

Appendix C

Biological Opinion and Update

FHWA & WSDOT, July 2012, *SR 167 Extension ESA Section 7 Formal Update* (NMFS Tracking No. 2005/05617, Federal Aid No. BR-0167 (047))

NMFS Biological Opinion expected in December 2012. **(Will include in Appendix C upon receipt.)**

FHWA & WSDOT, July 2012, *SR 167 Extension ESA Section 7 Formal Update* (USFWS Reference No. 1-3-05-F-0688, Federal Aid No. BR-0167 (047))

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U.S. Department
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**Federal Highway
Administration**

Washington Division

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July 25, 2012
HFO-WA.4/WA 34

Michael Grady
National Marine Fisheries Service
7600 Sand Point Way NE
Seattle, WA 98115-0070

**SR 167 Extension
ESA Section 7 Formal Update
NMFS Tracking No. 2005/05617
Federal Aid No. BR-0167 (047)**

Dear Mr. Grady:

The Federal Highway Administration (FHWA) and the Washington State Department of Transportation (WSDOT) would like to reinitiate Section 7 consultation on the SR 167 extension project. The first phase of the project is scheduled for advertisement in 2013, and will include the replacement of the SR 161 Bridge over the Puyallup River.

Recent design work has resulted in project changes that differ from the description in the original biological assessment (BA). In the original BA, the replacement of the northbound 161 bridge would include construction of a temporary traffic detour bridge and a temporary work platform. We are now proposing to move the location of this bridge, which will reduce in-water project effects to listed species. Details are provided in the enclosure. These changes will still result in a may affect, likely to adversely affect determination for Puget Sound Chinook.

Reinitiation on this project is also required to analyze project effects to Puget Sound steelhead and Pacific eulachon, which were not listed at the time of the original consultation. The project **may affect, and is likely to adversely affect** Puget Sound steelhead, and **may affect, and is not likely to adversely affect** Pacific eulachon.

If you have any questions or require additional information, please contact me at 360-534-9344 or by e-mail at Dean.Moberg@dot.gov.

Sincerely,

DANIEL M. MATHIS, P.E.
Division Administrator

By: Dean W. Moberg
Area Engineer

Enclosure

cc: C. Ward, OR EHS; B. Clarke, OR Project Engineer; M. Carey, HQ ESO

SR 167 Extension Project Reinitiation, July 2012

Introduction

The Federal Highway Administration (FHWA) and the Washington State Department of Transportation (WSDOT) submitted a biological assessment (BA) for the extension of State Route (SR) 167 on September 27, 2005 to the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). The extension consists of a new six-lane freeway between SR 161 and SR 509 in Pierce County, Washington. Associated project elements included numerous water crossings (including over the Puyallup River), interchanges, and riparian restoration throughout the project area.

The Services requested additional project information after the original BA submittal, which was transmitted to the Services on December 15, 2005. There were several additional information/clarification requests from the Services on stormwater, indirect effects, minimization measures, exposure pathways, and other issues prior to the issuance of the Biological Opinions (BOs). The BA concluded that project impacts would adversely affect Puget Sound Evolutionary Significant Unit (ESU) Chinook salmon, and the Coastal-Puget Sound bull trout DPS. Critical habitat for Puget Sound Chinook was designated September 2, 2005 and for bull trout on September 26, 2005, after the BA was submitted. Subsequent analyses determined that the project would adversely affect critical habitat for Chinook salmon and bull trout.

The USFWS and NMFS BOs were issued on May 31, 2007, and August 20, 2007 respectively (USFWS Ref. No. 1-3-05-F-0688, NMFS Tracking No. 2005/05617). The Services concluded that project actions would not jeopardize the continued existence of these listed species and would not cause adverse modification or destruction of the designated critical habitats in the action area.

FHWA and WSDOT are reinitiating consultation on this project because of changes to the project description and related potential impacts to listed species, and potential impacts to species that have been listed since the issuance of the BOs. These changes were discussed with the Services in a pre-BA meeting on November 17, 2011 at WSDOT Headquarters in Olympia, WA. There has been no construction on the project to date, but the majority of the right-of-way has been purchased.

