U.S. Fish and Wildlife Service

Quinault National Fish Hatchery Fish Exclusion Barrier

Wetland and Waters of the U.S. Delineation Report

Final

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McMILLEN, LLC

SIGNATURE PAGE

McMillen, LLC has appreciated the opportunity to work with the U.S. Fish and Wildlife Service (USFWS) on this project. If you have any questions or concerns regarding this report, please contact Greg Allington (208-985-1499 or allington@mcmjac.com).

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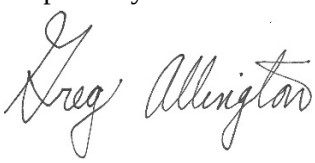

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SECTION 1
INTRODUCTION

1.0 Introduction

The United States Fish and Wildlife Service (USFWS) Quinault National Fish Hatchery (QNFH) is currently equipped with an electric fish barrier extending across Cook Creek to restrict upstream fish passage. Recent discovery of infectious haematopoietic necrosis (IHN) in salmonid stocks downstream of the electric fish barrier, life safety concerns, operational issues of the barrier system, and the USFWS's desire to have the system effectively operate during larger flows in Cook Creek has identified a need to install a different style fish exclusion barrier. A delineation was performed to identify the extents of critical aquatic features that may be impacted from the installation and operation of the new exclusion barrier system.

McMillen, LLC (McMillen) was retained by the USFWS to complete wetland and waters of the U.S. delineation services at the QNFH. This report describes in detail the seven wetlands (Wetlands A-G) and four waters of the U.S. (Cook Creek and Streams 1-3) identified during the delineation.

1.1 Project Location

The QNFH is located along Cook Creek, approximately 5.5 miles west-southwest of Neilton, in Grays Harbor County, Washington (Figure 1 – Vicinity Map). Table 1-1 identifies the legal description of the survey area.

Table 1-1. Legal Description

Sections (S)/Township (T)/ Range (R)	Approximate Coordinates	Grays Harbor Parcel Numbers
NE ¼ of S.31 and NW ¼ of S.32 / T.22N / R.10W	47.358478, -123.992543°	221031110000 221032220010 221032220020

1.3 Scope of Work

The scope of work associated with this wetland and waters of the U.S. delineation includes the following elements:

1. Review background information pertaining to the QNFH relevant to the project. This information helped direct the focus of the delineation;
2. Conduct a pedestrian survey within the QNFH project area boundary and delineate wetland and waters of the U.S. features; and
3. Prepare a final report describing the methods used and the results of the delineation. This report includes a description of wetlands and waters of the U.S. delineated, the appropriate classification according to reviewing agencies, and a wetland and waters of the U.S. delineation map that depicts the locations of delineated features.

1.4 Conditions at Time of Delineation

This report is based on conditions that existed at the time the delineation was performed (July 26, 2011 and July 25, 2012) and verified (December 10, 2014). If changes are made to the QNFH after the date of the 2014 verification, a wetland biologist should be consulted to review the investigation and recommendations so that written amendments or affirmation can be provided as appropriate.

SECTION 2
METHODS

2.0 Document Review

A review of available documents pertaining to the project was conducted prior to visiting the QNFH. This review assisted with directing the focus of the wetland and waters of the U.S. delineation to potential critical aquatic and other important features. The following documents were reviewed:

- Historical and current aerial photos;
- United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps (USFWS 2014);
- United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Olympic National Forest Area, Washington and Quinault Indian Reservation, Washington (NRCS 2014);
- United States Geological Survey (USGS) 1:24,000 scale 7.5-minute topographic map (USGS 1999 and 2011);
- Washington Department of Fish and Wildlife (WDFW) Priority Habitat and Species Maps (WDFW 2014); and
- Other available general background information provided by the USFWS and the Quinault Indian Nation.

2.1 Wetland Delineation Methodology

McMillen wetland biologist (Greg Allington) conducted an investigation at the QNFH and performed a formal delineation on seven wetland features. This formal wetland delineation effort followed the guidance set forth in the following documents:

- 1987 USACE Wetland Delineation Manual (USACE 1987),
- 2010 USACE Regional Supplement to the USACE Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (USACE 2010),
- 1997 Washington State Wetlands Identification and Delineation Manual (Washington State Department of Ecology [Ecology] 1997),
- 2010 Field Indicators of Hydric Soils in the United States (USDA-NRCS 2010), and
- 2007 Clean Water Act Jurisdiction – Rapanos vs. United States and Carabell vs. United States (Rapanos 2007).

The wetland delineation manual and supplement listed above follow the three-parameter approach for making wetland determinations, such that positive indicators of wetlands must be present for each of the following parameters: 1) vegetation, 2) soils, and 3) hydrology. Each of these three parameters is described in detail in Appendix A.

2.2 Waters of the U.S. Delineation Methodology

Streams were delineated according to their ordinary high water mark (OHWM) in accordance with the guidance set forth by the 2014 USACE manual titled *A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States* (USACE 2014). A complete description of the methodology is described in detail in Appendix A.

2.3 Wetland and Waters of the U.S. Characterization

The wetland and waters of the U.S. segments delineated were characterized according to their Cowardin (Cowardin *et al.*1979) classification and their hydrogeomorphic (HGM) characteristics in order to determine its location and function within the watershed.

The Washington State Department of Ecology (Ecology) developed a four-tiered rating system presented in the Washington State Wetlands Rating System for Western Washington (Ecology 2014) that uses landscape setting, wetland and vegetation classes, physical characteristics, and other value-based and function-based criteria to place wetlands into one of four categories.

2.4 Field Methods

The QNFH survey area was investigated for indicators of wetland parameters on July 26, 2011 and July 25, 2012. If one of the three wetland parameters (hydrophytic vegetation, hydric soils or wetland hydrology indicators) was observed, then a more detailed examination of the area was performed. Upon discovery of all three wetland parameters adjacent to an upland area, the boundary line of the wetland was identified and followed until the delineation was complete. In general, the presence of hydrophytic vegetation and/or wetland hydrology indicators was the primary visual indicator used to determine the boundaries of the wetland, with hydric soil indicators used secondarily to confirm the wetland boundary. If a point on the wetland boundary was not clearly identifiable by either hydrophytic vegetation or wetland hydrology indicators, then soil pits were dug in order to determine the wetland boundary line. Soil pits extended approximately 18 inches below ground surface and were left open for a minimum of five minutes during the examination. Most of the soils pits dug during the wetland delineation were recorded. The unrecorded soil pits were only used to verify the wetland boundary during the delineation.

Paired sample plots were established at various locations along the wetland perimeter to aid in the wetland determination. The sample plots consisted of examining the vegetation, soils and wetland hydrology indicators. The vegetation was assessed within an approximate 20 foot radius of the sample plot for trees, shrubs and herbaceous species. Soils were classified according to the Munsell® Soil-Color Chart and wetland hydrology indicators were examined for presence within 12 inches of the ground surface. Typically, one paired sample plot was established within the wetland unit for each vegetation community or hydrologic regime observed at the time of the delineation. The results of the sample plots were recorded and are located in Appendix B.

The QNFH survey area was investigated for indicators of OHWM characteristics. If flowing water or a dry streambed was observed, additional investigations were performed upstream and downstream to locate the source of the water and/or the confluence with another stream. Specific physical characteristics of the streams were examined in order to facilitate locating the OHWM.

A sketch of the wetland and waters of the U.S. delineation was prepared depicting the location of the recorded points and sample plots. The wetland and OHWM points then surveyed by a professional surveyor (DSE Surveying and Engineering) in August 2012. Additional field work was performed on December 10, 2014 to confirm the previous wetland and waters of the US delineation work.

SECTION 3
RESULTS

3.0 Document Review

The following information was obtained during the document review prior to the wetland and waters of the U.S. delineation:

- Historical and current aerial photos
  - Aerial photographs were examined to determine the current status of land use, hydraulic patterns, vegetated areas and possible locations of standing water or saturated soils. The majority of the survey area is heavily wooded. Surface waters and/or standing water observed in aerial photographs included Cook Creek and a corridor in Wetland D adjoining Moclips Highway to the southeast and Cook Creek to the southwest.
- USFWS NWI map (USFWS 2014) (Figure 2)
  - This data identified wetlands within, and in the vicinity of the QNFH survey area, as well as general types of plant community structures present. NWI wetlands identified included:
    - Palustrine Emergent Persistent, Seasonally Flooded (PEM1C)
    - Riverine Upper Perennial Unconsolidated Shore, Seasonally Flooded (R3USC)
- USDA-NRCS Soil Survey of Quinault Indian Reservation, Washington (NRCS 2014)
  - The soil data identifies the presence of soil types within, and in the vicinity of the QNFH. Soil data for this soil survey area is not available to the public.
- USGS 1:24,000 scale 7.5-minute topographic map, Stevens Creek, WA (USGS 1990 and 2011), 2011 and 2012 land survey data (DSE Surveying & Engineering 2011 & 2012)
  - The map and data identifies the topography and important features within, and in the vicinity of the QNFH survey area.
- Other available general background information provided by the USFWS consisting of project boundaries, aerial photographs, and project descriptions.

3.1 Field Investigation and QNFH Description

The objective of the wetland and waters of the U.S. delineation was to determine their extent within the QNFH survey area based on the presence of hydrophytic vegetation, hydric soils and wetland hydrology indicators for wetlands, and the presence of an OHWM along streams. McMillen wetland biologist (Greg Allington) performed the wetland and waters of the U.S. delineation field work on July 26, 2011, July 25, 2012. Weather conditions during the surveys were sunny with a temperature of approximately 75°F. Additional field work was performed on December 10, 2014 (outside of growing season) to confirm previous wetland delineation work performed in 2011 and 2012. The weather conditions during the 2014 field work were cloudy and rainy with a temperature of approximately 40°F. Note that during the 2014 field work Cook Creek was in flood stage and water was approximately 1-foot above the OHWM.

The QNFH survey area was examined for signs of wetland and waters of the U.S. indicators. The results of the investigation revealed the presence of seven wetlands (Wetlands A through G), and four streams (Cook Creek, and Streams 1 through 3) (Appendix C – Map 1). NWI maps are produced from the interpretation of aerial photographs that require field verification; therefore, areas mapped as NWI wetlands (Figure 2) were investigated for wetland indicators.

The wetland delineation consisted of determining the boundary between wetland and upland areas. The approximation of this boundary line typically consisted of identifying a topographic break and correlating the break with shifts in vegetation from hydrophytic to upland species. The plant species observed during field delineations within the tree, shrub, herb, and woody vine stratum, and their category of upland or hydrophytic, are summarized in the table below.

Table 3-1. Plant Species Observed

Species Common Name	Species Scientific Name	Wetland Indicator Status	Upland (U) or Hydrophytic (H) Species
Tree Stratum			
Western Hemlock (mature)	*Tsuga heterophylla*	FACU	U
Douglas-fir (mature)	*Pseudotsuga menziesii*	*FACU*	*U*
red alder (mature and young)	*Alnus ruba*	FAC	*
Scouler's willow (mature)	*Salix scouleriana*	FAC	*
Big-leaf maple (mature)	*Acer macrophyllum*	FACU	U
Rocky Mountain Maple	*Acer glabrum*	FACU	U
Engelmann Spruce	*Picea engelmannii*	FAC	U
Shrub Stratum			
Salmonberry	*Rubus spectabilis*	FAC	*
Red elderberry	*Sambucus racemosa*	FACU	U
Red huckleberry	*Vaccinium parvifolium*	FACU	U
Indian Plum	*Oemleria cerasiformis*	FACU	U
Hardhack	*Spiraea douglasii*	FACW	H
Himalayan blackberry	*Rubus armeniacus*	FACU	U
Evergreen blackberry	*Rubus laciniatus*	FACU	U
Trailing blackberry	*Rubis ursinus*	FACU	U
Pacific ninebark	*Physocarpus capitatus*	FACW	U
Oval-leaf blueberry	*Vaccinium ovalifolium*	UPL	U
Thimbleberry	*Rubus parviflorus*	FACU	U
Herb Stratum			
Creeping bentgrass	*Agrostis capillaris*	FAC	U
Fireweed	*Bassia scoparia*	FAC	U
Purple foxglove	*Digitalis purpurea*	FACU	U
Pineland sword fern	*Polystichum munitum*	FACU	U
Stinging Nettle	*Urtica dioica*	FAC	U
Common ladyfern	*Athyrium filix-femina*	FAC	*
Colts-foot	*Tussilago farfara*	FACU	*
American cow-parsnip	*Heracleum maxumum*	FAC	U
Pacific Water Parsley	*Oenanthe sarmentosa*	OBL	H
Small-fruited bulrush	*Scirpus microcarpus*	OBL	H
Slough sedge	*Carex obnupta*	OBL	H
Curly dock	*Rumex crispus*	FAC	U
Nebraska sedge	*Carex nebrascensis*	OBL	H

Birdsfoot trefoil	*Lotus corniculatus*	FAC	U
Creeping buttercup	*Ranunculus repens*	FAC	*
Trailing blackberry	*Rubus ursinus*	FACU	U
Common velvet grass	*Holcus lanatus*	FAC	U
Youth-on-age	*Tolmiea menziesii*	FAC	H
Orchard grass	*Dactylis glomerata*	FACU	U
Common Horsetail	*Aquisetm arvense*	FAC	U
Skunk cabbage	*Lysichiton americanum*	OBL	H
Watercress	*Nasturtium officinale*	OBL	H
Oxeye daisy	*Leucanthemum vulgare*	FACU	U
Common St. Johns wort	*Hypericum perforatum*	FACU	U
Common horsetail	*Equisetum arvense*	FAC	U
Smooth brome	*Bromus inermis*	FAC	U
Velvet grass	*Holcus lanatus*	FAC	U
Spearscale	*Atriplex patula*	FACW	U
Woody Vine Stratum			
None observed			

*Species were observed in both wetlands and in upland areas.

The presence or absence of the plants species listed in Table 3-1 above, served to indicate the approximate location of the wetland boundary line. Upon observation of this approximate line, transitions to hydrophytic species were either verified or not. Soil pits were then established to determine the presence or absence of hydric soils and wetland hydrology indicators (if not visible on the ground surface).

The growing season for a region is dependent upon climate, precipitation and topography. According to the NRCS Water and Climate Center Wetland Evaluation Tables (WETS) for the Aberdeen 20NNE WETS station, (station closest to the project site with growing season information), there is a 70 percent chance that the air temperature will be above 28°F from February 19 through December 6 of a given year (USDA 2000). The following indicators of biological activity were observed throughout the entire QNFH indicating that the delineation was performed prior to the end of the growing season: herbaceous plant persistence, and green leaves on shrubs and willows. The wetland and waters of the U.S. delineations were conducted during the official growing season and soil temperatures were not taken for this delineation project based upon the dates identified in the WETS table, and field observations that the growing season had begun but not yet ended.

3.1.1 Precipitation and Stream Flow Data

Average precipitation data within approximately 9 miles of the QNFH was obtained from the Humptulips Salmon Hatch climate station (Western Regional Climate Center [WRCC] 2013) from 1987 through 2013. Monthly precipitation data recorded six months prior to the delineation work performed in 2011 and 2012 (WRCC 2014) was also obtained and compared against the 26 year average as presented in Table 3-2.

Table 3-2. Precipitation Data

Month	1987-2013Average (inches)	2011 Data (inches)	2012 Data (inches)
January	18.22	24.08	14.10
February	11.24	8.74	14.69
March	12.87	22.18	20.50
April	8.5	10.91	8.22
May	5.05	6.49	4.80
June	4.30	0.96	6.88

Precipitation data obtained from Humptulips Salmon Hatch Climate Station (WRCC 2013 and 2014).

3.1.2 Soil Survey Data

Soil survey data was not available for the project area.

3.2 Wetlands

The wetland delineation identified seven wetlands within the QNFH project area. The wetlands identified are connected to other water bodies and are not isolated from a jurisdictional water of the US. The following sections describe Wetlands A through G and list their associated classification. Photographs of each wetland unit are located in Appendix D.

