment 9 to the Final EIS) for details regarding mitigation.

T-001-197

The Ecosystems Discipline Report Addendum (in Attachment 7 to the Final EIS) corrects this typo. The word "lack" has been deleted.

T-001-198

The field study of juvenile salmonids predators found no indication that predation activity was measurably higher near the bridge, or that the bridge caused substantial delays in juvenile migration rates. WSDOT is

not aware of any studies indicating that bridges contribute to residualization. Please refer to the Ecosystems Discipline Report Addendum (Attachment 7 to the Final EIS) for details regarding predation in the project area.

T-001-199
This language has been added to the Conceptual Aquatic Mitigation Plan (Attachment 9 to the Final EIS).

T-001-200
WSDOT discussed mitigation priorities with participants at the Natural Resources Technical Working Group meetings. The input from the meetings has been incorporated into the Conceptual Aquatic Mitigation Plan (Attachment 9 to the Final EIS).

T-001-201
Compensatory aquatic mitigation measures will be directed toward increasing aquatic and fish habitat. If funding allows, incentives and public outreach programs may provide an additional benefit. Please refer to the Conceptual Aquatic Mitigation Plan and Conceptual Wetland Mitigation Plan in Attachments 9 to the Final EIS.

T-001-202
Please see the response to Comment T-001-184.

T-001-203
Parcels that are encumbered by existing mitigation or restoration projects were not included in the final mitigation site lists or the mitigation plan unless the sites had other areas available and were suitable for mitigation. Mitigation is proposed on some sites where restoration funds contributed to property acquisition and/or project design.

T-001-204
Please see the response to Comment T-001-184.

T-001-205
Please see the response to Comment T-001-201.

T-001-206
Please see the response to Comment T-001-184.

T-001-207
WSDOT has coordinated with the University of Washington and the Arboretum and Botanical Garden Committee to discuss mitigation opportunities at the University of Washington's Union Bay Natural Area and in the Washington Park Arboretum. Information on the mitigation opportunities available at these sites has been updated in the Conceptual Wetland Mitigation Plan (Attachment 9 to the Final EIS).

T-001-208
Please see the response to Comment T-001-207. The Natural Resources TWG discussed mitigation opportunities at Arboretum Creek and generally agreed that improvements to the creek would have some benefits to wetland area and functions, but few if any benefits to fish habitat and use. Figures in the Conceptual Wetland Mitigation Plan have been revised for clarity.

T-001-209
WSDOT and City of Seattle staff have determined that wetland restoration opportunities at the Montlake Playfield are limited and that the site will not be considered for further study. The screening process was presented at the Natural Resources TWG and is summarized in the Conceptual Wetland Mitigation Plan (Attachment 9 of the Final EIS).

T-001-210
WSDOT staff have determined that wetland restoration opportunities are limited at Seward Park (Site W4) and that additional evaluation of this site is not anticipated.

T-001-211
WSDOT staff visited the Taylor Creek Headwaters site (Site W10) and determined that wetland restoration opportunities are limited at the site and that it will not be considered further for wetland mitigation.

T-001-212
WSDOT staff revisited the Foster Island Shoreline (Site W13) and determined that wetland restoration opportunities are too limited at the site and that it will not be considered for further study.