WSDOT plans on advertising for the first segment of the project in May 2013. This segment will only include work on two SR 161 bridges over the Puyallup River and associated road approaches. In the original project description, the existing two-lane steel bridge would ultimately be replaced with a five-lane structure. In this phase of the work, the deteriorating two-lane steel bridge will only be replaced with a new two-lane bridge, with additional lanes

added at a later date. This work phase will not include changes to work elements in the Hylebos Creek, Surprise Lake Tributary, or Wapato Creek portions of the action area. WSDOT intends to build the project using the design-build process.

Changes to Project Description

There are currently two adjacent SR 161 bridges that cross the Puyallup River within the action area; the northbound structure is a clear-span bridge, has two lanes, is made of steel, and is deteriorating rapidly (dimensions 370' long, with wooden approach structures 100' long on either end, steel truss 22' wide, 40' above ordinary high water {OHM}). The southbound structure is 2 lanes and is made of concrete (dimensions 541' long, 36' wide, and 40' above OHM). In the original project description, the steel bridge would be replaced and the concrete bridge would be widened. To conduct the bridge replacement and widening, two temporary work trestles and one temporary detour bridge were proposed. A barge may also be needed as a work platform for up to two construction seasons.

In the original consultation, the new bridge would be located within the footprint of the existing steel bridge. It was anticipated that building two temporary work trestles and a temporary vehicular detour bridge would take 2 years of construction time, given the proposed 6-week in-water work windows (July 15-August 31). The entire construction period may take several years.

WSDOT is now proposing to put the new bridge 10' downstream of the existing concrete bridge instead of where the existing steel bridge is located. The new bridge would be 541' long, 40' wide, and at least 40' above OHM, and the bridge location, design, and construction method will change. By relocating the new structure, work can be done on the new bridge by staging equipment on the existing concrete bridge. This will reduce the extent of the temporary in-water work trestles that are needed to construct the new bridge (less pile driving), and reduce noise impacts to listed aquatic species. This would also reduce impacts to businesses on the north side of the river. The new bridge will need an in-water pier and a temporary work trestle will be needed for the pier work. The temporary trestle for the pier would be much smaller than the temporary trestle that was originally planned adjacent to the entire length of the steel bridge. Although the specific area and number of piles needed for this temporary trestle are unknown at this stage, it is anticipated that there will be a significant decrease in the over-water trestle area, a decrease in trestle time in-place in the Puyallup River, and a decrease in the number of piles needed for the pier trestle compared to the original plan. The approximate dimensions of the temporary trestle are 30' wide by 100' long, as opposed to a 30' wide trestle the full 300' width of the river. Due to the configuration of the proposed new bridge, the need for a detour bridge has been eliminated.

Work that will be done on the concrete bridge includes removing the existing sidewalk and upgrading the traffic barrier on either side of the bridge deck. No work will be done on the piers of this bridge in this phase of work.

The project will be built with the design/build process, and WSDOT would specify the location of bridge piers, bridge length/width, and touch-down points. Constructability issues would be left to the contractor within the constraints of the consultation.

An additional issue emerged after the project Environmental Assessment (EA) was completed. The existing steel bridge was not considered a historic structure in that analysis. A Section 106 analysis was recently conducted, and the State Historic Preservation Office (SHPO) determined that the steel truss bridge is historic. This bridge will remain in place until a suitable location is found for it (it cannot remain in-place for the full bridge build-out). During that interim period it would be closed to traffic and pedestrians and would not be considered a pollution generating impervious surface. Eventual bridge removal would follow the procedures outlined in the original BA.

Another question was raised in the pre-BA meeting regarding the original stormwater analysis for the SR 161 bridge area. The question was asked if the stormwater analysis had been updated for the bridge area. Potential effects from stormwater were originally analyzed using a precursor to the currently used Hi-Run model. The original analysis was conducted for the Puyallup River drainage basin, and the bridge area was a small part of the larger basin.

Additional design work on stormwater best management practices (BMPs) is in progress, and staff will be conducting a stormwater analysis as plans develop. Preliminary plans show placement of a bioinfiltration swale within the northwest bridge quadrant; this was not in the original BA plans. The two bridge outfalls will also be relocated, with no additional outfalls being constructed. Final plans will be developed by the design-build contractor, and will meet or exceed the design standards specified in the BOs, including the use of enhanced BMPs for this area. WSDOT staff will conduct an updated stormwater analysis once these plans are available.