3.2.1 Wetland Characterization

3.2.1.1 Wetland A

Wetland A is located on the north bank of Cook Creek directly south of the QNFH buildings and ponds. The wetland is approximately 0.06 acres in size (Appendix C) and was not identified as a wetland on the USFWS NWI map. This wetland sits on the active floodplain of Cook Creek and contains saturated soils and small pockets of standing water. Based on field observations and investigations Wetland A is classified as a palustrine, scrub-shrub, seasonally flooded/saturated wetland, according to the Cowardin Classification system. Flood events and high groundwater from Cook Creek support this wetland area.

The delineation generally followed a topographic break toward the bottom of the bank riprap slope, changes in wetland vegetation to upland species, the presence of reduced soils within 12 inches of the surface, and the presence of wetland hydrology indicators.

<u>Vegetation</u>
Dominant vegetation within the wetland included small-fruited bulrush, slough sedge, Pacific water parsley, common ladyfern, hardhack, creeping buttercup, Schouler's willow, and common horsetail. The dominant vegetation shifted to upland species consisting of sword fern, red alder, salmonberry, and fireweed starting at the base of the topographic break.

<u>Soils</u>
Soils within the wetland exhibited low chroma and a depleted matrix with a sulfidic odor to a depth of 18 inches. Soil texture consisted of sandy silt and sand with gravel and cobbles. Upland soils consisted of riprap rock.

Hydrology
Hydrology was present during the delineation in the form of small pockets of standing water, a high water table, and saturated soils within 12 inches of ground surface. There were no signs of hydrology in the upland and the soil was dry.

3.2.1.2 Wetland B

Wetland B is approximately 80-100 feet upstream of Wetland A on the north side of Cook Creek. The wetland is approximately 0.05 acres in size (Appendix C) and was not identified as a wetland on the USFWS NWI map. This wetland sits on the active floodplain of Cook Creek and contains saturated soils. Based on field observations and investigations Wetland B is classified as a palustrine, emergent, seasonally flooded/saturated wetland, according to the Cowardin Classification system. Flood events and high groundwater from Cook Creek support this wetland area.

The delineation generally followed a topographic break toward the bottom of the bank slope, changes in wetland vegetation to upland species, the presence of reduced soils within 12 inches of the surface, and the presence of wetland hydrology indicators.

Vegetation
Dominant vegetation within the wetland included small-fruited bulrush, Pacific water parsley, red alder, Schouler's willow, salmonberry, common ladyfern, and common horsetail. The vegetation shifted to upland species consisting of salmonberry, red alder, pineland sword fern, Indian plum, stinging nettle, thimbleberry, big-leaf maple and spearscale starting at the base of the topographic break.

Soils
Soils within the wetland exhibited low chroma and a depleted matrix with a sulfidic odor to a depth of 18 inches. Soil texture consisted of sandy silt and sand with gravel and cobbles. Upland soils consisted of sandy silt with gravels.

Hydrology
Hydrology was present during the delineation in the form of a high water table and saturated soils within 12 inches of ground surface. There were no signs of hydrology in the upland and the soil was dry.

3.2.1.3 Wetland C

Wetland C is located on the north side of Cook Creek at the Moclips Highway Bridge. The wetland is approximately 0.08 acres in size (Appendix C) and was not identified as a wetland on the USFWS NWI map. This wetland sits on the active floodplain of Cook Creek and contains saturated soils. Based on field observations and investigations Wetland C is classified as a palustrine, emergent, seasonally flooded/saturated wetland, according to the Cowardin Classification system. Flood events and high groundwater from Cook Creek support this wetland area.

The delineation generally followed a topographic break toward the bottom of the bank slope, changes in wetland vegetation to upland species, the presence of reduced soils within 12 inches of the surface, and the presence of wetland hydrology indicators.

Vegetation
Dominant vegetation within the wetland included small-fruited bulrush, Pacific water parsley, Schouler's willow, salmonberry, and common ladyfern. The vegetation shifted to upland species consisting of salmonberry, red alder, evergreen blackberry, red elderberry, purple foxglove, smooth brome and velvet grass starting at the base of the topographic break.

Soils
Soils within the wetland exhibited low chroma and a depleted matrix with a sulfidic odor to a depth of 18 inches. Soil texture consisted of sandy silt and sand with gravel and cobbles. Upland soils consisted of sandy silt.

Hydrology
Hydrology was present during the delineation in the form of a high water table and saturated soils within 12 inches of ground surface. There was also presence of an active side stream channel and small ponds. There were no signs of hydrology in the upland and the soil was dry.

3.2.1.4 Wetland D

Wetland D is located south of the hatchery facility between Cook Creek and the Moclips Highway. The wetland is approximately 2.53 acres in size (Appendix C) and was not identified as a wetland on the USFWS NWI map. This wetland is in a depression and contains standing water, and saturated soils. Based on field observations and investigations Wetland D is classified as a palustrine, emergent, permanently flooded wetland, according to the Cowardin Classification system. High groundwater from Cook Creek supports this wetland area.

The delineation generally followed a topographic break, changes in wetland vegetation to upland species, the presence of reduced soils within 12 inches of the surface, and the presence of wetland hydrology indicators.

Vegetation
Dominant vegetation within the wetland included, Pacific water parsley, salmonberry, slough sedge, hardhack, skunk cabbage, watercress, Schouler's willow, creeping buttercup, and youth-on-age. The vegetation shifted to upland species consisting of red alder, pineland sword fern, Indian plum, Rocky Mountain maple, western hemlock, Himalayan blackberry, oxeye daisy, red elderberry, purple foxglove, and oval-leaf blueberry, starting at the base of the topographic break.

Soils
Soils within the wetland exhibited low chroma and a depleted matrix with a sulfidic odor to a depth of 18 inches. Soil texture consisted of silt. Upland soils consisted of sandy silt and sandy loam.

Hydrology
Hydrology was present during the delineation in the form of standing water, hillside spring seeps, a high water table, and saturated soils within 12 inches of ground surface. There were no signs of hydrology in the upland and the soil was dry.

3.2.1.5 Wetland E

Wetland E is located southeast of the Moclips Highway, south of Cook Creek. The wetland is approximately 0.73 acres in size (Appendix C) and was not identified as a wetland on the USFWS NWI map. This wetland is in a depression and contains standing water, and saturated soils. Based on field observations and investigations Wetland E is classified as a palustrine, emergent, simi-

permanently flooded wetland, according to the Cowardin Classification system. High groundwater from Cook Creek supports this wetland area.

The delineation generally followed a topographic break, changes in wetland vegetation to upland species, the presence of reduced soils within 12 inches of the surface, and the presence of wetland hydrology indicators.

Vegetation
Dominant vegetation within the wetland included, salmonberry, slough sedge, red alder, skunk cabbage, common ladyfern, and creeping buttercup. The vegetation shifted to upland species consisting of red alder, pineland sword fern, Rocky Mountain maple, western hemlock, red elderberry and salmonberry, starting at the base of the topographic break.

Soils
Soils within the wetland exhibited low chroma and a depleted matrix with a sulfidic odor to a depth of 18 inches. Soil texture consisted of sandy silt, silty loam, sand and sand with cobbles. Upland soils consisted of silty sand and sandy loam.

Hydrology
Hydrology was present during the delineation in the form of standing water, a high water table, and saturated soils within 12 inches of ground surface. There were no signs of hydrology in the upland and the soil was dry.

3.2.1.6 Wetland F

Wetland F is approximately 500 feet upstream of Wetland A on the north side of Cook Creek. The wetland is approximately 0.11 acres in size (Appendix C) and was identified as a riverine, upper perennial, unconsolidated shore, seasonally flooded wetland on the USFWS NWI map. This wetland sits on a slope adjoining Cook Creek and contains saturated soils. Based on field observations and investigations Wetland F is classified as a palustrine, emergent, semi-permanently flooded wetland, according to the Cowardin Classification system. Flood events and high groundwater from Cook Creek as well as flows into the wetland from Stream 3 and a culvert, support this wetland area.

The delineation generally followed a topographic break, changes in wetland vegetation to upland species, the presence of reduced soils within 12 inches of the surface, and the presence of wetland hydrology indicators.

Vegetation
Dominant vegetation within the wetland included Pacific water parsley, red alder, salmonberry, common ladyfern, slough sedge, creeping buttercup, youth-on-age, and colts-foot. The vegetation shifted to upland species consisting of red alder, pineland sword fern, Indian plum, stinging nettle, orchard grass, and common St. Johns wort, starting at the base of the topographic break.

Soils
Soils within the wetland exhibited low chroma and a depleted matrix with a sulfidic odor to a depth of 18 inches. Soil texture consisted of sand with gravel. Upland soils consisted of sandy loam.

Hydrology
Hydrology was present during the delineation in the form of standing water, a high water table and saturated soils within 12 inches of ground surface. There were no signs of hydrology in the upland and the soil was dry.

3.2.1.7 Wetland G

Wetland G is located on a slope approximately 230 feet upstream of Wetland F on the north side of Cook Creek. The wetland is approximately 0.05 acres in size (Appendix C) and was not identified as a wetland on the USFWS NWI map. This wetland sits on a slope adjoining Cook Creek and contains saturated soils. Based on field observations and investigations Wetland G is classified as a palustrine, forested, saturated wetland, according to the Cowardin Classification system. Flood events and high groundwater from Cook Creek as well as flows into the wetland from the hatchery water supply overflow culvert and a drainage culvert.

The delineation generally followed a topographic break, changes in wetland vegetation to upland species, the presence of reduced soils within 12 inches of the surface, and the presence of wetland hydrology indicators.

Vegetation
Dominant vegetation within the wetland included Pacific water parsley, red alder, salmonberry, common ladyfern, and creeping buttercup. The vegetation shifted to upland species consisting of red alder, pineland sword fern, orchard grass, and salmonberry, starting at the base of the topographic break.

Soils
Soils within the wetland exhibited low chroma and a depleted matrix with a sulfidic odor to a depth of 18 inches. Soil texture consisted of sand with gravel. Upland soils consisted of sandy loam.

Hydrology
Hydrology was present during the delineation in the form of standing water, a high water table and saturated soils within 12 inches of ground surface. There were no signs of hydrology in the upland and the soil was dry.

3.2.2 Wetland Classification

Wetlands A through G were classified according to the Cowardin system and their hydrogeomorphic classification is presented in Table 3-3. Detailed maps showing the location of each wetland unit is located in Appendix C.

Table 3-3. Wetland Classification and Size

Wetland	Cowardin Classification				Hydrogeomorphic Classification	Size (Acres)	Category
	System	Class	Subclass	Water Regime			
A	Palustrine (P)	Scrub-Shrub (SS)	Deciduous (6)	Seasonally Flooded/Saturated (E)	Riverine	0.06	IV
B	Palustrine (P)	Emergent (EM)	Persistent (1)	Seasonally Flooded/Saturated (E)	Riverine	0.05	IV
C	Palustrine (P)	Emergent (EM)	Persistent (1)	Seasonally Flooded (C)	Riverine	0.08	IV
D	Palustrine (P)	Emergent (EM)	Persistent (1)	Permanently Flooded (H)	Depressional	2.53	III

Wetland	Cowardin Classification				Hydrogeomorphic Classification	Size (Acres)	Category
	System	Class	Subclass	Water Regime			
E	Palustrine (P)	Emergent (EM)	Persistent (1)	Semi-Permanently Flooded (F)	Depressional	0.73	III
F	Palustrine (P)	Emergent (EM)	Persistent (1)	Semi-Permanently Flooded (F)	Slope	0.11	IV
G	Palustrine (P)	Forested (FO)	Deciduous (6)	Saturated (B)	Slope	0.05	IV
					Total	**3.61**	**-**

The total area of wetland vegetation communities are summarized below:

- Forested: 0.05 acres
- Emergent: 3.5 acres
- Scrub-Shrub: 0.06 acres

3.3 Waters of the U.S. Characterization

A delineation of the OHWM in waters of the U.S. was completed for the QNFH survey area. The OHWM is usually concurrent with the 2-year flood event and persistent vegetation does not typically grow below this mark.

3.3.1 Non-Tidal Waters of the U.S.

3.3.1.1 Stream 1

The OHWM of Stream 1 ranged from three to five feet in width. Both side of the stream channel were delineated for a total of 194 feet (Appendix C). Stream flows were below the OHWM by approximately six inches at the time of the delineation.

A typical OHWM was observed on the banks which included a sharp transition from shrubs to exposed cobbles and gravels. Photographs of Stream 1 are shown in Appendix D and the typical signs of the OHWM included the following:

- Shelving or topographic break,
- Absence of vegetation,
- Scouring,
- Exposed roots, and
- Water marks on large boulders, concrete structures, and vegetation.

3.3.1.2 Stream 2

The OHWM of Stream 2 ranged from three to five feet in width. Both side of the stream channel were delineated for a total of 1,020 feet (Appendix C). Stream flows were below the OHWM by approximately six inches.

A typical OHWM was observed on the banks which included a sharp transition from shrubs to exposed cobbles and gravels. Photographs of Stream 2 are shown in Appendix D and the typical signs of the OHWM included the following:

- Shelving or topographic break,
- Absence of vegetation,
- Scouring,
- Exposed roots, and
- Water marks on large boulders, concrete structures, and vegetation.

3.3.1.3 Stream 3

The OHWM of Stream 3 ranged from three to five feet in width. Both side of the stream channel were delineated for a total of 313 feet (Appendix C). Stream flows were below the OHWM by approximately six inches.

A typical OHWM was observed on the banks which included a sharp transition from shrubs to exposed cobbles and gravels. Photographs of Stream 3 are shown in Appendix D and the typical signs of the OHWM included the following:

- Shelving or topographic break,
- Absence of vegetation,
- Scouring,
- Exposed roots, and
- Water marks on large boulders, concrete structures, and vegetation.

3.3.1.4 Cook Creek

The OHWM of Cook Creek ranged from ten to thirty feet in width. Both side of the stream channel were delineated for a total of 3,021 feet (Appendix C). Stream flows were below the OHWM by approximately one foot.

A typical OHWM was observed on the banks which included a sharp transition from shrubs to exposed cobbles and gravels. Photographs of Cook Creek are shown in Appendix D and the typical signs of the OHWM included the following:

- Shelving or topographic break,
- Absence of vegetation,
- Scouring,
- Exposed roots, and
- Water marks on large boulders, concrete structures, and vegetation.

3.3.2 Waters of the U.S. Classification

Streams 1 through 3 and Cook Creek were classified according to the Cowardin classification system as presented in Table 3-4. A detailed map showing the locations of each waters of the U.S. segment is located in Appendix C.

Table 3-4. Waters of the U.S. Classification and Size

Waters of the US	Cowardin Classification				Length Delineated (Feet)	Stream Type
	System	Subsystem	Class	Subclass		
Stream 1	Riverine (R)	Lower Perennial (2)	Unconsolidated Bottom (UB)	Cobble-Gravel (1)	194	F
Stream 2	Riverine (R)	Lower Perennial (2)	Unconsolidated Bottom (UB)	Cobble-Gravel (1)	1,020	F
Stream 3	Riverine (R)	Lower Perennial (2)	Unconsolidated Bottom (UB)	Cobble-Gravel (1)	313	F
Cook Creek	Riverine (R)	Lower Perennial (2)	Unconsolidated Bottom (UB)	Cobble-Gravel (1)	3,021	F

SECTION 4
CONCLUSION

4.0 Conclusion

McMillen performed seven wetland (Wetlands A through G), and four non-tidal waters of the U.S. (Streams 1-3 and Cook Creek) delineation within the Quinault National Fish Hatchery Fish Exclusion Barrier project in Grays Harbor County, Washington. The delineation was performed to help the USFWS identify the quantity and quality of wetlands and waters of the U.S. that occur within the QNFH project area. The boundaries of these features are depicted in Appendix C. There are no hydrologically isolated wetlands and all wetlands and waters of the U.S. may be considered jurisdictional by the USACE. The total area of wetland vegetation communities are summarized below:

- Forested: 0.05 acres
- Emergent: 3.5 acres
- Scrub-Shrub: 0.06 acres
- TOTAL: 3.61 acres

This wetland and waters of the U.S. delineation was performed in July 2011 and July 2012 with additional confirmatory field work performed in December 2014. According to USACE regulations pertaining to wetland and waters of the U.S. delineation reports, this report is valid for five years from the date the delineation was performed.

