

Washington State Department of Transportation Fisheries Resources Discipline Report Template

Project Name

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Executive Summary

Description of Alternatives

Methodology

Affected Environment

Environmental Consequences

Effects of Build Alternative(s)

Effects of No-Build Alternative

Significant Unavoidable Adverse Effects

Acronyms and Abbreviations

Glossary of Technical Terms

Fisheries Resources Discipline Report

1 Introduction

Describe the overall purpose of the project, and provide a brief summary of the project objectives. Describe any changes in operations that will occur.

Describe the general location of the project, and provide a vicinity map showing its location.

This section can be standard and repeated in multiple reports.

2 Description of Alternatives

Provide a project description. For each alternative, describe the primary and secondary project features, construction sequencing and equipment, timing of construction, phasing of construction, earthwork, best management practices, stormwater treatment, in-water work, over-water work, and work windows.

The description of alternatives should be the same for all reports, with only minor modifications as needed to address the specific topic of the discipline report.

3 Methodology

Methods of Analysis

Describe the general methods of analysis (in-office research/preliminary analysis and field verification). Include descriptions of background data research, field verification, the use of geographic information system (GIS) data, and the preparation of base maps.

Provide the date(s) of the site visit(s), describe the conditions at the time of the site visit(s), and indicate the protocols and field methods used for surveys. Unless otherwise directed, use the protocol recommended by the Washington State Department of Transportation (WSDOT) for evaluating fisheries resources in wadeable and unwadeable streams and rivers on all WSDOT projects. For any surveys completed, specify the area of the survey and clearly state the results. Include simple plan sheets providing an overview of the alignment relative to sensitive areas and habitat (clearly depict the existing conditions and proposed design). Include resource-specific maps and all

available historical aerial photographs as appropriate. Include on-the-ground photographs of the project study area as appropriate.

Studies and Coordination

Consult local critical areas maps, state database resources, habitat-limiting factors reports for the water resource inventory areas. Download species lists or information for the appropriate area from the National Marine Fisheries Service website and the U.S. Fish and Wildlife Service website, as well as the Washington Department of Fish and Wildlife or the Washington Department of Natural Resource websites. Communicate with local, state, tribal, and federal experts to learn more about the project area and the resources and habitats in the vicinity of the project. Consult other data or resources (reports, studies, and academic research) as appropriate. Coordinate with the authors of other discipline reports and ensure consistency with the data and terminology included in those reports.

4 Affected Environment

General Habitat Characteristics

Describe the project setting, including the physiographic region, general topography, general geologic materials, dominant habitat and vegetation types, nearby water resources, wetlands, mapped soils, and land use types. Describe historical (before settlement) habitat conditions to provide a broad context for the existing conditions. Ensure consistency with the habitat descriptions in other discipline reports. Provide the name and number of the water resource inventory area and the hydrologic unit code. Provide the specific location of areas (section, township, and range) affected by the alternatives.

This section could be the same for the fisheries resources, vegetation, and wildlife discipline reports, with minor additions to address the resources of interest.

Fisheries Study Area

Define the project study area. Describe the environmental baseline conditions (focusing on aquatic habitat) within the project study area. Indicate whether or not the project is located in a recognized tribal fishing area. In addition, identify whether the project is

located in designated critical habitat. If the project is located in critical habitat, identify the primary constituent elements (PCEs) in the project study area (freshwater or marine).

Review the WSDOT fish passage barrier list to determine whether any of the culverts are on the list. Do not assess whether a culvert is passable or not on your own. Coordinate the assessment with WSDOT staff. Provide information related to fish passage, fish presence, and riparian habitat characterization for each stream reach.

Coordinate with the authors of other discipline reports and ensure consistency with the data, methods, and terminology included in those reports.

Fish Species in Study Area

Presence of Species in Study Area

Based on existing data sources and field observations, identify all species of fish that are known to occur or have the potential to occur in the project study area. Discuss the local status of the species as appropriate. Generally describe the habitat requirements and ecology of these species. Describe the use of the project study area by these species and identify the life-history forms that are potentially present. Provide enough information to support any conclusions related to impacts on the habitat, ecology, or populations of these species. (For preferred sources of this information, see the WSDOT-recommended protocol for evaluating fisheries resources.)

Use of Fisheries Habitats in the Study Area

Describe potential suitable habitat and life-history forms in the project study area. Describe how local populations use the suitable habitat.