Changes to the project description are summarized in Table 1.

Table 1. Comparison of Original and Revised Project Description Elements at the Puyallup River, SR 167, Pierce County, WA

Work Element	Original BA 2005	Revised BA 2012
New bridge location	Replace bridge within footprint of existing steel structure	Replace bridge 10' downstream of concrete bridge
New bridge construction	Maximum of 2 in-water piers, drilled shafts	1 in-water pier, drilled shafts
Existing steel bridge historical status	Not historic	Recent SHPO concurrence that steel truss bridge is historic
Existing concrete bridge work	Widen bridge from 33 to 43 feet	No widening in this phase but remove sidewalk and upgrade traffic barriers
SR 161/167 intersection	Change to full interchange	No change
Temporary structures within OHWM	3 structures: 1 trestle for work on steel bridge (maximum of 100 piles), 1 trestle for work on concrete bridge (maximum 100 piles), 1 detour bridge (maximum 100 piles)	Final design based on design build contractor, but 1 temporary trestle for steel bridge pier reduced in area and duration in-water from initial plan, and temporary detour bridge eliminated. Potential reduction of estimated 100-150 in-water piles.
Pollution generating impervious surface	About 70 acres in Puyallup basin	Unchanged
Stormwater treatment	Impacts accessed at basin level. Basic and enhanced treatment to meet performance standards for total and dissolved copper, total and dissolved zinc, suspended sediment	Bioinfiltration swale proposed for NW quadrant of bridge. Stormwater analysis will be conducted once final plans are available.

Potential New Effects to Species From Changes in the Project Description and Effects on Recently Listed Species

Potential Effects to Listed Species from Changes in the Project Description

In the original consultation and subsequent updates, Puget Sound Chinook salmon was found to be adversely affected by proposed project actions, as well as Chinook critical habitat.

New Project Effects on Listed Species

The original BA described effects to Puget Sound Chinook salmon. Chinook are found within the action area in the Puyallup River and Hylebos Creek. The project changes described here only affect the Puyallup River.

Effects to those species were originally described as follows:

- Increased sedimentation and turbidity up to 300 feet downstream of in-water work;
- Potential indirect effects up to 0.25 mile from interchanges;
- Shading from temporary and permanent in-water structures;
- Underwater noise from pile driving up to 0.6 mile upstream and downstream;
- Stormwater discharges to the Puyallup River after treatment; and
- Dewatering and fish handling.

The revised project will still have the same effects, but some of the effects (underwater noise, turbidity, shading) will be reduced in magnitude for the Puyallup River portion of the action area. Although the specific construction methods will not be known until final plans are available from the design-build contractor, it is anticipated that the number of piles for temporary structures in the Puyallup River may be reduced by $\frac{1}{3}$ to $\frac{1}{2}$ from the original estimate of 300 piles. This will lead to reduced sound exposure levels for listed and Chinook salmon, fewer days with in-water pile driving and less associated turbidity, less shaded area in the river, a smaller area of impact to benthic prey organisms, and a reduced in-river area for temporary structures that may affect salmonid migration.

Recently Listed Species

There are two species that have been listed since the BOs were issued in 2007. The Puget Sound steelhead distinct population segment (DPS) was listed as threatened on 5/11/07, and the Southern Pacific eulachon DPS was listed on 3/18/10 as threatened. Critical habitat has not been proposed or designated for Puget Sound steelhead, and critical habitat was designated for eulachon on 10/20/11.

Puget Sound Steelhead

Juvenile and adult steelhead are documented in the Blair and Hylebos Waterways, the Puyallup River, and Hylebos Creek, all within the project action area. Juvenile steelhead have occasionally been observed in upper Wapato Creek tributaries, including Simons Creek, but steelhead have not been documented in Surprise Lake Tributary. The Washington Department of Fish and Wildlife (WDFW) recognizes three Puyallup River steelhead stocks: main stem Puyallup winter, White River winter, and Carbon River winter. Adult migration and spawning in the Puyallup River typically occurs from January through June. Data from the Mud Mountain Dam trap on the White River indicate that there is still a small population of summer run steelhead that run from June to October. The vast majority of outmigrant smolts exit the river system by the end of June (Berger and Williamson 2005), and are not thought to rear in the project action area because of degraded habitat conditions on the lower Puyallup River and in Hylebos Creek. It is possible that adult and juvenile steelhead may be in the action area from January through October.