SECTION 5
REFERENCES

Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Jamestown, ND: Northern Prairie Wildlife Research Center Online. http://www.npwrc.usgs.gov/resource/wetlands/classwet/index.htm (Version04DEC1998).

Ecology. 2014. Washington State Wetland Rating System for Western Washington. Washington State Department of Ecology. Octboer 2014 – Effective 2015. Publication No. 14-06-029.

Hitchcock and Conquist. 1976. Flora of the Pacific Northwest. Publixhed by University of the Washington Press; 1973.

Lichvar, R.W., N.C. Melvin, M.L. Butterwick, and W.N. Kirchner. 2012. National Wetland Plant List indicator rating definitions. U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory ERDC/CRREL TR-12-1.

Munsell Color. 2009. Munsell Soil-Color Charts with genuine Munsell color chips.

Munsell Color. 2009. Munsell Soil-Color Charts. Grand Rapids, Michigan.

Rapanos. 2007 Clean Water Act Jurisdiction following the U.S. Supreme Count's Decision in Rapanos vs. United States and Carabell vs. United States. June 5, 2007.

Reed, P. B., Jr. 1988. National list of plant species that occur in wetlands: 1988 national summary. Biological Report 88(24). Washington, DC: U.S. Fish and Wildlife Service. (http://www.nwi.fws.gov/plants.htm)

Reed, P.B., Jr, D. Peters, J. Goudzwaard, I. Lines, and F. Weinmann. 1993. Supplement to the List of Plant Species that Occur in Wetlands: Northwest (Region 9). December 1993. United States Fish and Wildlife Service Supplement to Biological Report 88 (26.9), May 1988. Washington D.C.

USACE. 1987. Corps of Engineers Wetland Delineation Manual, Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss.

USACE. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0).

USACE. 2014. A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States, ed. M.K. Mersel, and R.W. Lichvar. ERDC/CRREL TR-14-13.

USDA. 2000.. Climate Information – Aberdeen 20NNE Climate Data from 1971-2000. Accessed online at http://efotg.sc.egov.usda.gov/treemenuFS.aspx.

USDA-NRCS. 2010. Field Indicators of Hydric Soils in the United States A Guide for Identifying and Delineating Hydric Soils, Version 7.0. USDA NRCS in cooperation with the National Technical Committee for Hydric Soils.

USDA-NRCS. 2014. Quinault Indian Reservation, Washington. Version 11, Spetember 2, 2014.

USFWS. 2014. NWI Wetlands Map. Accessed online December 3, 2014 at http://www.fws.gov/wetlands/.

USGS. 1990. 7.5 Minute Quadrangle Map of Stevens Creek, Washington. Provisional Edition.

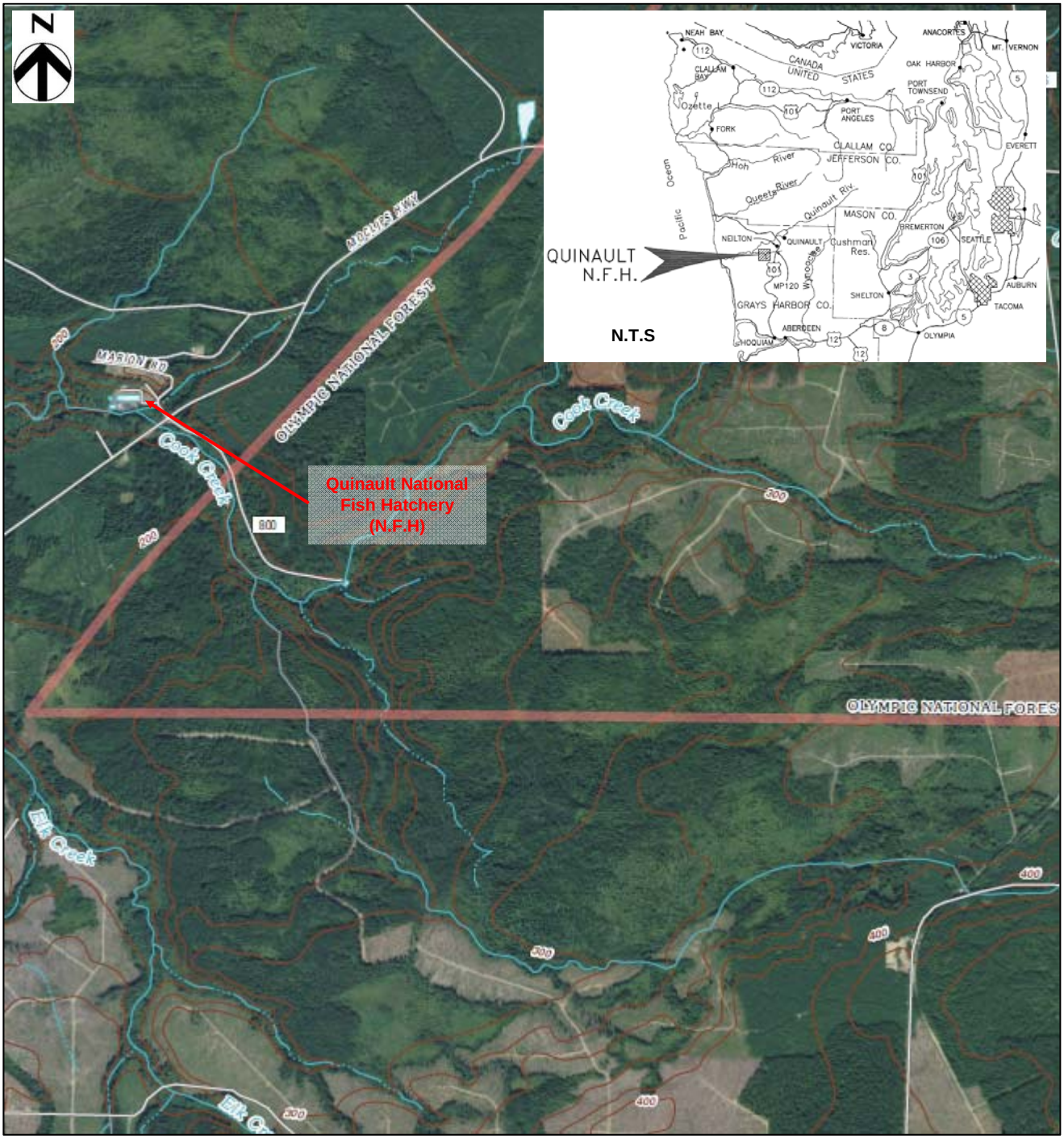
USGS. 2011. 7.5 Minute Quadrangle Map of Stevens Creek, Washington.

WDFW. 2014. Priority Habitat and Species Map in the vicinity of T22N, R10W S 31. Report Date December 17, 2014.

WRCC. 2013. Monthly Climate Summary of the Humptulips Salmon Hatch, Washington climate station. Period of record from 7/1/1987 to 3/31/2013. Accessed online at http://www.wrcc.dri.edu/climatedata/climsum/.

WRCC. 2014. Monthly Summary of Precipitation for the Humptulips Salmon Hatch, Washington climate station. 1987-2014 data accessed online at http://www.wrcc.dri.edu/climatedata/climsum/.

FIGURES



SCALE

1 0.5 0 1

Miles

Drawing based on USGS 2011 7.5
Minute Topographic Map of Stevens
Creek, Washington

MCMILLEN, LLC	**Figure 1 - Vicinity Map**

Quinault National Fish Hatchery Fish Exclusion Barrier

Grays Harbor County, Washington

U.S. Fish and Wildlife Service

National Wetlands Inventory

QNFH

Dec 3, 2014

Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

User Remarks:

APPENDIX A

DELINEATION METHODOLOGY

A.1 Wetland Delineation

A.1.1 Vegetation

The 2010 USACE manual defines hydrophytic vegetation as the community of macrophytes that occurs in areas where inundation or soil saturation is either permanent or of sufficient frequency and duration to exert a controlling influence on the plant species present. Hydrophytic plant species have the ability to grow, compete and sustain in areas where anaerobic (oxygen deprived) conditions exist from the presence of surface or groundwater. In 1988, the USACE and USFWS (Reed 1988) developed plant indicator categories that describe the probability of vegetation to occur in wetlands. This list was updated in 1993 (Reed *et al.1993*) and in 2012 (Lichvar 2012), and each plant observed within the QNFH survey area was categorized according to the Pacific Northwest Region (9) indicator status. Table 2-1 below defines the indicator status categories.

Table 2-1. Plant Indicator Status Categories

Indicator Category	Indicator Symbol	Description
Obligate Wetland Plants	OBL	Plants that occur in wetlands, under natural conditions, greater than 99 percent of the time.
Facultative Wetland Plants	FACW	Plants that occur in wetlands, under natural conditions, between 67 to 99 percent of the time.
Facultative Plants	FAC	Plants that occur in wetlands, under natural conditions, between 34 to 66 percent of the time.
Facultative Upland Plants	FACU	Plants that occur in wetlands, under natural conditions, between 1 to 33 percent of the time.
Obligate Upland Plants	UPL	Plants that occur in wetlands, under natural conditions, less than 1 percent of the time.
No Indicator	NI	Indicator status has not been identified for the species.
No Occurrence	NO	No known occurrence of the plant in the region.

The prevalence of wetland vegetation is characterized by the dominant species comprising the plant community or communities. A dominant species is considered any plant species that is represented by 20 percent or greater total aerial coverage for each vegetative stratum (tree, shrub, herbaceous or aquatic bed). Species in the facultative categories (FACW, FAC, and FACU) can occur in both wetland and upland areas to altering degrees. In general if more than 50 percent of the dominant plant species in a wetland are categorized as OBL, FACW, or FAC, then the plant community for the wetland can be classified as hydrophytic. Other indicators of hydrophytic vegetation include visual observations of plant species growing in areas of prolonged inundation and/or soil saturation, morphological adaptations, physiological adaptations and reproductive adaptations.

Wetland vegetation communities within the QNFH survey area were classified according to the Cowardin classification system (Cowardin *et al.* 1979). Vegetation nomenclature described in this report follows the format outlined in the book titled *Flora of the Pacific Northwest* (Hitchcock and Cronquist 1976).

A.1.2 Soils

The National Technical Committee for Hydric Soils (NTCHS) defines a hydric soil as a soil that formed under conditions of saturation, flooding or ponding for a long enough period of time during the growing season that anaerobic conditions develop in the upper portion of the soil profile (USACE 2010). These anaerobic conditions result in certain characteristics that can be identified in the field and that are associated with a wetland complex. Prolonged saturation, combined with microbial activity leads to the depletion of oxygen. These combined conditions promote the accumulation of organic matter and the reduction, translocation, or accumulation of iron and other reducible elements. Eventually this will lead to a chemically reduced state where soil components (iron, manganese, sulfur and carbon compounds) develop soil colors and other physical characteristics that are indicative of hydric soils. Specific hydric soil characteristics include:

- Reduced iron resulting in a soil color that is known as gley (bluish-gray or greenish-gray);
- Loss of iron resulting in a soil color that is known as redox depletion (gray or reddish-gray);
- Loss of iron resulting in concentrated soil patches known as redoximorphic concentrations (orange or red);
- Sulfidic odor; and/or
- High organic matter content (peat or muck) in the upper 32 inches of the soil profile.

Soil colors were determined using the Munsell® Soil-Color Charts (Munsell Color 2009) and their corresponding *hue* (spectral colors, e.g. 10YR), *value* (degree of lightness, e.g. 2/) and *chroma* (strength or purity of color, /1) were recorded. Soil profiles must either have a dominant chroma of 2 or less, or the layer with a dominant chroma of more than 2 must be less than 6 inches thick to meet any hydric soil indicators. Hydric soil indicators commonly found in wetlands are identified in the technical document *Field Indicators of Hydric Soils in the United States* (USDA-NRCS 2010). These indicators help identify soils that were formed under saturated, flooded or ponded conditions long enough during the growing season to develop anaerobic conditions in the upper part of the soil profile.

Numerous documented soil pits were dug throughout the wetland area as well as in the surrounding upland area to a depth of approximately 18 inches, or until refusal. The soil was analyzed visually and physically to determine its soil type. Hydric soil conditions must be met within 12 inches of the ground surface in order for a soil to be considered hydric.

A.1.3 Hydrology

Hydrologic patterns in a wetland can be influenced by precipitation, stratigraphy, topography, soil permeability, plant cover and human disturbance. Wetland hydrology encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface for more than a few days during the growing season. Wetland hydrology is sometimes difficult to determine during the summer months when precipitation has stopped, groundwater tables have dropped, stream flows have receded and springs or seeps have dried. In contrast some indicators could be present on non-wetland sites during spring break-up, after a heavy rain and during unusually high precipitation events. These seasonal variations should be considered during a wetland delineation. Hydrologic indicators were used during the wet spring months as well as the dry summer and fall months to identify primary and/or secondary indicators within the soil profile. Table 2-2 provides a list of primary and secondary indicators for Washington that provide evidence that the site has a

continuing wetland hydrologic regime and that hydric soils and hydrophytic vegetation are not relicts of a past hydrologic regime:

Table A-1. Washington Hydrologic Indicators

Indicator	Category	
	Primary	Secondary
Group A – Observation of Surface Water or Saturated Soils		
A1 – Surface water	X	
A2 – High water table	X	
A3 – Saturation	X	
Group B – Evidence of Recent Inundation		
B1 – Water marks	X	
B2 – Sediment deposits	X	
B3 – Drift deposits	X	
B4 – Algal mat or crust	X	
B5 – Iron deposits	X	
B6 – Surface soil cracks	X	
B7 – Inundation visible on aerial imagery	X	
B8 – Sparsely vegetated concave surface	X	
B11 – Salt crust	X	
B13 – Aquatic invertebrates	X	
B9 – Water-stained leaves		X
B10 – Drainage patterns		X
Group C – Evidence of Current or Recent Soil Saturation		
C1 – Hydrogen sulfide odor	X	
C3 – Oxidized rhizospheres along living roots	X	
C4 – Presence of reduced iron	X	
C6 – Recent iron reduction in tilted soils	X	
C2 – Dry-season water table		X
C9 – Saturation visible on aerial imagery		X
Group D – Evidence from Other Site Conditions or Data		
D1 – Stunted or stressed plants	X	
D2 – Geomorphic position		X
D3 – Shallow aquitard		X
D5 – FAC-neutral test		X
D6 – Raised ant mounds		X
D7 – Frost-heave hummocks		X

The growing season for a region is dependent upon climate, precipitation and topography. The beginning and ending dates of the growing season are examined for an area to determine if wetland hydrology was present for the required time period. Wetland hydrology must be present for at least 14 consecutive days within 12 inches of the ground surface during the growing season to be considered a wetland. Two indicators that the growing season has begun include 1) a soil

temperature that is 41 degrees Fahrenheit (°F) measured at 12 inches below the ground surface and/or 2) above-ground growth and development of vascular plants (USACE 2010).

The growing season has begun on a site when two or more different non-evergreen vascular plants exhibit one or more of the following indicators of biological activity:

- Emergence of herbaceous plants from the ground
- Appearance of new growth from vegetative crowns (e.g., in graminoids, bulbs, and corms)
- Coleoptile/cotyledon emergence from seed
- Bud burst on woody plants (i.e., some green foliage is visible between spreading scales)
- Emergence or elongation of leaves of woody plants
- Emergence or opening of flowers

Indicators of the end of the growing season are when woody deciduous species lose their leaves and the last herbaceous plants stop flowering and leaves become dry or brown. Additional information may be collected from the WETS tables available from the USDA-NRCS National Water and Climate Center (NWCC) (USDA 2000). These tables summarize the air temperature from National Weather Service meteorological stations throughout the United States for a specific area. The growing season dates in the WETS tables are an estimate of when air temperatures average above 28°F.

A.2 Waters of the U.S. Delineation Methodology

Streams were delineated according to their ordinary high water mark (OHWM) in accordance with the guidance set forth by the 2014 USACE manual titled *A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States* (USACE 2014) was used due to the similar landform features present in Southeast Alaska. The OHWM is defined by the USACE as:

> "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas."