Special Status Fish Species in Study Area

Presence of Special Status Species in Study Area

Based on existing data sources and field observations, identify any state or federally listed species, proposed species, candidate species, species of concern, and designated or proposed critical habitat that is known to occur or has the potential to occur in the project study area. Generally describe the habitat requirements and ecology of these

species. If critical habitat is present, the PCEs of the critical habitat in the study area should be identified and their condition should be assessed. Provide enough information to support the impact analysis. Discuss the local status of the species as appropriate.

Use of Fisheries Habitats in Study Area

Describe potential suitable habitat and life-history forms in the project study area. Describe how local populations use the suitable habitat.

5 Environmental Consequences

The level of analysis should be commensurate with the level of impact. An analysis should be provided for each project alternative.

Build Alternative(s)

Information regarding the effects during construction and the effects during operation should be provided for each project alternative. Identify the specific build alternative in the section heading, followed by the applicable information. Provide as many build alternative sections as necessary to address all the project alternatives.

Effects during Construction

Direct Effects

Describe and analyze the potential effects of construction on the species, its suitable habitat, critical habitat (PCEs), and food resources. Quantify both temporary and permanent impacts if possible. Describe how the environmental baseline conditions will be affected. If using the U.S. Fish and Wildlife Service or the National Marine Fisheries Service matrix, address only the indicators that will be affected within the body of the report. Analysis and descriptions of other indicators may be included in the appendices. Also address how each PCE in the project study area will be affected. If in-water work will occur, refer to the WSDOT standard specifications for fish removal.

Impact Minimization Measures

Identify measures that will be implemented to minimize specific anticipated impacts. As appropriate, provide recommendations for reducing or preventing adverse environmental effects. Ensure that measures included in the report have been discussed and approved by the WSDOT project team.

Mitigation

If impacts are unavoidable, describe in detail how these impacts will be mitigated or offset. Ensure that measures included in the report have been discussed and approved by the WSDOT project team. Monitoring requirements should be clearly stated so they can be incorporated into the project designs or contracts as appropriate.

Indirect Effects

Describe and analyze potential indirect effects (those that would occur later in time) such as impacts on future food resources or habitat or impacts due to increased human access or project-induced growth.

Impact Minimization Measures (if applicable)

Mitigation (if applicable)

Effects during Operation

See guidance provided above for construction impacts.

Direct Effects

Impact Minimization Measures

Mitigation

Indirect Effects

Impact Minimization Measures

Mitigation

Cumulative Effects

Identify species or populations within the project study area that are vulnerable to cumulative effects of past, present, and future actions that are reasonably certain to occur, including the proposed project. Analyze the incremental effects on fish and habitat.

The NEPA regulations (40 CFR 1508.7) define cumulative impact as “the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.” Note that this definition differs from that in the Endangered Species Act.

No-Build Alternative

Summarize impacts associated with the no-build alternative.

6 Significant Unavoidable Adverse Effects

Define what constitutes a significant impact for each unavoidable adverse impact.

Significant Effects of Build Alternative(s)

Identify and describe the significant effects of each build alternative.

7 References

For every reference cited in the text and appendices of the discipline report, provide a complete reference list entry.

Attachment A
Habitat Data Sheets

Attachment A: Habitat Data Sheets

- Fisheries Resources Survey Protocol Key
- Channel Morphology Data Sheet
- Riparian Vegetation Data Sheet
- Pool Quality Data Sheet
- Large Woody Debris Data Sheet
- Pebble Count Data Sheet
- Photo Documentation

Fisheries Resources Survey Protocol Key

General instructions for field data sheets: This key is to be used with the following field data sheets: Channel Morphology, Riparian Vegetation, Pool Quality, and Large Woody Debris.

Slope Measurement:

Slope = (Downstream Rod - Upstream Rod) / Reach Length

Confinement:	(Floodplain Width / Bankfull Width)
C (Confined)	< 1.5
MC (Moderately Confined)	1.5 - 4.0
UC (Unconfined)	> 4.0

Bank Condition:	Criteria
S (Stable)	Vegetated or bars to level of low flow
E (Eroding)	Steep, unvegetated banks showing erosion
A (Armored)	Artificial bank protection

Channel Pattern:

ST	Single thread, meandering
SC	Secondary channels
AN	Anastomosing (multiple channels, vegetated banks)
BR	Braided (multiple channels, unvegetated bars)

Habitat Type:

S (Slough)	Slow-moving water under backwater influence
G (Glide)	Shallow, pool-like reach, little turbulence
R (Run)	Swiftly flowing reach, little turbulence
RI (Riffle)	Swiftly flowing shallow reach, turbulent
P (Pool)	Deep, slow-moving water upstream of riffle
C (Cascade)	Steep, plunging flow over cobbles and boulders
SP (Step-pool)	Steep, closely spaced alternating steps/pools
BR (Bedrock)	Bedrock exposed on bed, lacking alluvial cover