Pacific Eulachon

Eulachon are rare in Puget Sound, and many previous records have now been discredited as misidentification of surf smelt and longfin smelt. Adult eulachon return to freshwater rivers (primarily the Columbia River and tributaries) to spawn from December to May in Washington. There are no known spawning rivers in Puget Sound, but adult eulachon strays have been recorded in several areas. The Lincoln Avenue wetland is connected to the Puyallup River just downstream of the action area, and was monitored for fish species presence from 1986-1989. Eulachon were found in fyke net samples at the mouth of the wetland in 1987 and 1988 (Thom et al. 1990), but spawning in the Puyallup River is not documented or expected.

There is no designated eulachon critical habitat within the project action area.

Determination of Effect

Puget Sound Chinook Salmon

The original determination indicated that the proposed project **may affect, and is likely to adversely affect** Puget Sound Chinook. This determination was based on:

- pier placement may occur in potentially suitable spawning habitat;
- juvenile Chinook salmon potentially occur in the Puyallup River throughout the year and fish handling may be necessary;
- in-water work (pile driving and potential dewatering) is proposed in the Puyallup River and Hylebos Creek, which may result in harm and behavioral disruption to the species.

The revised project with construction of a new SR 161 bridge over the Puyallup River **may affect, and is likely to adversely affect** Puget Sound Chinook, but the effects of underwater noise, turbidity, and shading from temporary in-water structures are expected to be diminished from original estimates because fewer and smaller in-water structures are anticipated.

Puget Sound Chinook Critical Habitat

The original determination indicated that the proposed project **may affect, and is likely to adversely affect** Puget Sound Chinook critical habitat. This determination was based on:

- delayed migration of adult and juvenile Chinook salmon because of replacement and widening of the bridges over the Puyallup River over an estimated 27 month period.

This phase of the project **may affect, and is likely to adversely affect** Puget Sound Chinook critical habitat. Salmon migration will continue to be delayed in this phase of the project, although the size and residence time of temporary in-water structures that may affect migration is expected to be reduced.

Puget Sound Steelhead

The proposed project **may affect, and is likely to adversely affect** Puget Sound steelhead. This determination is based on:

- juvenile and adult steelhead potentially occur in the Puyallup River and juvenile steelhead occur in Blair/Hylebos Waterways and Hylebos Creek, and fish handling will be conducted in these areas;
- elevated turbidity can be expected from various activities in the Hylebos and Puyallup basins including Hylebos Creek channel relocation, grading and filling in both basins, and riparian vegetation restoration activities. Although steelhead exposure to periods of elevated turbidity are expected to be brief because use is restricted to migration, feeding and migration timing may be affected; and
- in-water work (pile driving and potential dewatering) is proposed in the Puyallup River and Hylebos Creek, which may result in harm and behavioral disruption to the species.

Pacific Eulachon

The proposed project **may affect, but is not likely to adversely affect** Pacific eulachon based on:

- eulachon presence in the action area is based on two records from a nearby site on the Puyallup River, and regular eulachon use of the Puyallup River and other waterbodies in the action area is discountable; and
- The proposed in-water work window of July 15-August 31 does not overlap with the known spawning period for eulachon in Washington State freshwater rivers.

There will be **no effect** on eulachon critical habitat, which is not found in the project action area.

There are no additional project updates at this time, but we will keep the Services informed as developments arise.

References

Berger, A. and K. Williamson. 2005. Puyallup River Juvenile Salmonid Production Assessment Project 2004. Puyallup Tribal Fisheries Department. Puyallup, WA.

Thom, R.M., C.A. Simenstad, J. R. Cordell, D.K. Shreffler, and L. Hamilton. 1990. The Lincoln Avenue Wetland System in the Puyallup River Estuary, Washington. Wetland Ecosystem Team, Fisheries Research Institute. Annual Report to City of Tacoma.