Physical characteristics that are present on the shoreline of a watercourse may vary depending on the type of water body and conditions of the area. There are no required physical indicators that must be present to make an OHWM determination. However, the following physical characteristics were considered:

- Natural line impressed on the bank;
- Shelving or topographic breaks,
- Changes in the character of soil,
- Destruction of terrestrial vegetation,
- Presence of litter or debris (drift lines),
- Wracking,
- Vegetation matted down, bent, or absent,
- Sediment sorting,
- Leaf litter disturbed or washed away,
- Scour,
- Deposition,

- Multiple observed flow events,
- Bed and banks,
- Water staining, and
- Change in plant community.

Other methods for determining the OHWM that do not include physical observation:

- Lake and stream gage data,
- Elevation data,
- Spillway height,
- Flood predictions,
- Historic records of water flow, and
- Statistical evidence.

Combinations of physical characteristics and other methods should be used when available for determining the OHWM. Because many types of water bodies occur with varying conditions including topography, channel morphology and flow dynamics, other physical characteristics indicative of the OHWM may also be used that are not identified in the USACE guidance.

A.3 Wetland and Waters of the U.S. Characterization

The wetland and waters of the U.S. segments delineated were characterized according to their Cowardin (Cowardin *et al.*1979) classification. The Cowardin classification system categorizes wetlands and deep-water habitats according to five separate systems: Marine, Estuarine, Riverine, Lacustrine, and Palustrine. These systems are then stratified into subsystems based on the plant community type. These systems are further stratified into classes and subclasses based on substrate material. Each class and subclass is then annotated with specific modifiers for water regimes, water chemistry, soil, and other special characteristics. The USFWS uses this classification system on their NWI maps and it is used in this report to describe the general structure of wetlands and waters of the US.

The wetlands identified in this project were also classified according to their hydrogeomorphic (HGM) characteristics in order to determine its location and function within the watershed. HGM classifications include the following:

- Depressional
- Riverine
- Slope

A.4 Wetland Category

The Washington State Department of Ecology (Ecology) developed a four-tiered rating system presented in the Washington State Wetlands Rating System for Western Washington (Ecology 2014) that uses landscape setting, wetland and vegetation classes, physical characteristics, and other value-based and function-based criteria to place wetlands into one of four categories. This rating system was developed to differentiate between wetlands based on their sensitivity to disturbance, rarity and the functions they provide. The rating categories that are used as management standards were adopted by Grays Harbor County for the purpose of assigning buffer widths and limitations on activities that may impact wetlands. The rating system guidebook contains data forms to be completed from information gathered both in the office and in the field. The result is wetlands

being rated in four categories: I (highest value), II, III and IV (lowest value). Grays Harbor County code (18.06.020, D, 7) specifies that wetlands within their jurisdiction are to be rated according to the Washington State Department of Ecology Washington State Wetlands Identification and Delineation Manual.

A.5 Stream Type

Grays Harbor County's stream regulations are based off of the WDNR Water Typing System. The following defines each stream type as described in the following categories:

- Type S (Shoreline): Streams and waterbodies that are designated "shorelines of the state" as defined in chapter 90.58.030 RCW.
- Type F (Fish): Streams and waterbodies that are known to be used by fish, or meet the physical criteria to be potentially used by fish. Fish streams may or may not have flowing water all year; they may be perennial or seasonal.
- Type Np (Non-Fish Perennial): Streams that have flow year round and may have spatially intermittent dry reaches downstream of perennial flow. Type Np streams do not meet the physical criteria of a Type F stream.
- Type Ns (Non-Fish Seasonal): Streams that do not have surface flow during at least some portion of the year, and do not meet the physical criteria of a Type F stream.

APPENDIX B

WETLAND DATA SHEETS

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: ***Quinault National Fish Hatchery – Wetland A*** City/County: ***Grays Harbor County*** Sampling Date: ***7/26/11***

Applicant/Owner: ***USFWS*** State: ***WA*** Sampling Point: ***SP1***

Investigator(s): ***Greg Allington (McMillen, LLC)*** Section, Township, Range: ***S.31, T.22N, R.10W***

Landform (hillslope, terrace, etc.): ***Flat floodplain*** Local relief (concave, convex, none): ***none*** Slope (%): ***<5%***

Subregion (LRR): ***MLRA 4A*** Lat: ***47.358261*** Long: ***-123.993414*** Datum: ***WGS84***

Soil Map Unit Name: ***Information Not Available*** NWI classification: ***None***

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐				
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampling Area within a Wetland?**	**Yes**	☒	**No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐				

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: **20 ft**)	Absolute % Cover	Dominant Species?	Indicator Status
1. ***Salix scouleriana - Scouler's willow***	***50%***	***Yes***	***FAC***
2.			
3.			
4.			
	50%	= Total Cover	
Sapling/Shrub Stratum (Plot Size: **20 ft**)			
1.			
2.			
3.			
4.			
5.			
	0%	= Total Cover	
Herb Stratum (Plot Size: **20 ft**)			
1. ***Scirpus microcarpus – Small-fruited bulrush***	***20%***	***Yes***	***OBL***
2. ***Carex obnupta – Slough sedge***	***20%***	***Yes***	***OBL***
3. **Oenanthe sarmentosa - Pacific Water Parsley**	***10%***	***No***	***OBL***
4. ***Ranunculus repens* - Creeping buttercup**	***10%***	***No***	***FAC***
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60%	= Total Cover	
Woody Vine Stratum (Plot Size: **20 ft**)			
1.			
2.			
	0%	= Total Cover	

% Bare Ground in Herb Stratum ***20%***

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	***3***	(A)
Total Number of Dominant Species Across All Strata:	***3***	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	***100%***	(A/B)

Prevalence Index worksheet:

Total % Cover of:			Multiply by:	
OBL species	***3***		x1 =	***3***
FACW species	***0***		x2 =	***0***
FAC species	***2***		x3 =	***6***
FACU species	***0***		x4 =	***0***
UPL species	***0***		x5 =	***0***
Column Totals:	***5***	(A)		***9*** (B)

Prevalence Index = B/A = ***1.8***

Hydrophytic Vegetation Indicators:

Yes	Dominance Test is >50%
Yes	Prevalence Index is ≤3.0[1]
No	Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
No	Wetland Non-Vascular Plants[1]
No	Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: ***Quinault National Fish Hatchery – Wetland A***

SOIL

Sampling Point: ***SP1***

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	***10 YR 5/1***	***100%***					***Sandy Silt***	
4-18	***2.5 Y 3/1***	***100%***					***Sand***	***With Gravel and Cobble***

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☒ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☒	No	☐	Depth (inches): *6*
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): *0*

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: No information available

Remarks*:*

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: ***Quinault National Fish Hatchery – Wetland A*** City/County: ***Grays Harbor County*** Sampling Date: ***7/26/11***

Applicant/Owner: ***USFWS*** State: ***WA*** Sampling Point: ***SP2***

Investigator(s): ***Greg Allington (McMillen, LLC)*** Section, Township, Range: ***S.31, T.22N, R.10W***

Landform (hillslope, terrace, etc.): ***Flat floodplain*** Local relief (concave, convex, none): ***none*** Slope (%): ***30-50%***

Subregion (LRR): ***MLRA 4A*** Lat: ***47.358261*** Long: ***-123.993414*** Datum: ***WGS84***

Soil Map Unit Name: ***Information Not Available*** NWI classification: ***None***

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☒				
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampling Area within a Wetland?**	**Yes**	☐	**No** ☒
Wetland Hydrology Present?	Yes	☐	No	☒				

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: **20 ft**)	Absolute % Cover	Dominant Species?	Indicator Status
1. ***Alnus ruba – red alder***	***80%***	***Yes***	***FAC***
2.			
3.			
4.			
	80%	= Total Cover	
Sapling/Shrub Stratum (Plot Size: **20 ft**)			
1. **Rubus spectabilis – *Salmonberry***	***10%***	***No***	***FAC***
2.			
3.			
4.			
5.			
	10%	= Total Cover	
Herb Stratum (Plot Size: **20 ft**)			
1. ***Polystichum munitum* - Pineland sword fern**	***15%***	***No***	***FACU***
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15%	= Total Cover	
Woody Vine Stratum (Plot Size: **20 ft**)			
1.			
2.			
	0%	= Total Cover	
% Bare Ground in Herb Stratum ***30%***			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	***1***	(A)
Total Number of Dominant Species Across All Strata:	***1***	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	***100%***	(A/B)

Prevalence Index worksheet:

Total % Cover of:			Multiply by:	
OBL species	***0***		x1 =	***0***
FACW species	***0***		x2 =	***0***
FAC species	***2***		x3 =	***6***
FACU species	***1***		x4 =	***4***
UPL species	***0***		x5 =	***0***
Column Totals:	***3***	(A)		***10*** (B)

Prevalence Index = B/A = ***3.3***

Hydrophytic Vegetation Indicators:

Yes	Dominance Test is >50%
No	Prevalence Index is ≤3.0[1]
No	Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
No	Wetland Non-Vascular Plants[1]
No	Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: ***Quinault National Fish Hatchery – Wetland A***

SOIL

Sampling Point: ***SP2***

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0								*Riprap rock refusal*

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: *Rock*

Depth (Inches): *0*

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks: ***Rock riprap on bank is 2-4' thick***

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: No information available

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: ***Quinault National Fish Hatchery – Wetland B*** City/County: ***Grays Harbor County*** Sampling Date: ***7/26/11***

Applicant/Owner: ***USFWS*** State: ***WA*** Sampling Point: ***SP3***

Investigator(s): ***Greg Allington (McMillen, LLC)*** Section, Township, Range: ***S.31, T.22N, R.10W***

Landform (hillslope, terrace, etc.): ***Flat floodplain*** Local relief (concave, convex, none): ***none*** Slope (%): ***<5%***

Subregion (LRR): ***MLRA 4A*** Lat: ***47.358367*** Long: ***-123.991749*** Datum: ***WGS84***

Soil Map Unit Name: ***Information Not Available*** NWI classification: ***None***

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐				
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampling Area within a Wetland?**	**Yes**	☒	**No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐				

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: **20 ft**)	Absolute % Cover	Dominant Species?	Indicator Status
1. ***Salix scouleriana - Scouler's willow***	***80%***	***Yes***	***FAC***
2. ***Alnus ruba – red alder***	***20%***	***Yes***	***FAC***
3.			
4.			
	100%	= Total Cover	
Sapling/Shrub Stratum (Plot Size: **20 ft**)			
1. **Rubus spectabilis - Salmonberry**	***10%***	***No***	***FAC***
2.			
3.			
4.			
5.			
	10%	= Total Cover	
Herb Stratum (Plot Size: **20 ft**)			
1. ***Scirpus microcarpus – Small-fruited bulrush***	***40%***	***Yes***	***OBL***
2. **Oenanthe sarmentosa - Pacific Water Parsley**	***20%***	***Yes***	***OBL***
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60%	= Total Cover	
Woody Vine Stratum (Plot Size: **20 ft**)			
1.			
2.			
	0%	= Total Cover	

% Bare Ground in Herb Stratum **30%**

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	***4***	(A)
Total Number of Dominant Species Across All Strata:	***4***	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	***100%***	(A/B)

Prevalence Index worksheet:

Total % Cover of:			Multiply by:
OBL species	***2***	x1 =	***2***
FACW species	***0***	x2 =	***0***
FAC species	***3***	x3 =	***9***
FACU species	***0***	x4 =	***0***
UPL species	***0***	x5 =	***0***
Column Totals:	***5*** (A)		***11*** (B)

Prevalence Index = B/A = ***2.2***

Hydrophytic Vegetation Indicators:

Yes	Dominance Test is >50%
Yes	Prevalence Index is ≤3.0[1]
No	Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
No	Wetland Non-Vascular Plants[1]
No	Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: ***Quinault National Fish Hatchery – Wetland B***

SOIL

Sampling Point: ***SP3***

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	***10 YR 3/1***	***100%***					***Sandy Silt***	
3-18	***2.5 Y 3/1***	***100%***					***Sand***	***With Gravel and Cobble***

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☒ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☒	No	☐	Depth (inches): *10*
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): *4*

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: No information available

Remarks*:*

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: ***Quinault National Fish Hatchery – Wetland B*** City/County: ***Grays Harbor County*** Sampling Date: ***7/26/11***

Applicant/Owner: ***USFWS*** State: ***WA*** Sampling Point: ***SP4***

Investigator(s): ***Greg Allington (McMillen, LLC)*** Section, Township, Range: ***S.31, T.22N, R.10W***

Landform (hillslope, terrace, etc.): ***Flat floodplain*** Local relief (concave, convex, none): ***none*** Slope (%): ***5%***

Subregion (LRR): ***MLRA 4A*** Lat: ***47.358367*** Long: ***-123.991749*** Datum: ***WGS84***

Soil Map Unit Name: ***Information Not Available*** NWI classification: ***None***

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☒				
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampling Area within a Wetland?**	**Yes**	☐	**No** ☒
Wetland Hydrology Present?	Yes	☐	No	☒				

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: **20 ft**)	Absolute % Cover	Dominant Species?	Indicator Status
1. ***Alnus ruba – red alder***	***20%***	***Yes***	***FAC***
2. ***Salix scouleriana - Scouler's willow***	***70%***	***Yes***	***FAC***
3.			
4.			
	90%	= Total Cover	
Sapling/Shrub Stratum (Plot Size: **20 ft**)			
1. **Rubus spectabilis – *Salmonberry***	***10%***	***No***	***FAC***
2.			
3.			
4.			
5.			
	10%	= Total Cover	
Herb Stratum (Plot Size: **20 ft**)			
1. ***Heracleum maxumum* - American cow-parsnip**	***10%***	***No***	***FAC***
2. ***Ranunculus repens* - Creeping buttercup**	***40%***	***Yes***	***FAC***
3. **Oenanthe sarmentosa - Pacific Water Parsley**	***10%***	***No***	***OBL***
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60%	= Total Cover	
Woody Vine Stratum (Plot Size: **20 ft**)			
1.			
2.			
	0%	= Total Cover	

% Bare Ground in Herb Stratum ***35%***

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	***3***	(A)
Total Number of Dominant Species Across All Strata:	***3***	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	***100%***	(A/B)

Prevalence Index worksheet:

Total % Cover of:			Multiply by:
OBL species	***1***	x1 =	***1***
FACW species	***0***	x2 =	***0***
FAC species	***5***	x3 =	***15***
FACU species	***0***	x4 =	***0***
UPL species	***0***	x5 =	***0***
Column Totals:	***6*** (A)		***16*** (B)

Prevalence Index = B/A = **2.7**

Hydrophytic Vegetation Indicators:

Yes	Dominance Test is >50%
Yes	Prevalence Index is ≤3.0[1]
No	Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
No	Wetland Non-Vascular Plants[1]
No	Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: ***Quinault National Fish Hatchery – Wetland B***

SOIL

Sampling Point: ***SP4***

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	***10 YR 3/2***	***100%***					***Sandy Silt***	***With Gravels***

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: No information available

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: ***Quinault National Fish Hatchery – Wetland C*** City/County: ***Grays Harbor County*** Sampling Date: ***7/26/11***

Applicant/Owner: ***USFWS*** State: ***WA*** Sampling Point: ***SP5***

Investigator(s): ***Greg Allington (McMillen, LLC)*** Section, Township, Range: ***S.31, T.22N, R.10W***

Landform (hillslope, terrace, etc.): ***Flat floodplain*** Local relief (concave, convex, none): ***none*** Slope (%): ***<5%***

Subregion (LRR): ***MLRA 4A*** Lat: ***47.357828*** Long: ***-123.990768*** Datum: ***WGS84***

Soil Map Unit Name: ***Information Not Available*** NWI classification: ***None***

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐				
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampling Area within a Wetland?**	**Yes**	☒	**No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐				