Forest Type (trees > 6 m in height):

C	Coniferous
D	Deciduous
M	Mixed

Pool Measurements:

Residual Pool Depth = (Pool Depth - Outlet Depth)

Fish Cover (pools):	(Percent pool cover by vegetation)
A (Abundant)	> 50%
I (Intermediate)	25% - 50%
E (Exposed)	< 25%

Pool Quality Index:	Description	Go to	Pool Rating
1A	Maximum pool diameter is within 10% of the average stream width of the study area	2A,2B	
1B	Maximum pool diameter exceeds the average stream width of the study area by 10% or more	3A,3B,3C	
1C	Maximum pool diameter is less than the average stream width of the study area by 10% or more	4A,4B,4C	
2A	Maximum pool depth is less than 2 feet	5A,5B	
2B	Maximum pool depth is greater than or equal to 2 feet	3A,3B,3C	
3A	Maximum pool depth is greater than or equal to 3 feet regardless of cover conditions or greater than 2 feet with abundant fish cover ^a		Rate 5
3B	Maximum pool depth is less than 3 feet with intermediate to abundant fish cover or between 2 and 3 feet with a lack of abundant cover		Rate 4
3C	Maximum pool depth is less than 2 feet and fish cover is rated as exposed		Rate 3
4A	Maximum pool depth is greater than or equal to 2 feet with intermediate ^b or better cover		
4B	Maximum pool depth is less than 2 feet but fish cover is intermediate or better, or depth is greater than or equal to 2 feet with exposed cover conditions		Rate 2
4C	Maximum pool depth is less than 2 feet and pool cover is rated as exposed ^c		Rate 1
5A	Pool with intermediate to abundant cover		Rate 3
5B	Pool with exposed cover conditions		Rate 2

^a If cover is abundant, the pool has excellent instream cover and most of the perimeter of the pool has fish cover.

^b If cover is intermediate, the pool has moderate instream cover and one-half of the pool perimeter has fish cover.

^c If cover is exposed, the pool has poor instream cover and less than one-fourth of the pool perimeter has fish cover.

Large Woody Debris Key Stability:

EB	Embedded in bank
BB	Buried in bed
PP	Pinned
RR	Rootwad
AS	Artificial anchor (e.g., cables, chains, ballast)

Riparian Vegetation Data Sheet

Stream: _____	Project: _____	Page _____ of _____
Reach: _____	GPS point (finish): _____	Date: _____
Sampler: _____	GPS point (start): _____	Weather: _____
Crew: _____	Water Temp.: _____	Air Temp: _____

Riparian Vegetation														
GPS Point	Dominant and Subdominant Riparian Vegetation											Percent Canopy Cover (densiometer values)	Riparian Zone Width	Invasives Present
		Left Bank					Right Bank							
		Forest (note type)	Shrubs and/or Vines	Herbaceous; Tall or Short	Impervious (e.g., buildings, paving)	Residential Landscaped	Forest (note type)	Shrubs and/or Vines	Herbaceous; Tall or Short	Impervious	Residential Landscaped			
	Sub-Dominant													
	Dominant													
	Sub-Dominant													
	Dominant													
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Pebble Count Data Sheet

Stream: _____	Project: _____	Date: _____
Reach: _____	GPS Point: _____	Weather: _____
Sampler: _____	RB / LB (circle one) _____	Photos: _____
Crew: _____	Surface / Subsurface (circle one) _____	Psi = log ₂ (mm)

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mm (≤)	<4	4	5.66	8	11.31	16	22.63	32	45.25	64	90.51	128	181.0	256	362.0	512	724.08	1,024	1,448.2	2,048	2,896	4,096		
psi	<2	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	12		
Totals																								

Photo Documentation

Date: _____	Photographer: _____	Camera: _____
Stream: _____	Location: _____	_____

Photo-Point	GPS Point	File Name	Photo No.	Comments
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Attachment B

**U.S. Fish and Wildlife Service
Species List**

Attachment B: U.S. Fish and Wildlife Service Species List

Include a summary or list of plants identified in the project study area.

Attachment C

**National Marine Fisheries Service
Species List**

Attachment C: National Marine Fisheries Service Species List

Include a summary or list of species identified in the project study area. Include marine mammals and turtles, if applicable.

Attachment D

Washington Department of Fish and Wildlife Priority Habitats and Species Database

Attachment D: Washington Department of Fish and Wildlife Priority Habitats and Species Database

Include a summary or list of priority habitats identified in the project study area. DO NOT include information that would identify the specific location of these sensitive areas.

Exhibits

Exhibits