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July 25, 2012

HFO-WA.4/WA 34

Mr. Ken Berg
U.S. Fish and Wildlife Service
510 Desmond Drive SE, Suite 102
Lacey, WA 98503

**SR 167 Extension
ESA Section 7 Formal Update
USFWS Reference No. 1-3-05-F-0688
Federal Aid No. BR-0167 (047)**

Dear Mr. Berg:

The Federal Highway Administration (FHWA) and the Washington State Department of Transportation (WSDOT) have recently updated information for the State Route (SR) 167 extension project. The first phase of the project is scheduled for advertisement in 2013, and will include the replacement of the SR 161 Bridge over the Puyallup River.

Recent design work has resulted in project changes that differ from the description in the original biological assessment (BA). This letter documents those changes. Although the changes to the project will still result in a **may affect, likely to adversely affect** determination for bull trout, the extent and duration of in-water effects on bull trout have been reduced. The changes to the project description that we discuss here are for your records and we are not requesting reinitiation at this time. We are reinitiating our consultation with the National Marine Fisheries Service (NMFS) and are adding two species that were not listed at the time of the original consultation, Puget Sound steelhead and Pacific eulachon.

FHWA and WSDOT submitted a BA for the extension of SR 167 on September 27, 2005 to the U.S. Fish and Wildlife Service (USFWS) and the NMFS. The extension consists of a new six-lane freeway between SR 161 and SR 509 in Pierce County, Washington. Associated project elements included numerous water crossings (including an improved crossing of SR 161 over the Puyallup River), interchanges, and riparian restoration throughout the project area.

The Services requested additional project information after the original BA submittal, which was transmitted to the Services on December 15, 2005. There were several additional information/clarification requests from the Services on stormwater, indirect effects, minimization measures, exposure pathways, and other issues prior to the issuance of the Biological Opinions

(BOs). The BA concluded that project impacts would adversely affect the Coastal-Puget Sound bull trout DPS. Critical habitat for Puget Sound Chinook was designated September 2, 2005 and for bull trout on September 26, 2005, after the BA was submitted. Subsequent analyses determined that the project would adversely affect critical habitat for bull trout.

The USFWS and NMFS BOs were issued on May 31, 2007, and August 20, 2007, respectively (USFWS Ref. No. 1-3-05-F-0688, NMFS Tracking No. 2005/05617). The Services concluded that project actions would not jeopardize the continued existence of these listed species and would not cause adverse modification or destruction of the designated critical habitats in the action area.

FHWA and WSDOT are updating project information because of changes to the project description and related potential impacts to listed species. These changes were discussed with the Services in a pre-BA meeting on November 17, 2011, at WSDOT Headquarters in Olympia, WA. There has been no construction on the project to date, but the majority of the right-of-way has been purchased.

WSDOT plans on advertising for the first segment of the project in May 2013. This segment will only include work on two SR 161 bridges over the Puyallup River and associated road approaches. In the original project description, the existing two-lane steel bridge was to ultimately be replaced with a five-lane structure. In this phase of the work, the deteriorating two-lane steel bridge will be replaced with a new two-lane bridge, and additional lanes added utilizing the footprint of the two existing bridges at a later date. This work phase will not include changes to work elements in the Hylebos Creek, Surprise Lake Tributary, or Wapato Creek portions of the action area. WSDOT intends to build this project phase using the design-build process.

Changes to Project Description

There are currently two adjacent SR 161 bridges that cross the Puyallup River within the action area; the northbound structure is a clear-span bridge, has two lanes, is made of steel, and is deteriorating rapidly (dimensions 370' long, with wooden approach structures 100' long on either end, steel truss 22' wide, 40' above ordinary high water {OHM}). The southbound structure is 2 lanes and is made of concrete (dimensions 541' long, 36' wide, and 40' above OHM). In the original project description, the steel bridge was to be replaced and the concrete bridge widened. To accomplish the bridge replacement and widening, two temporary work trestles and one temporary detour bridge were proposed. A barge would likely have been needed as a work platform for up to two construction seasons.