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: **20 ft**)	Absolute % Cover	Dominant Species?	Indicator Status
1. ***Salix scouleriana - Scouler's willow***	***60%***	***Yes***	***FAC***
2.			
3.			
4.			
	60%	= Total Cover	
Sapling/Shrub Stratum (Plot Size: **20 ft**)			
1. **Rubus spectabilis – *Salmonberry***	***10%***	***No***	***FAC***
2.			
3.			
4.			
5.			
	10%	= Total Cover	
Herb Stratum (Plot Size: **20 ft**)			
1. ***Scirpus microcarpus – Small-fruited bulrush***	***10%***	***No***	***OBL***
2. **Holcus lanatus – Common velvet grass**	***5%***	***No***	***FAC***
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	15%	= Total Cover	
Woody Vine Stratum (Plot Size: **20 ft**)			
1.			
2.			
	0%	= Total Cover	

% Bare Ground in Herb Stratum ***20%***

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	***1***	(A)
Total Number of Dominant Species Across All Strata:	***1***	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	***100%***	(A/B)

Prevalence Index worksheet:

Total % Cover of:			Multiply by:
OBL species	***1***	x1 =	***1***
FACW species	***0***	x2 =	***0***
FAC species	***3***	x3 =	***9***
FACU species	***0***	x4 =	***0***
UPL species	***0***	x5 =	***0***
Column Totals:	***4*** (A)		***10*** (B)

Prevalence Index = B/A = ***2.5***

Hydrophytic Vegetation Indicators:

Yes	Dominance Test is >50%
Yes	Prevalence Index is ≤3.0[1]
No	Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
No	Wetland Non-Vascular Plants[1]
No	Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: ***Quinault National Fish Hatchery – Wetland C***

SOIL

Sampling Point: ***SP5***

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	***10 YR 3/1***	***100%***					***Sandy Silt***	
3-18	***2.5 Y 3/1***	***100%***					***Sand***	***With Gravel and Cobble***

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☒ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☒	No	☐	Depth (inches): *2*
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): *0*

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: No information available

Remarks*:*

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: ***Quinault National Fish Hatchery – Wetland C*** City/County: ***Grays Harbor County*** Sampling Date: ***7/26/11***

Applicant/Owner: ***USFWS*** State: ***WA*** Sampling Point: ***SP6***

Investigator(s): ***Greg Allington (McMillen, LLC)*** Section, Township, Range: ***S.31, T.22N, R.10W***

Landform (hillslope, terrace, etc.): ***Flat floodplain*** Local relief (concave, convex, none): ***none*** Slope (%): ***10%***

Subregion (LRR): ***MLRA 4A*** Lat: ***47.357828*** Long: ***-123.990768*** Datum: ***WGS84***

Soil Map Unit Name: ***Information Not Available*** NWI classification: ***None***

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☒				
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampling Area within a Wetland?**	**Yes**	☐	**No** ☒
Wetland Hydrology Present?	Yes	☐	No	☒				

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: **20 ft**)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0%	= Total Cover	
Sapling/Shrub Stratum (Plot Size: **20 ft**)			
1. **Oemleria cerasiformis – Indian Plum**	***30%***	***Yes***	***FACU***
2. **Rubus spectabilis – *Salmonberry***	***60%***	***Yes***	***FAC***
3.			
4.			
	90%	= Total Cover	
Herb Stratum (Plot Size: **20 ft**)			
1. ***Ranunculus repens* - Creeping buttercup**	***30%***	***Yes***	***FAC***
2. ***Scirpus microcarpus* - Small-fruited bulrush**	***20%***	***Yes***	***OBL***
3. ***Digitalis purpurea –purple foxglove***	***10%***	***No***	***FACU***
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60%	= Total Cover	
Woody Vine Stratum (Plot Size: **20 ft**)			
1.			
2.			
	0%	= Total Cover	

% Bare Ground in Herb Stratum ***40***

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	***3***	(A)
Total Number of Dominant Species Across All Strata:	***4***	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	***75%***	(A/B)

	Total % Cover of:		Multiply by:	
OBL species	***1***		x1 =	***1***
FACW species	***0***		x2 =	***0***
FAC species	***2***		x3 =	***6***
FACU species	***2***		x4 =	***8***
UPL species	***0***		x5 =	***0***
Column Totals:	***5***	(A)		***15*** (B)

Prevalence Index = B/A = ***3***

Hydrophytic Vegetation Indicators:

Yes	Dominance Test is >50%
No	Prevalence Index is ≤3.0[1]
No	Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
No	Wetland Non-Vascular Plants[1]
No	Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: ***Quinault National Fish Hatchery – Wetland C***

SOIL

Sampling Point: ***SP6***

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (Moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-18	***10 YR 3/2***	***100%***					***Sandy Silt***	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: No information available

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: ***Quinault National Fish Hatchery – Wetland D*** City/County: ***Grays Harbor County*** Sampling Date: ***7/26/11***

Applicant/Owner: ***USFWS*** State: ***WA*** Sampling Point: ***SP7***

Investigator(s): ***Greg Allington (McMillen, LLC)*** Section, Township, Range: ***S.31, T.22N, R.10W***

Landform (hillslope, terrace, etc.): ***Depression*** Local relief (concave, convex, none): ***Concave*** Slope (%): ***<5%***

Subregion (LRR): ***MLRA 4A*** Lat: ***47.357067*** Long: ***-123.990682*** Datum: ***WGS84***

Soil Map Unit Name: ***Information Not Available*** NWI classification: ***None***

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐				
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampling Area within a Wetland?**	**Yes**	☒	**No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐				

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: **20 ft**)	Absolute % Cover	Dominant Species?	Indicator Status
1. ***Picea engelmannii* - Engelmann Spruce**	***25%***	***Yes***	***FAC***
2.			
3.			
4.			
	25%	= Total Cover	
Sapling/Shrub Stratum (Plot Size: **20 ft**)			
1. **Sambucus racemosa – Red elderberry**	***10%***	***No***	***FACU***
2.			
3.			
4.			
5.			
	10%	= Total Cover	
Herb Stratum (Plot Size: **20 ft**)			
1. ***Rumex crispus* - Curly dock**	***10%***	***No***	***FAC***
2. ***Carex obnupta* - Slough sedge**	***20%***	***Yes***	***OBL***
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10%	= Total Cover	
Woody Vine Stratum (Plot Size: **20 ft**)			
1.			
2.			
	0%	= Total Cover	

% Bare Ground in Herb Stratum ***15%***

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	***2***	(A)
Total Number of Dominant Species Across All Strata:	***2***	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	***100%***	(A/B)

Prevalence Index worksheet:

Total % Cover of:			Multiply by:
OBL species	***1***	x1 =	***1***
FACW species	***0***	x2 =	***0***
FAC species	***2***	x3 =	***6***
FACU species	***1***	x4 =	***4***
UPL species	***0***	x5 =	***0***
Column Totals:	***4*** (A)		***11*** (B)

Prevalence Index = B/A = **2.75**

Hydrophytic Vegetation Indicators:

Yes	Dominance Test is >50%
Yes	Prevalence Index is ≤3.0[1]
No	Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
No	Wetland Non-Vascular Plants[1]
No	Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: ***Quinault National Fish Hatchery – Wetland D***

SOIL

Sampling Point: ***SP7***

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	***10 YR 3/1***	***100%***					***Silt***	
6-18	***10 YR 2/1***	***80%***	***7.5 YR 4/3***	***20***	***C***	***M***	***Silt***	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☒ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☒	No	☐	Depth (inches): *0*
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): *0*

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: No information available

Remarks*:*

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: ***Quinault National Fish Hatchery – Wetland D*** City/County: ***Grays Harbor County*** Sampling Date: ***7/26/11***

Applicant/Owner: ***USFWS*** State: ***WA*** Sampling Point: ***SP8***

Investigator(s): ***Greg Allington (McMillen, LLC)*** Section, Township, Range: ***S.31, T.22N, R.10W***

Landform (hillslope, terrace, etc.): ***Terrace*** Local relief (concave, convex, none): ***Convex*** Slope (%): ***<5%***

Subregion (LRR): ***MLRA 4A*** Lat: ***47.357067*** Long: ***-123.990682*** Datum: ***WGS84***

Soil Map Unit Name: ***Information Not Available*** NWI classification: ***None***

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☒				
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampling Area within a Wetland?**	**Yes**	☐	**No** ☒
Wetland Hydrology Present?	Yes	☐	No	☒				

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: **20 ft**)	Absolute % Cover	Dominant Species?	Indicator Status
1. ***Acer glabrum* – Rocky Mountain Maple**	***25%***	***Yes***	***FACU***
2.			
3.			
4.			
	40%	= Total Cover	
Sapling/Shrub Stratum (Plot Size: **20 ft**)			
1. **Sambucus racemosa – Red elderberry**	***30%***	***Yes***	***FACU***
2.			
3.			
4.			
	30%	= Total Cover	
Herb Stratum (Plot Size: **20 ft**)			
1. ***Athyrium filix-femina* - Common ladyfern**	***10%***	***No***	***FAC***
2. ***Polystichum munitum* - Pineland sword fern**	***10%***	***No***	***FACU***
3. ***Carex obnupta* - Slough sedge**	***40%***	***Yes***	***OBL***
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	60%	= Total Cover	
Woody Vine Stratum (Plot Size: **20 ft**)			
1.			
2.			
	0%	= Total Cover	
% Bare Ground in Herb Stratum **40%**			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	***1***	(A)
Total Number of Dominant Species Across All Strata:	***3***	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	***33%***	(A/B)

	Total % Cover of:		Multiply by:	
OBL species	***1***		x1 =	***1***
FACW species	***0***		x2 =	***0***
FAC species	***1***		x3 =	***3***
FACU species	***3***		x4 =	***12***
UPL species	***0***		x5 =	***0***
Column Totals:	***5***	(A)		***16*** (B)

Prevalence Index = B/A = **3.2**

Hydrophytic Vegetation Indicators:

No	Dominance Test is >50%
No	Prevalence Index is ≤3.0[1]
No	Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
No	Wetland Non-Vascular Plants[1]
No	Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: ***Quinault National Fish Hatchery – Wetland D***

SOIL

Sampling Point: ***SP8***

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (Moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-18	***10 YR 3/2***	***100%***					***Sandy Silt***	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: No information available

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: ***Quinault National Fish Hatchery – Wetland D*** City/County: ***Grays Harbor County*** Sampling Date: ***7/25/12***

Applicant/Owner: ***USFWS*** State: ***WA*** Sampling Point: ***SP17***

Investigator(s): ***Greg Allington (McMillen, LLC)*** Section, Township, Range: ***S.31, T.22N, R.10W***

Landform (hillslope, terrace, etc.): ***Depression*** Local relief (concave, convex, none): ***Concave*** Slope (%): ***<5%***

Subregion (LRR): ***MLRA 4A*** Lat: ***47.357067*** Long: ***-123.990682*** Datum: ***WGS84***

Soil Map Unit Name: ***Information Not Available*** NWI classification: ***None***

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐				
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampling Area within a Wetland?**	**Yes**	☒	**No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐				

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: **20 ft**)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	25%	= Total Cover	
Sapling/Shrub Stratum (Plot Size: **20 ft**)			
1.			
2.			
3.			
4.			
5.			
	10%	= Total Cover	
Herb Stratum (Plot Size: **20 ft**)			
1. ***Carex obnupta* - Slough sedge**	***40%***	***Yes***	***OBL***
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10%	= Total Cover	
Woody Vine Stratum (Plot Size: **20 ft**)			
1.			
2.			
	0%	= Total Cover	

% Bare Ground in Herb Stratum **30%**

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	***1***	(A)
Total Number of Dominant Species Across All Strata:	***1***	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	***100%***	(A/B)

Prevalence Index worksheet:

Total % Cover of:			Multiply by:
OBL species	***1***	x1 =	***1***
FACW species	***0***	x2 =	***0***
FAC species	***0***	x3 =	***0***
FACU species	***0***	x4 =	***0***
UPL species	***0***	x5 =	***0***
Column Totals:	***1*** (A)		***1*** (B)

Prevalence Index = B/A = **1.0**

Hydrophytic Vegetation Indicators:

Yes	Dominance Test is >50%
Yes	Prevalence Index is ≤3.0[1]
No	Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
No	Wetland Non-Vascular Plants[1]
No	Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: ***Quinault National Fish Hatchery – Wetland D***

SOIL

Sampling Point: ***SP17***

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	***10 YR 4/1***	***100%***					***Silt***	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☒ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☒	No	☐	Depth (inches): *0*
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): *0*

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: No information available

Remarks*:*

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: ***Quinault National Fish Hatchery – Wetland D*** City/County: ***Grays Harbor County*** Sampling Date: ***7/25/12***

Applicant/Owner: ***USFWS*** State: ***WA*** Sampling Point: ***SP18***

Investigator(s): ***Greg Allington (McMillen, LLC)*** Section, Township, Range: ***S.31, T.22N, R.10W***

Landform (hillslope, terrace, etc.): ***Hillslope*** Local relief (concave, convex, none): ***None*** Slope (%): ***5%***

Subregion (LRR): ***MLRA 4A*** Lat: ***47.357067*** Long: ***-123.990682*** Datum: ***WGS84***

Soil Map Unit Name: ***Information Not Available*** NWI classification: ***None***

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, Or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☒				
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampling Area within a Wetland?**	**Yes**	☐	**No** ☒
Wetland Hydrology Present?	Yes	☐	No	☒				

Remarks: ***Soils are naturally low chroma due to precipitation of approximately 160 inches per year.***

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: **20 ft**)	Absolute % Cover	Dominant Species?	Indicator Status
1. ***Tsuga heterophylla* – Western Hemlock**	***55%***	***Yes***	***FACU***
2.			
3.			
4.			
	55%	= Total Cover	
Sapling/Shrub Stratum (Plot Size: **20 ft**)			
1. **Vaccinium parvifolium – Red huckelberry**	***20%***	***Yes***	***FACU***
2. **Rubus spectabilis - Salmonberry**	***10%***	***No***	***FAC***
3.			
4.			
	30%	= Total Cover	
Herb Stratum (Plot Size: **20 ft**)			
1. ***Athyrium filix-femina* - Common ladyfern**	***15%***	***No***	***FAC***
2. ***Polystichum munitum* - Pineland sword fern**	***10%***	***No***	***FACU***
3. ***Ranunculus repens* - Creeping buttercup**	***30%***	***Yes***	***FAC***
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	55%	= Total Cover	
Woody Vine Stratum (Plot Size: **20 ft**)			
1.			
2.			
	0%	= Total Cover	
% Bare Ground in Herb Stratum **45%**			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	***1***	(A)
Total Number of Dominant Species Across All Strata:	***3***	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	***33%***	(A/B)

	Total % Cover of:		Multiply by:	
OBL species	***0***		x1 =	***0***
FACW species	***0***		x2 =	***0***
FAC species	***3***		x3 =	***9***
FACU species	***3***		x4 =	***12***
UPL species	***0***		x5 =	***0***
Column Totals:	***6***	(A)		***21*** (B)

Prevalence Index = B/A = **5.2**

Hydrophytic Vegetation Indicators:

No	Dominance Test is >50%
No	Prevalence Index is ≤3.0[1]
No	Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
No	Wetland Non-Vascular Plants[1]
No	Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: ***Quinault National Fish Hatchery – Wetland D***

SOIL

Sampling Point: ***SP18***

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (Moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	***10 YR 3/2***	***100%***					***Sandy Loam***	
6-18	***10 YR 5/2***	***100%***					***Silt Sand***	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: No information available

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: ***Quinault National Fish Hatchery – Wetland E*** City/County: ***Grays Harbor County*** Sampling Date: ***7/26/11***

Applicant/Owner: ***USFWS*** State: ***WA*** Sampling Point: ***SP9***

Investigator(s): ***Greg Allington (McMillen, LLC)*** Section, Township, Range: ***S.31, T.22N, R.10W***

Landform (hillslope, terrace, etc.): ***Depression*** Local relief (concave, convex, none): ***Concave*** Slope (%): ***<5%***

Subregion (LRR): ***MLRA 4A*** Lat: ***47.357474*** Long: ***-123.992461*** Datum: ***WGS84***

Soil Map Unit Name: ***Information Not Available*** NWI classification: ***None***

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐				
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampling Area within a Wetland?**	**Yes**	☒	**No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐				