In the original consultation, the new bridge was to be located utilizing an expanded footprint of the existing steel bridge. It was anticipated that building two temporary work trestles and a temporary vehicular detour bridge would take 2 years of construction time, given the proposed 6-week in-water work windows (July 15-August 31). The entire construction period would likely have taken several years.

WSDOT is now proposing to put a new bridge 10' downstream of the existing concrete bridge instead of where the existing steel bridge is located. The new bridge will be 541' long, 40' wide, and at least 40' above OHM, and the bridge location, design, and construction method will

change. By relocating the new structure, work can be done on the new bridge by staging equipment on the existing concrete bridge. This will reduce the extent of the temporary in-water work trestles that are needed to construct the new bridge (less pile driving), and reduce noise impacts to listed aquatic species. This will also reduce impacts to businesses on the north side of the river. The new bridge will require an in-water pier and a temporary work trestle will be needed for that pier work. The temporary trestle for the pier will be much smaller than the temporary trestle originally planned adjacent to the entire length of the steel bridge. Although the specific area and number of piles needed for this temporary trestle are unknown at this stage, it is anticipated that there will be a significant decrease in the over-water trestle area, a decrease in trestle time in-place in the Puyallup River, and a decrease in the number of piles needed for the pier trestle compared to the original plan. The approximate dimensions of the temporary trestle are 30' wide by 100' long, as opposed to a 30' wide trestle the full 300' width of the river. Due to the configuration of the proposed new bridge, the need for a detour bridge has been eliminated. To complete the work at some future time, a new five lane structure will be constructed utilizing the foot print of the two existing SR 161 Puyallup River crossings.

Interim work that will be done on the concrete bridge includes removing the existing sidewalk and upgrading the traffic barrier on either side of the bridge deck. No work will be done on the piers of this bridge in this phase of work.

The project will be built with the design/build process, and WSDOT would specify the location of bridge piers, bridge length/width, and touch-down points. Constructability issues would be left to the contractor within the constraints of the consultation.

An additional issue emerged after the project Environmental Assessment (EA) was completed. The existing steel bridge was not considered a historic structure in that analysis. A Section 106 analysis was recently conducted, and the State Historic Preservation Office (SHPO) determined that the steel truss bridge is historic. This bridge will remain in place until a suitable location is found for it, either interim or permanent. The existing steel bridge cannot remain in-place for the full project build-out. During that interim period it will, at a minimum, be closed to traffic and pedestrians and would not be considered a pollution generating impervious surface. Eventual bridge removal will follow the procedures outlined in the original BA. Removal may occur as a part of this bridge replacement phase; negotiations with the SHPO are on-going.

Another question was raised in the pre-BA meeting regarding the original stormwater analysis for the SR 161 bridge area. The question was asked if the stormwater analysis had been updated for the bridge area. Potential effects from stormwater were originally analyzed using a precursor to the currently used Hi-Run model. The original analysis was conducted for the Puyallup River drainage basin, and the bridge area was a small part of the larger basin.

Additional design work on stormwater best management practices (BMPs) is in progress, and staff will be conducting a stormwater analysis as plans develop. Preliminary plans show placement of a bioinfiltration swale within the northwest bridge quadrant; this was not in the original BA plans. The two bridge outfalls will also be relocated, with no additional outfalls being constructed. Final plans will be developed by the design-build contractor, and will meet or exceed the design standards specified in the BOs, including the use of enhanced BMPs for this area. WSDOT staff will conduct an updated stormwater analysis once these plans are available.

Changes to the project description are summarized in Table 1 below.

Table 1. Comparison of Original and Revised Project Description Elements at the Puyallup River, SR 167, Pierce County, WA