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: **20 ft**)	Absolute % Cover	Dominant Species?	Indicator Status
1. ***Alnus ruba* - red alder**	***80%***	***Yes***	***FAC***
2.			
3.			
4.			
	80%	= Total Cover	
Sapling/Shrub Stratum (Plot Size: **20 ft**)			
1.			
2.			
3.			
4.			
5.			
	0%	= Total Cover	
Herb Stratum (Plot Size: **20 ft**)			
1. ***Carex obnupta* - Slough sedge**	***90%***	***Yes***	***OBL***
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90%	= Total Cover	
Woody Vine Stratum (Plot Size: **20 ft**)			
1.			
2.			
	0%	= Total Cover	

% Bare Ground in Herb Stratum ***10%***

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	***2***	(A)
Total Number of Dominant Species Across All Strata:	***2***	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	***100%***	(A/B)

Prevalence Index worksheet:

Total % Cover of:			Multiply by:	
OBL species	***1***		x1 =	***1***
FACW species	***0***		x2 =	***0***
FAC species	***1***		x3 =	***3***
FACU species	***0***		x4 =	***0***
UPL species	***0***		x5 =	***0***
Column Totals:	***2***	(A)		***4*** (B)

Prevalence Index = B/A = **2.0**

Hydrophytic Vegetation Indicators:

Yes	Dominance Test is >50%
Yes	Prevalence Index is ≤3.0[1]
No	Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
No	Wetland Non-Vascular Plants[1]
No	Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: ***Quinault National Fish Hatchery – Wetland E***

SOIL

Sampling Point: ***SP9***

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	***10 YR 3/2***	***100%***					***Sandy Silt***	
4-18	***10 YR 2/1***	***100%***					***Sand***	***With Cobbles***

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☒ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): *8*

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: No information available

Remarks*:*

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: ***Quinault National Fish Hatchery – Wetland E*** City/County: ***Grays Harbor County*** Sampling Date: ***7/26/11***

Applicant/Owner: ***USFWS*** State: ***WA*** Sampling Point: ***SP10***

Investigator(s): ***Greg Allington (McMillen, LLC)*** Section, Township, Range: ***S.31, T.22N, R.10W***

Landform (hillslope, terrace, etc.): ***Hillslope*** Local relief (concave, convex, none): ***Concave*** Slope (%): ***<5%***

Subregion (LRR): ***MLRA 4A*** Lat: ***47.357474*** Long: ***-123.992461*** Datum: ***WGS84***

Soil Map Unit Name: ***Information Not Available*** NWI classification: ***None***

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, Or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐				
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampling Area within a Wetland?**	**Yes**	☐	**No** ☒
Wetland Hydrology Present?	Yes	☐	No	☒				

Remarks: ***Soils are naturally low chroma due to precipitation of approximately 160 inches per year.***

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: **20 ft**)	Absolute % Cover	Dominant Species?	Indicator Status
1. ***Alnus ruba* - red alder**	***90%***	***Yes***	***FAC***
2.			
3.			
4.			
	90%	= Total Cover	
Sapling/Shrub Stratum (Plot Size: **20 ft**)			
1. **Rubus spectabilis – Salmonberry**	***70%***	***Yes***	***FAC***
2.			
3.			
4.			
	70%	= Total Cover	
Herb Stratum (Plot Size: **20 ft**)			
1. ***Polystichum munitum* - Pineland sword fern**	***20%***	***yes***	***FACU***
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20%	= Total Cover	
Woody Vine Stratum (Plot Size: **20 ft**)			
1.			
2.			
	0%	= Total Cover	

% Bare Ground in Herb Stratum **80%**

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	***2***	(A)
Total Number of Dominant Species Across All Strata:	***3***	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	***67%***	(A/B)

	Total % Cover of:		Multiply by:	
OBL species	***0***		x1 =	***0***
FACW species	***0***		x2 =	***0***
FAC species	***2***		x3 =	***6***
FACU species	***1***		x4 =	***4***
UPL species	***0***		x5 =	***0***
Column Totals:	***3***	(A)		***10*** (B)

Prevalence Index = B/A = **3.3**

Hydrophytic Vegetation Indicators:

Yes	Dominance Test is >50%
No	Prevalence Index is ≤3.0[1]
No	Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
No	Wetland Non-Vascular Plants[1]
No	Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: ***Quinault National Fish Hatchery – Wetland E***

SOIL

Sampling Point: ***SP10***

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (Moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-18	***10 YR 3/2***	***100%***					***Silty Sand***	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: No information available

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: ***Quinault National Fish Hatchery – Wetland E*** City/County: ***Grays Harbor County*** Sampling Date: ***7/25/12***

Applicant/Owner: ***USFWS*** State: ***WA*** Sampling Point: ***SP15***

Investigator(s): ***Greg Allington (McMillen, LLC)*** Section, Township, Range: ***S.31, T.22N, R.10W***

Landform (hillslope, terrace, etc.): ***Depression*** Local relief (concave, convex, none): ***Concave*** Slope (%): ***<5%***

Subregion (LRR): ***MLRA 4A*** Lat: ***47.357474*** Long: ***-123.992461*** Datum: ***WGS84***

Soil Map Unit Name: ***Information Not Available*** NWI classification: ***None***

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐				
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampling Area within a Wetland?**	**Yes**	☒	**No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐				

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: **20 ft**)	Absolute % Cover	Dominant Species?	Indicator Status
1. ***Alnus ruba* - red alder**	***40%***	***Yes***	***FAC***
2.			
3.			
4.			
	40%	= Total Cover	
Sapling/Shrub Stratum (Plot Size: **20 ft**)			
1. **Rubus spectabilis – Salmonberry**	***10%***	***No***	***FAC***
2.			
3.			
4.			
5.			
	10%	= Total Cover	
Herb Stratum (Plot Size: **20 ft**)			
1. ***Carex obnupta* - Slough sedge**	***80%***	***Yes***	***OBL***
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	80%	= Total Cover	
Woody Vine Stratum (Plot Size: **20 ft**)			
1.			
2.			
	0%	= Total Cover	
% Bare Ground in Herb Stratum **20%**			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	***2***	(A)
Total Number of Dominant Species Across All Strata:	***3***	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	***67%***	(A/B)

Prevalence Index worksheet:

Total % Cover of:			Multiply by:
OBL species	***1***	x1 =	***1***
FACW species	***0***	x2 =	***0***
FAC species	***2***	x3 =	***6***
FACU species	***0***	x4 =	***0***
UPL species	***0***	x5 =	***0***
Column Totals:	***3*** (A)		***7*** (B)

Prevalence Index = B/A = **2.3**

Hydrophytic Vegetation Indicators:

Yes	Dominance Test is >50%
Yes	Prevalence Index is ≤3.0[1]
No	Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
No	Wetland Non-Vascular Plants[1]
No	Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: ***Quinault National Fish Hatchery – Wetland E***

SOIL

Sampling Point: ***SP15***

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	***10 YR 4/1***	***100%***					***Silty Loam***	
8-18	***10 YR 2/1***	***100%***					***Sand***	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☒ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☒	No	☐	Depth (inches): *14*
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): *2*

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: No information available

Remarks*:*

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: ***Quinault National Fish Hatchery – Wetland E*** City/County: ***Grays Harbor County*** Sampling Date: ***7/25/12***

Applicant/Owner: ***USFWS*** State: ***WA*** Sampling Point: ***SP16***

Investigator(s): ***Greg Allington (McMillen, LLC)*** Section, Township, Range: ***S.31, T.22N, R.10W***

Landform (hillslope, terrace, etc.): ***Depression*** Local relief (concave, convex, none): ***Convex*** Slope (%): ***5%***

Subregion (LRR): ***MLRA 4A*** Lat: ***47.357474*** Long: ***-123.992461*** Datum: ***WGS84***

Soil Map Unit Name: ***Information Not Available*** NWI classification: ***None***

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, Or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☒				
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampling Area within a Wetland?**	**Yes**	☐	**No** ☒
Wetland Hydrology Present?	Yes	☐	No	☒				

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: **20 ft**)	Absolute % Cover	Dominant Species?	Indicator Status
1. ***Alnus ruba* - red alder**	***50%***	***Yes***	***FAC***
2. ***Acer glabrum – Rocky mountain maple***	***20%***	***Yes***	***FACU***
3.			
4.			
	70%	= Total Cover	
Sapling/Shrub Stratum (Plot Size: **20 ft**)			
1. **Rubus spectabilis - Salmonberry**	***60%***	***Yes***	***FAC***
2.			
3.			
4.			
	60%	= Total Cover	
Herb Stratum (Plot Size: **20 ft**)			
1. ***Polystichum munitum* - Pineland sword fern**	***10%***	***No***	***FACU***
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10%	= Total Cover	
Woody Vine Stratum (Plot Size: **20 ft**)			
1.			
2.			
	0%	= Total Cover	
% Bare Ground in Herb Stratum **90%**			

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	***2***	(A)
Total Number of Dominant Species Across All Strata:	***2***	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	***100%***	(A/B)

	Total % Cover of:		Multiply by:	
OBL species	***0***		x1 =	***0***
FACW species	***0***		x2 =	***0***
FAC species	***2***		x3 =	***6***
FACU species	***2***		x4 =	***8***
UPL species	***0***		x5 =	***0***
Column Totals:	***4***	(A)		***14*** (B)

Prevalence Index = B/A = **3.5**

Hydrophytic Vegetation Indicators:

Yes	Dominance Test is >50%
No	Prevalence Index is ≤3.0[1]
No	Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
No	Wetland Non-Vascular Plants[1]
No	Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: ***Quinault National Fish Hatchery – Wetland E***

SOIL

Sampling Point: ***SP16***

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (Moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-18	***10 YR 3/2***	***100%***					***Sandy Loam***	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: No information available

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: ***Quinault National Fish Hatchery – Wetland F*** City/County: ***Grays Harbor County*** Sampling Date: ***7/25/12***

Applicant/Owner: ***USFWS*** State: ***WA*** Sampling Point: ***SP11***

Investigator(s): ***Greg Allington (McMillen, LLC)*** Section, Township, Range: ***S.32, T.22N, R.10W***

Landform (hillslope, terrace, etc.): ***Flat floodplain*** Local relief (concave, convex, none): ***none*** Slope (%): ***<5%***

Subregion (LRR): ***MLRA 4A*** Lat: ***47.357071*** Long: ***-123.988447*** Datum: ***WGS84***

Soil Map Unit Name: ***Information Not Available*** NWI classification: ***None***

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐				
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampling Area within a Wetland?**	**Yes**	☒	**No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐				

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: **20 ft**)	Absolute % Cover	Dominant Species?	Indicator Status
1. ***Alnus ruba – red alder***	***40%***	***Yes***	***FAC***
2.			
3.			
4.			
	40%	= Total Cover	
Sapling/Shrub Stratum (Plot Size: **20 ft**)			
1. **Rubus spectabilis – *Salmonberry***	***15%***	***No***	***FAC***
2.			
3.			
4.			
5.			
	15%	= Total Cover	
Herb Stratum (Plot Size: **20 ft**)			
1. **Oenanthe sarmentosa - Pacific Water Parsley**	***40%***	***Yes***	***OBL***
2. ***Tussilago farfara* – Colts-foot**	***15%***	***No***	***FACU***
3. ***Carex obnupta* - Slough sedge**	***10%***	***No***	***OBL***
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	65%	= Total Cover	
Woody Vine Stratum (Plot Size: **20 ft**)			
1.			
2.			
	0%	= Total Cover	

% Bare Ground in Herb Stratum ***20%***

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	***2***	(A)
Total Number of Dominant Species Across All Strata:	***2***	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	***100%***	(A/B)

Prevalence Index worksheet:

Total % Cover of:			Multiply by:	
OBL species	***2***		x1 =	***2***
FACW species	***0***		x2 =	***0***
FAC species	***2***		x3 =	***6***
FACU species	***1***		x4 =	***4***
UPL species	***0***		x5 =	***0***
Column Totals:	***5***	(A)		***12*** (B)

Prevalence Index = B/A = ***2.4***

Hydrophytic Vegetation Indicators:

Yes	Dominance Test is >50%
Yes	Prevalence Index is ≤3.0[1]
No	Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
No	Wetland Non-Vascular Plants[1]
No	Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: *Bare Ground is open water*

Project Site: ***Quinault National Fish Hatchery – Wetland F***

SOIL

Sampling Point: ***SP11***

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	***10 YR 3/1***	***100%***					***Sand***	***With gravel***

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☒ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☒	No	☐	Depth (inches): *5*
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): *0*

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: No information available

Remarks*:*

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: ***Quinault National Fish Hatchery – Wetland F*** City/County: ***Grays Harbor County*** Sampling Date: ***7/25/12***

Applicant/Owner: ***USFWS*** State: ***WA*** Sampling Point: ***SP12***

Investigator(s): ***Greg Allington (McMillen, LLC)*** Section, Township, Range: ***S.32, T.22N, R.10W***

Landform (hillslope, terrace, etc.): ***Flat floodplain*** Local relief (concave, convex, none): ***none*** Slope (%): ***30-50%***

Subregion (LRR): ***MLRA 4A*** Lat: ***47.357071*** Long: ***-123.988447*** Datum: ***WGS84***

Soil Map Unit Name: ***Information Not Available*** NWI classification: ***None***

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, Or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☒				
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampling Area within a Wetland?**	**Yes**	☐	**No** ☒
Wetland Hydrology Present?	Yes	☐	No	☒				

Remarks: ***Soils are naturally low chroma due to precipitation of approximately 160 inches per year.***

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: **20 ft**)	Absolute % Cover	Dominant Species?	Indicator Status
1. ***Alnus ruba – red alder***	***40%***	***Yes***	***FAC***
2.			
3.			
4.			
	40%	= Total Cover	
Sapling/Shrub Stratum (Plot Size: **20 ft**)			
1. **Rubus spectabilis – *Salmonberry***	***30%***	***Yes***	***FAC***
2.			
3.			
4.			
	30%	= Total Cover	
Herb Stratum (Plot Size: **20 ft**)			
1. ***Ranunculus repens* - Creeping buttercup**	***15%***	***No***	***FAC***
2. **Tolmiea menziesii - Youth-on-age**	***45%***	***Yes***	***FAC***
3. ***Tussilago farfara* – Colts-foot**	***10%***	***No***	***FACU***
4. ***Carex obnupta* - Slough sedge**	***20%***	***Yes***	***OBL***
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90%	= Total Cover	
Woody Vine Stratum (Plot Size: **20 ft**)			
1.			
2.			
	0%	= Total Cover	

% Bare Ground in Herb Stratum ***10%***

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	***4***	(A)
Total Number of Dominant Species Across All Strata:	***4***	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	***100%***	(A/B)

	Total % Cover of:		Multiply by:	
OBL species	***1***		x1 =	***1***
FACW species	***0***		x2 =	***0***
FAC species	***4***		x3 =	***12***
FACU species	***1***		x4 =	***4***
UPL species	***0***		x5 =	***0***
Column Totals:	***6***	(A)		***17*** (B)

Prevalence Index = B/A = **2.8**

Hydrophytic Vegetation Indicators:

Yes	Dominance Test is >50%
Yes	Prevalence Index is $\leq 3.0^1$
No	Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
No	Wetland Non-Vascular Plants[1]
No	Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: ***Quinault National Fish Hatchery – Wetland F***

SOIL

Sampling Point: ***SP12***

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (Moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-18	***10 YR 3/2***	***100%***					***Sandy Loam***	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (Inches):

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: No information available

Remarks:

+WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: ***Quinault National Fish Hatchery – Wetland G*** City/County: ***Grays Harbor County*** Sampling Date: ***7/26/11***

Applicant/Owner: ***USFWS*** State: ***WA*** Sampling Point: ***SP13***

Investigator(s): ***Greg Allington (McMillen, LLC)*** Section, Township, Range: ***S.32, T.22N, R.10W***

Landform (hillslope, terrace, etc.): ***Hillslope*** Local relief (concave, convex, none): ***none*** Slope (%): ***25%***

Subregion (LRR): ***MLRA 4A*** Lat: ***47.356017*** Long: ***-123.986755*** Datum: ***WGS84***

Soil Map Unit Name: ***Information Not Available*** NWI classification: ***None***

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☐				
Hydric Soil Present?	Yes	☒	No	☐	**Is the Sampling Area within a Wetland?**	**Yes**	☒	**No** ☐
Wetland Hydrology Present?	Yes	☒	No	☐				

Remarks:

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: **20 ft**)	Absolute % Cover	Dominant Species?	Indicator Status
1. ***Alnus ruba – red alder***	***40%***	***Yes***	***FAC***
2.			
3.			
4.			
	40%	= Total Cover	
Sapling/Shrub Stratum (Plot Size: **20 ft**)			
1. **Rubus spectabilis – *Salmonberry***	***40%***	***Yes***	***FAC***
2.			
3.			
4.			
5.			
	40%	= Total Cover	
Herb Stratum (Plot Size: **20 ft**)			
1. **Oenanthe sarmentosa - Pacific Water Parsley**	***50%***	***Yes***	***OBL***
2. ***Athyrium filix-femina* – Common ladyfern**	***20%***	***Yes***	***FAC***
3. ***Ranunculus repens* - Creeping buttercup**	***20%***	***Yes***	***FAC***
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90%	= Total Cover	
Woody Vine Stratum (Plot Size: **20 ft**)			
1.			
2.			
	0%	= Total Cover	

% Bare Ground in Herb Stratum ***10%***

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	***5***	(A)
Total Number of Dominant Species Across All Strata:	***5***	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	***100%***	(A/B)

Prevalence Index worksheet:

Total % Cover of:			Multiply by:	
OBL species	***1***		x1 =	***1***
FACW species	***0***		x2 =	***0***
FAC species	***4***		x3 =	***12***
FACU species	***0***		x4 =	***0***
UPL species	***0***		x5 =	***0***
Column Totals:	***5***	(A)		***13*** (B)

Prevalence Index = B/A = ***2.6***

Hydrophytic Vegetation Indicators:

Yes	Dominance Test is >50%
Yes	Prevalence Index is $\leq$3.0[1]
No	Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
No	Wetland Non-Vascular Plants[1]
No	Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: *Bare ground is open water*

Project Site: ***Quinault National Fish Hatchery – Wetland G***

SOIL

Sampling Point: ***SP13***

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (Moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	***10 YR 2/1***	***100%***					***Sandy Silt***	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☒ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: *Rock*

Depth (Inches): *5*

Hydric Soils Present? **Yes** ☒ **No** ☐

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☒ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☒	No	☐	Depth (inches): *5*

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: No information available

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project Site: ***Quinault National Fish Hatchery – Wetland G*** City/County: ***Grays Harbor County*** Sampling Date: ***7/26/11***

Applicant/Owner: ***USFWS*** State: ***WA*** Sampling Point: ***SP14***

Investigator(s): ***Greg Allington (McMillen, LLC)*** Section, Township, Range: ***S.32, T.22N, R.10W***

Landform (hillslope, terrace, etc.): ***Hillslope*** Local relief (concave, convex, none): ***none*** Slope (%): ***25%***

Subregion (LRR): ***MLRA 4A*** Lat: ***47.356017*** Long: ***-123.986755*** Datum: ***WGS84***

Soil Map Unit Name: ***Information Not Available*** NWI classification: ***None***

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation ☐, Soil ☐, Or Hydrology ☐, significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation ☐, Soil ☒, Or Hydrology ☐, naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	☒	No	☒				
Hydric Soil Present?	Yes	☐	No	☒	**Is the Sampling Area within a Wetland?**	**Yes**	☐	**No** ☒
Wetland Hydrology Present?	Yes	☐	No	☒				

Remarks: ***Soils are naturally low chroma due to precipitation of approximately 160 inches per year.***

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: **20 ft**)	Absolute % Cover	Dominant Species?	Indicator Status
1. ***Alnus ruba – red alder***	***50%***	***Yes***	***FAC***
2.			
3.			
4.			
	50%	= Total Cover	
Sapling/Shrub Stratum (Plot Size: **20 ft**)			
1. **Rubus spectabilis – *Salmonberry***	***20%***	***Yes***	***FAC***
2.			
3.			
4.			
	20%	= Total Cover	
Herb Stratum (Plot Size: **20 ft**)			
1. **Dactylis glomerata - Orchard grass**	***20%***	***Yes***	***FACU***
2. ***Polystichum munitum* - Pineland sword fern**	***70%***	***Yes***	***FACU***
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90%	= Total Cover	
Woody Vine Stratum (Plot Size: **20 ft**)			
1.			
2.			
	0%	= Total Cover	

% Bare Ground in Herb Stratum ***10%***

Dominance Test Worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC:	***2***	(A)
Total Number of Dominant Species Across All Strata:	***4***	(B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	***50%***	(A/B)

	Total % Cover of:		Multiply by:	
OBL species	***0***		x1 =	***0***
FACW species	***0***		x2 =	***0***
FAC species	***2***		x3 =	***6***
FACU species	***2***		x4 =	***8***
UPL species	***0***		x5 =	***0***
Column Totals:	***4***	(A)		***14*** (B)

Prevalence Index = B/A = **3.5**

Hydrophytic Vegetation Indicators:

No	Dominance Test is >50%
No	Prevalence Index is $\leq$3.0[1]
No	Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
No	Wetland Non-Vascular Plants[1]
No	Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Project Site: ***Quinault National Fish Hatchery – Wetland G***

SOIL

Sampling Point: ***SP14***

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (Moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	***10 YR 3/2***	***100%***					***Loamy Sand***	

[1]Type: C= Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: *Rock*

Depth (Inches): *6*

Hydric Soils Present? **Yes** ☐ **No** ☒

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stresses Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes	☐	No	☒	Depth (inches):
Water Table Present?	Yes	☐	No	☒	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes	☐	No	☒	Depth (inches):

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: No information available

Remarks:

APPENDIX C

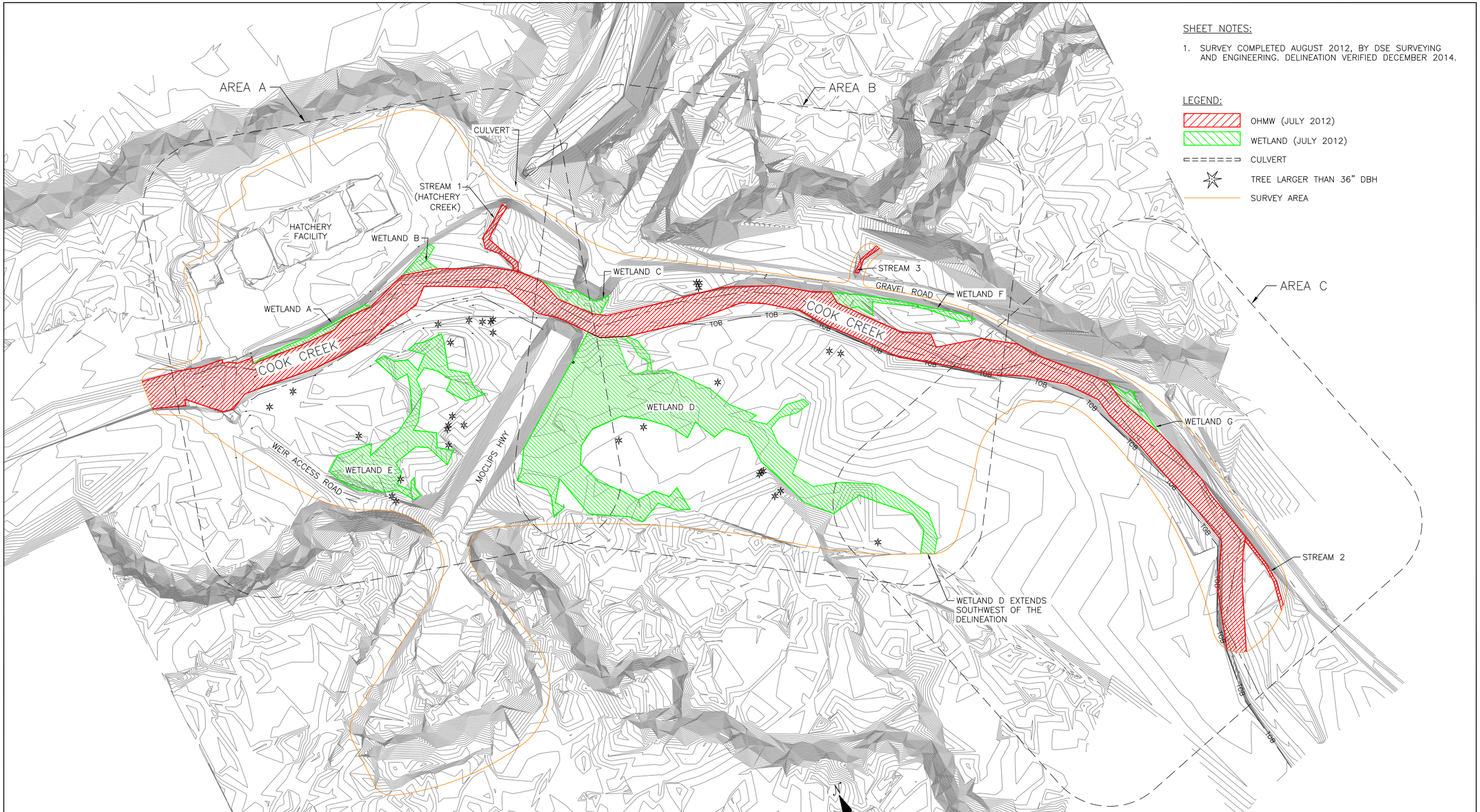
WETLAND AND WATERS OF THE U.S. DELINEATION MAPS

SHEET NOTES:

1. SURVEY COMPLETED AUGUST 2012, BY DSE SURVEYING AND ENGINEERING. DELINEATION VERIFIED DECEMBER 2014.

LEGEND:

- OHMW (JULY 2012)
- WETLAND (JULY 2012)
- CULVERT
- TREE LARGER THAN 36" DBH
- SURVEY AREA



OVERALL SITE MAP

50 25 0 100 200

Scale in Meters | Scale in Feet

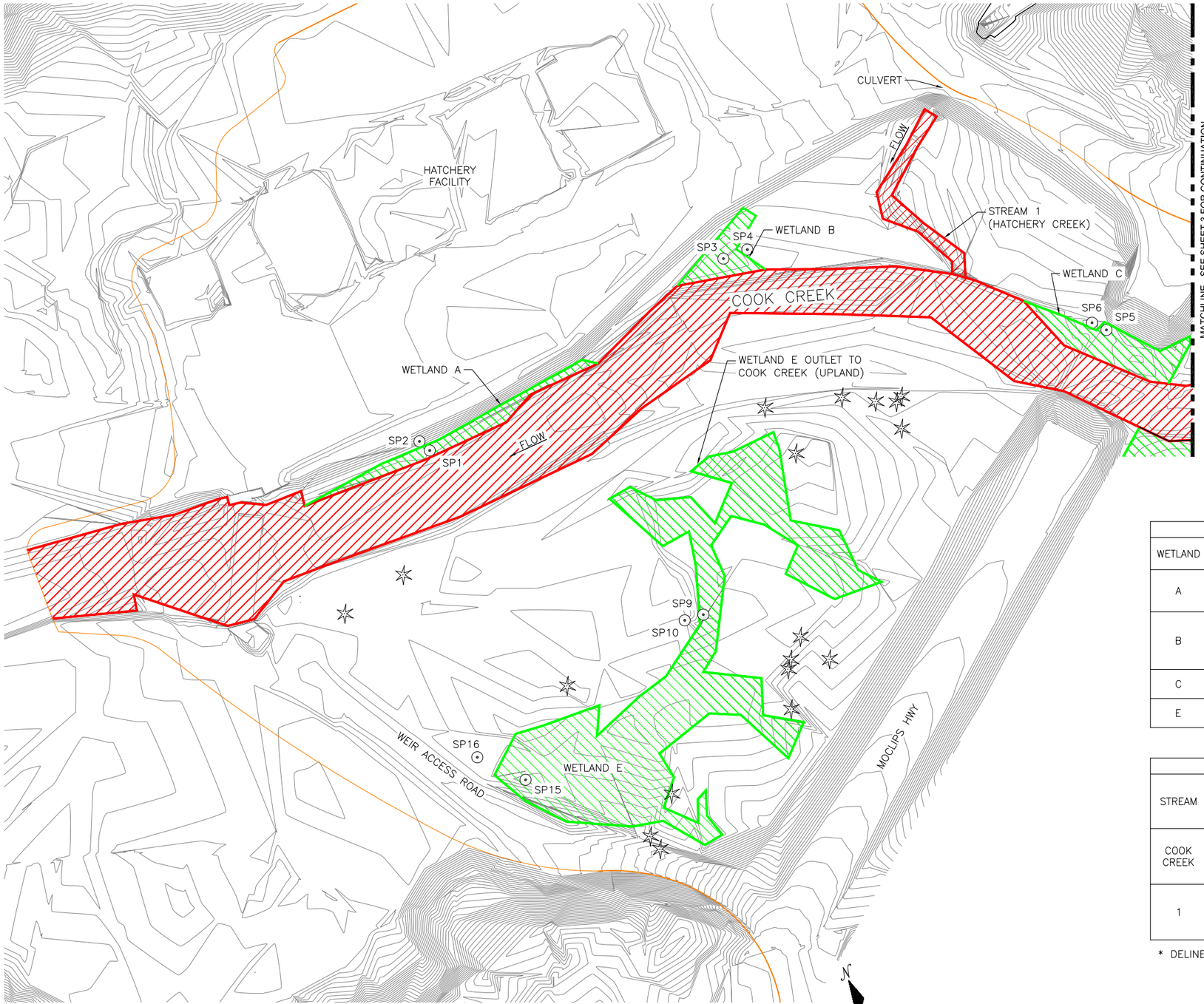
McMILLEN, LLC
1401 SHORELINE DR.
STE 100
BOISE, ID 83702
OFFICE: 208.342.4214
FAX: 208.342.4216

REV.	DATE	DESCRIPTION	BY
△			
△			
△			

QUINAULT NATIONAL FISH HATCHERY — FISH EXCLUSION BARRIER

WETLAND AND STREAM DELINEATION
OVERALL SITE MAP

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.
GA	JL	GA	1/27/15	1



AREA A SITE PLAN

30 20 10 0 50 100

Scale in Meters | Scale in Feet

SHEET NOTES:

1. SURVEY COMPLETED AUGUST 2012, BY DSE SURVEYING AND ENGINEERING. DELINEATION VERIFIED DECEMBER 2014.
2. COOK CREEK EXTENDS DOWNSTREAM OF DELINEATION.
3. STREAM 1 EXTENDS UPSTREAM OF DELINEATION.