Work Element	Original BA 2005	Revised BA 2012
New bridge location	Replace bridge within footprint of existing steel structure	Replace bridge 10' downstream of concrete bridge
New bridge construction	Maximum of 2 in-water piers, drilled shafts	1 in-water pier, drilled shafts
Existing steel bridge historical status	Not historic	Recent SHPO concurrence that steel truss bridge is historic
Existing concrete bridge work	Widen bridge from 33 to 43 feet	No widening in this phase but remove sidewalk and upgrade traffic barriers
SR 161/167 intersection	Change to full interchange	No change
Temporary structures within OHWM	3 structures: 1 trestle for work on steel bridge (maximum of 100 piles), 1 trestle for work on concrete bridge (maximum 100 piles), 1 detour bridge (maximum 100 piles)	Final design based on design build contractor, but 1 temporary trestle for steel bridge pier reduced in area and duration in-water from initial plan, and temporary detour bridge eliminated. Potential reduction of estimated 100-150 in-water piles.
Pollution generating impervious surface	About 70 acres in Puyallup basin	Unchanged
Stormwater treatment	Impacts assessed at basin level. Basic and enhanced treatment to meet performance standards for total and dissolved copper, total and dissolved zinc, suspended sediment	Bioinfiltration swale proposed for NW quadrant of bridge. Stormwater analysis will be conducted once final plans are available.

Potential New Effects to Species From Changes in the Project Description

In the original consultation and subsequent updates, bull trout were found to be adversely affected by proposed project actions, as well as their critical habitat. Bull trout are found in the Puyallup River and may use the mouth of Hylebos Creek. The project changes described here only affect the Puyallup River.

Primary effects to bull trout were originally described as follows:

- Increased sedimentation and turbidity up to 300 feet downstream of in-water work;
- Increased impervious surface will degrade bull trout foraging, overwintering and migrating habitat;
- Project activities will negatively affect hydrologic functions in the lower Puyallup River;
- Underwater noise from pile driving up to 0.6 mile upstream and downstream;
- Stormwater discharges to the Puyallup River after treatment; and
- Dewatering and fish handling.

The revised project will still have the same effects, but some of the effects (underwater noise, turbidity, and shading) will be reduced in magnitude for the Puyallup River portion of the action area. Although the specific construction methods will not be known until final plans are available from the design-build contractor, it is anticipated that the number of piles for temporary structures in the Puyallup River may be reduced by $\frac{1}{3}$ to $\frac{1}{2}$ from the original estimate of 300 piles. This will lead to reduced sound exposure levels for listed bull trout, fewer days with in-water pile driving and less associated turbidity, less shaded area in the river, a smaller area of impact to benthic prey organisms, and a reduced in-river area for temporary structures that may affect salmonid migration.

The original determination indicated that the proposed project **may affect, and is likely to adversely affect** bull trout. This determination was based on:

- migrating anadromous bull trout potentially occur in the Puyallup River throughout the year and fish handling may be necessary; and
- in-water work including pile driving and potential dewatering is proposed in the Puyallup River that may result in harm and behavioral disruption to the species.

The revised project with construction of a new SR 161 bridge over the Puyallup River **may affect, and is likely to adversely affect** bull trout, but the effects of underwater noise, turbidity, and shading from temporary in-water structures are expected to be diminished from original estimates because fewer and smaller in-water structures are anticipated.

Bull Trout Critical Habitat

In the original BA, it was concluded that the project **will not result in the destruction or adverse modification** of bull trout proposed critical habitat. The USFWS designated bull trout critical habitat in 2005 and then made a final revision in 2010. Definitions of the primary constituent elements (PCEs) were changed and a new ninth PCE was added in the final 2010 designation. The 2010 revision excluded from critical habitat the area on the Puyallup River within Puyallup Tribal lands. Final critical habitat within the action area is found from approximately river-mile 7.2 to 10.1; this includes the SR 161 Bridge over the Puyallup River. The Puyallup Project actions covered in the original BA and the project changes that are mentioned here were used to analyze effects to bull trout PCEs.

The revised project with construction of a new SR 161 bridge over the Puyallup River **may affect, and is likely to adversely affect** bull trout critical habitat, with an analysis of effects to each PCE below.

PCE 1: Springs, seeps, groundwater sources, and subsurface water connectivity.

There will be adverse effects to this PCE from grading, filling, and new impervious surface, which will reduce soil infiltration, reduce groundwater recharge and reduce subsurface water exchange.

PCE 2: Migration habitats with minimal impediments between spawning, rearing, overwintering, and freshwater and marine foraging habitats.

Bull trout use the action area primarily as a migration corridor. Although bull trout will be able to continue to migrate through the action area during and after the project, potential project effects could lead to slight increases in water temperature and temporary, localized turbidity. There will be a new, permanent, in-water pier for the new bridge and associated temporary in-water structures. Collectively, these could alter migration timing or cause bull trout to avoid active work areas in the Puyallup River.

PCE 3: An abundant food base.

Adult anadromous bull trout are migrating through this area and would primarily feed on other fish, including migrating juvenile salmonids. Juvenile salmonids could be affected by temporary turbidity from installation of temporary structures and a new bridge pier in the Puyallup River, as well as by increases in water temperature. Benthic organisms will also be affected by temporary structure footprint and the small, permanent pier footprint. All of these effects are considered insignificant because of the very small or temporary changes that are expected.

PCE 4: Complex river, stream, lake, reservoir, and marine shoreline aquatic environments with features such as large wood, side channels, pools, undercut banks and unembedded substrates.

All of the aquatic habitats in the action area are not properly functioning. The original design had a maximum of three in-water piers for two Puyallup River bridges (1 existing pier and 2 new piers), and the number of piers will likely be reduced. New piers and temporary work structures will have insignificant effects on complex habitat elements. There may be beneficial effects to complex habitat features from riparian and wetland restoration actions.

PCE 5: Water temperatures ranging from 36°F to 59°F with adequate refugia available for temperatures at the upper end of the range.

Water temperature in the lower Puyallup River is at the upper end of the range that bull trout can tolerate. Vegetation removal may directly elevate surface water temperature and grading/filling can indirectly affect surface water by changing groundwater flow and subsurface recharge. Although these effects may lead to increases in surface water temperature, potential riparian restoration along the Puyallup River may have beneficial effects once trees mature and can provide streambank shade.

PCE 6: Substrate of sufficient size, amount, and composition, to ensure egg, fry, young of the year, and juvenile survival.

There is no bull trout spawning habitat in the action area, including that portion of the action area within designated critical habitat. There will be no effect on spawning substrate.

PCE 7: A natural hydrograph with peak, high, low, and base flows within the historic range.

The Puyallup River continues to experience flows below the minimum standard of 1000 cubic feet per second. Peak flows have increased, probably associated with increased impervious surface in the watershed. The current conditions on the lower Puyallup represent departures from the historical conditions. Runoff from new impervious surface associated with this portion

of the project (about 70 acres) will be collected through three outfalls, two of which will discharge into the Puyallup River via the Oxbow Ditch system and one directly into the river. Enhanced treatment Best Management Practices (BMPs) are estimated to infiltrate approximately 92 percent of the runoff. Despite the proposed BMPs, peak flows may be elevated by increased impervious surface in this basin. Potential wetland mitigation may improve floodplain connectivity and attenuate peak flows.

PCE 8: Permanent water having sufficient quantity and quality such that normal reproduction, growth, and survival are not inhibited.

The Puyallup River is a perennial stream with an impaired 303(d) status for high fecal coliform bacteria levels, elevated mercury levels, and low flows. It primarily serves as a migratory corridor for bull trout. Runoff from new impervious surface associated with the project will be treated, but will further degrade water quality, adversely affecting this PCE.

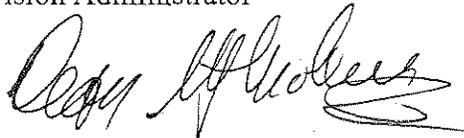
PCE 9: Sufficiently low levels of occurrence of non-native predatory (e.g., lake trout, walleye, northern pike, smallmouth bass); interbreeding (e.g., brook trout); or competing (e.g., brown trout) species that, if present, are adequately temporally and spatially isolated from bull trout.

There will be no project actions that include introduction of non-native predatory, interbreeding, or competing fish species. There will be no project actions that might affect or create migratory pathways between populations of these fish and bull trout in the Puyallup River. There will be no effect to this PCE.

There are no additional project updates at this time, but we will keep the Services informed as developments arise. If you have any questions or require additional information, please contact me at 360-534-9344 or by e-mail at Dean.Moberg@dot.gov.

Sincerely,

DANIEL M. MATHIS, P.E.
Division Administrator



By: Dean W. Moberg
Area Engineer

cc: C. Ward, OR EHS
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