LEGEND:

- OHMW (JULY 2012)
- WETLAND (JULY 2012)
- CULVERT
- TREE LARGER THAN 36" DBH
- SAMPLE PLOT
- SURVEY AREA

WETLAND CLASSIFICATION AND SIZE					
WETLAND	COWARDIN CLASSIFICATION			HYDROGEOMORPHIC CLASSIFICATION	SIZE (ACRES)
	SYSTEM	CLASS	WATER REGIME		
A	PALUSTRINE (P)	SCRUB–SHRUB (SS)	SEASONALLY FLOODED/SATURATED (E)	RIVERINE	0.06
B	PALUSTRINE (P)	EMERGENT (EM)	SEASONALLY FLOODED/SATURATED (E)	RIVERINE	0.05
C	PALUSTRINE (P)	EMERGENT (EM)	SEASONALLY FLOODED (C)	RIVERINE	0.08
E	PALUSTRINE (P)	EMERGENT (EM)	SEMI–PERMANENTLY FLOODED (F)	DEPRESSIONAL	0.73

STREAM CLASSIFICATION AND SIZE						
STREAM	COWARDIN CLASSIFICATION					LENGTH* (FEET)
	SYSTEM	SUB–SYSTEM	CLASS	SUB–CLASS	WATER REGIME	
COOK CREEK	RIVERINE (R)	LOWER PERENNIAL (2)	UNCONSOLIDATED BOTTOM (UB)	COBBLE–GRAVEL (1)	PERMANENTLY FLOODED	3021
1	RIVERINE (R)	LOWER PERENNIAL (2)	UNCONSOLIDATED BOTTOM (UB)	COBBLE–GRAVEL (1)	PERMANENTLY FLOODED	194

* DELINEATED STREAM LENGTH IN PROJECT AREA

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BOISE, ID 83702
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REV.	DATE	DESCRIPTION	BY
△			
△			
△			

QUINAULT NATIONAL FISH HATCHERY — FISH EXCLUSION BARRIER

WETLAND AND STREAM DELINEATION
AREA A SITE PLAN

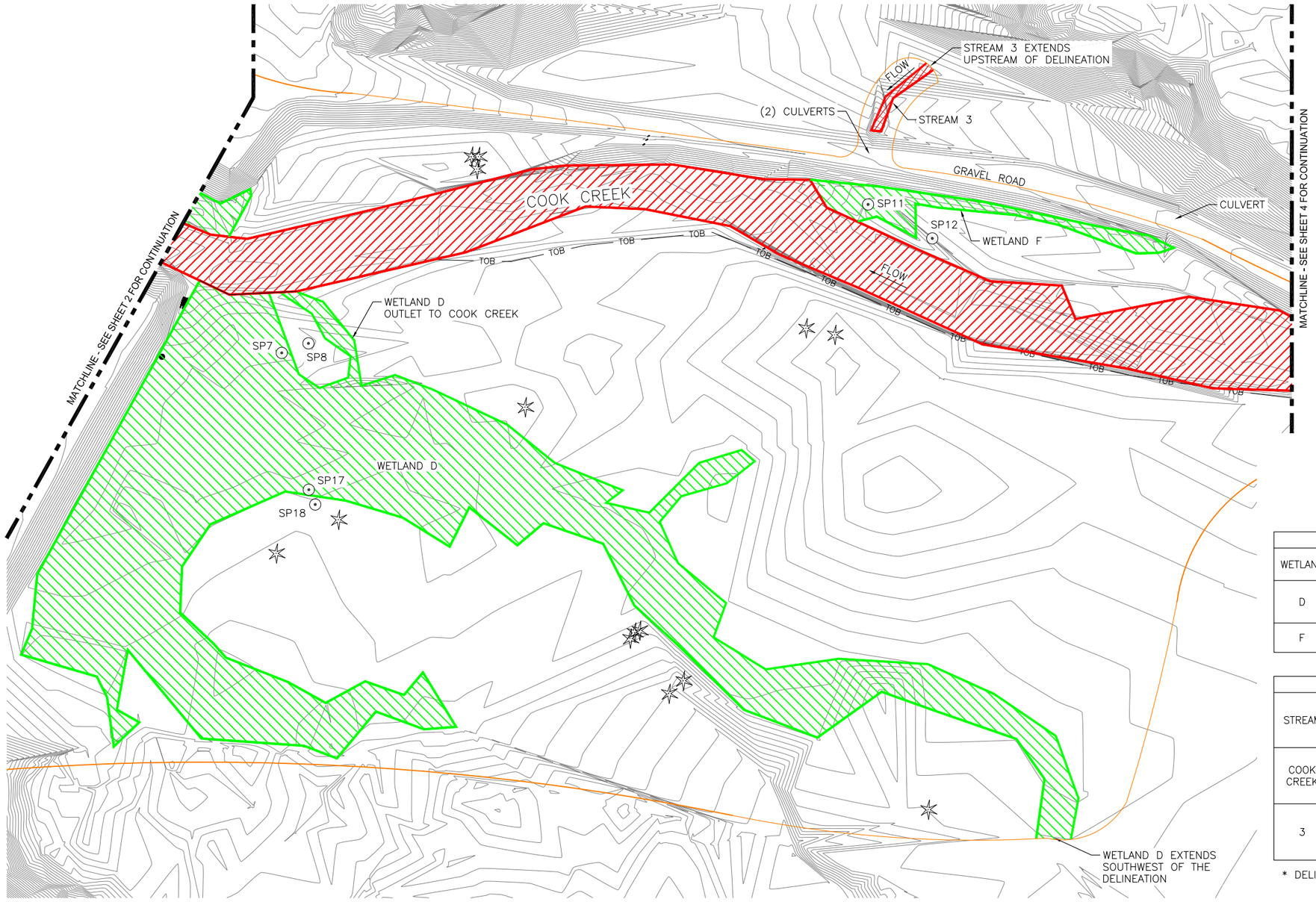
DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.
GA	JL	GA	1/27/15	2

SHEET NOTES:

1. SURVEY COMPLETED AUGUST 2012, BY DSE SURVEYING AND ENGINEERING. DELINEATION VERIFIED DECEMBER 2014.
2. STREAM 3 EXTENDS UPSTREAM OF DELINEATION.

LEGEND:

- OHMW (JULY 2012)
- WETLAND (JULY 2012)
- CULVERT
- TREE LARGER THAN 36" DBH
- SAMPLE PLOT
- SURVEY AREA



WETLAND CLASSIFICATION AND SIZE					
WETLAND	COWARDIN CLASSIFICATION			HYDROGEOMORPHIC CLASSIFICATION	SIZE (ACRES)
	SYSTEM	CLASS	WATER REGIME		
D	PALUSTRINE (P)	EMERGENT (EM)	PERMANENTLY FLOODED (H)	DEPRESSIONAL	2.53
F	PALUSTRINE (P)	EMERGENT (EM)	SEMI–PERMANENTLY FLOODED (F)	SLOPE	0.11

STREAM CLASSIFICATION AND SIZE						
STREAM	COWARDIN CLASSIFICATION					LENGTH* (FEET)
	SYSTEM	SUB–SYSTEM	CLASS	SUB–CLASS	WATER REGIME	
COOK CREEK	RIVERINE (R)	LOWER PERENNIAL (2)	UNCONSOLIDATED BOTTOM (UB)	COBBLE–GRAVEL (1)	PERMANENTLY FLOODED	3021
3	RIVERINE (R)	LOWER PERENNIAL (2)	UNCONSOLIDATED BOTTOM (UB)	COBBLE–GRAVEL (1)	PERMANENTLY FLOODED	313

* DELINEATED STREAM LENGTH IN PROJECT AREA

AREA B SITE PLAN

30 20 10 0 50 100

Scale in Meters | Scale in Feet

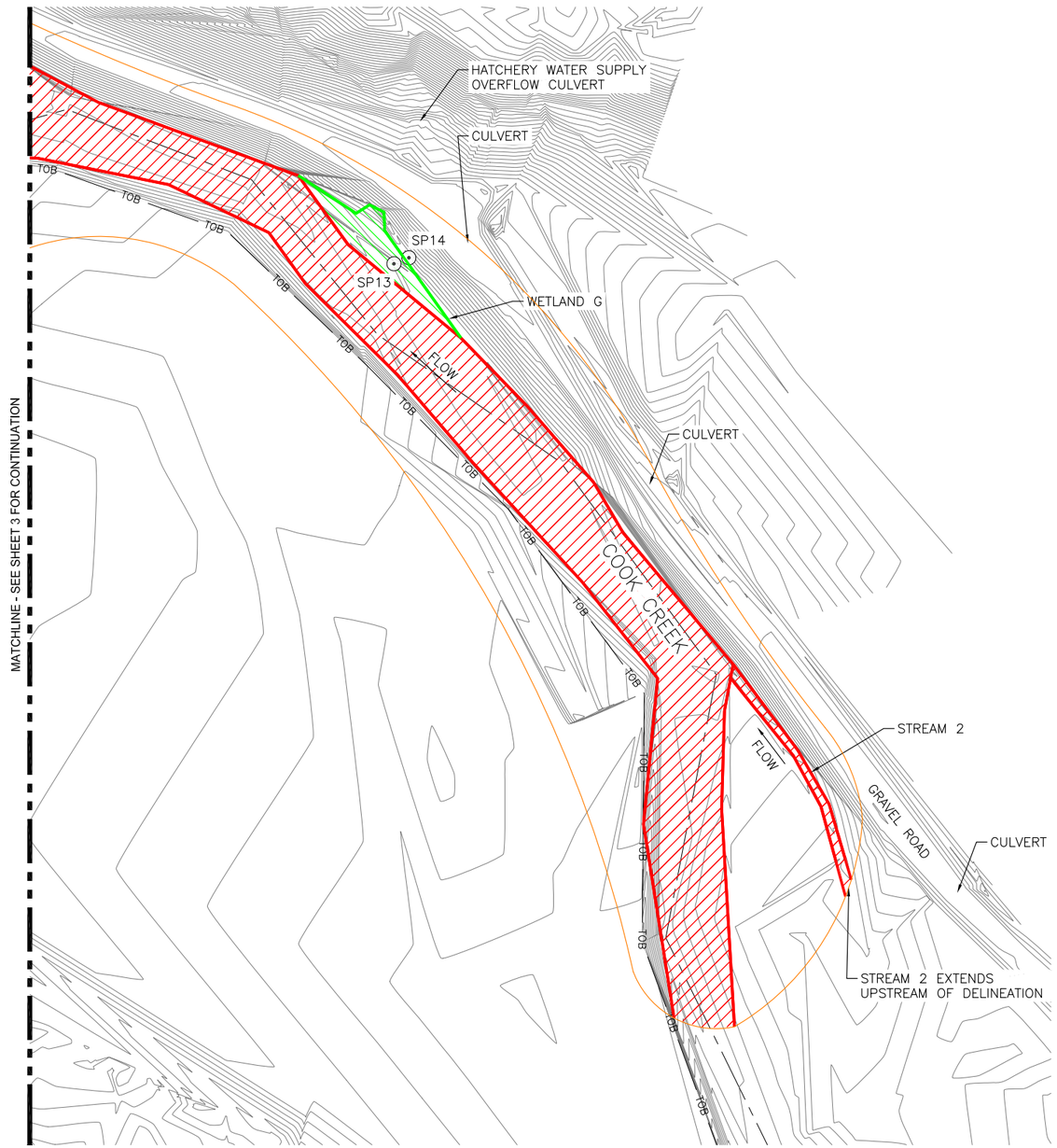
McMILLEN, LLC
1401 SHORELINE DR.
STE 100
BOISE, ID 83702
OFFICE: 208.342.4214
FAX: 208.342.4216

REV.	DATE	DESCRIPTION	BY
△			
△			
△			

QUINAULT NATIONAL FISH HATCHERY — FISH EXCLUSION BARRIER

WETLAND AND STREAM DELINEATION
AREA B SITE PLAN

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.
GA	JL	GA	1/27/15	3



AREA C SITE PLAN

30 20 10 0 50 100

Scale in Meters | Scale in Feet

N

SHEET NOTES:

1. SURVEY COMPLETED AUGUST 2012, BY DSE SURVEYING AND ENGINEERING. DELINEATION VERIFIED DECEMBER 2014.
2. COOK CREEK EXTENDS UPSTREAM OF DELINEATION.
3. STREAM 2 EXTENDS UPSTREAM OF DELINEATION.

LEGEND:

- OHMW (JULY 2012)
- WETLAND (JULY 2012)
- CULVERT
- TREE LARGER THAN 36" DBH
- SAMPLE PLOT
- SURVEY AREA

WETLAND CLASSIFICATION AND SIZE					
WETLAND	COWARDIN CLASSIFICATION			HYDROGEOMORPHIC CLASSIFICATION	SIZE (ACRES)
	SYSTEM	CLASS	WATER REGIME		
G	PALUSTRINE (P)	FORESTED (FO)	SATURATED (B)	SLOPE	0.05

STREAM CLASSIFICATION AND SIZE						
STREAM	COWARDIN CLASSIFICATION					LENGTH* (FEET)
	SYSTEM	SUB–SYSTEM	CLASS	SUB–CLASS	WATER REGIME	
COOK CREEK	RIVERINE (R)	LOWER PERENNIAL (2)	UNCONSOLIDATED BOTTOM (UB)	COBBLE–GRAVEL (1)	PERMANENTLY FLOODED	3021
2	RIVERINE (R)	LOWER PERENNIAL (2)	UNCONSOLIDATED BOTTOM (UB)	COBBLE–GRAVEL (1)	PERMANENTLY FLOODED	1020

* DELINEATED STREAM LENGTH IN PROJECT AREA

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REV.	DATE	DESCRIPTION	BY
△			
△			
△			

QUINAULT NATIONAL FISH HATCHERY — FISH EXCLUSION BARRIER

WETLAND AND STREAM DELINEATION
AREA C SITE PLAN

DESIGNED	DRAWN	CHECKED	DATE	DRAWING NO.
GA	JL	GA	1/27/15	4

APPENDIX D

PHOTOGRAPHS

Wetland A

Photograph 1 (7/26/2011) – Typical Wetland A Scrub-Shrub (looking west), Cook Creek on left of photo.

Photograph 2 (7/26/2011) – Typical Wetland A Scrub Shrub (looking east), Cook Creek on right of photo.

Photograph 3 (7/26/2011) – Wetland A SP1 Soil Pit [WETLAND]

Photograph 4 (7/26/2011) – Wetland A SP1 Vegetation [WETLAND]

Photograph 5 (7/26/2011) – Wetland A SP2 Soil Pit [UPLAND]5

Photograph 6 (7/26/2011) – Wetland A SP2 Vegetation [UPLAND]

Wetland B

Photograph 7 (7/26/2011) – Typical Wetland B Emergent (looking north).

Photograph 8 (7/26/2011) – Typical Wetland B Emergent (looking west), Cook Creek on left of photo.

Photograph 9 (7/26/2011) – Wetland B SP3 Soil Pit [WETLAND]

Photograph 10 (7/26/2011) – Wetland B SP3 Vegetation [WETLAND]

Photograph 11 (7/26/2011) – Wetland B SP4 Soil Pit [UPLAND]

Photograph 12 (7/26/2011) – Wetland B SP4 Vegetation [UPLAND]

Wetland C

Photograph 13 (7/26/2011) – Typical Wetland C Emergent (looking west), Cook Creek on left of photo.

Photograph 14 (7/26/2011) – Typical Wetland C Emergent (looking east), Cook Creek on right of photo.

Photograph 15 (7/26/2011) – Wetland C SP5 Soil Pit [WETLAND]

Photograph 16 (7/26/2011) – Wetland C SP5 Vegetation [WETLAND]

Photograph 17 (7/26/2011) – Wetland C SP6 Soil Pit [Upland]

Photograph 18 (7/26/2011) – Wetland C SP6 Vegetation [UPLAND]

Wetland D

Photograph 19 (7/26/2011) – Typical Wetland D Emergent (looking southeast).

Photograph 20 (7/26/2011) – Typical Wetland D Emergent.

Photograph 21 (7/26/2011) – Wetland D SP7 Soil Pit [WETLAND]

Photograph 22 (7/26/2011) – Wetland D SP7 Vegetation [WETLAND]

Photograph 23 (7/26/2011) – Wetland D SP8 Soil Pit [UPLAND]

Photograph 24 (7/26/2011) – Wetland D SP8 Vegetation [UPLAND]

Photograph 25 (7/25/2012) – Wetland D SP17 Soil Pit [WETLAND]

Photograph 26 (7/25/2012) – Wetland D SP17 Vegetation [WETLAND]

Photograph 27 (7/25/2012) – Wetland D SP18 Soil Pit [UPLAND]

Photograph 28 (7/25/2012) – Wetland D SP18 Vegetation [UPLAND]

Wetland E

Photograph 29 (7/26/2011) – Typical Wetland E Emergent

Photograph 30 (7/25/2012) – Typical Wetland E Emergent

Photograph 31 (7/26/2011) – Wetland E SP9 Soil Pit [WETLAND]

Photograph 32 (7/26/2011) – Wetland E SP9 Vegetation [WETLAND]

Photograph 33 (7/26/2011) – Wetland E SP10 Soil Pit [UPLAND]

Photograph 34 (7/26/2011) – Wetland E SP10 Vegetation [UPLAND]

Photograph 35 (7/25/2012) – Wetland E SP15 Soil Pit [WETLAND]

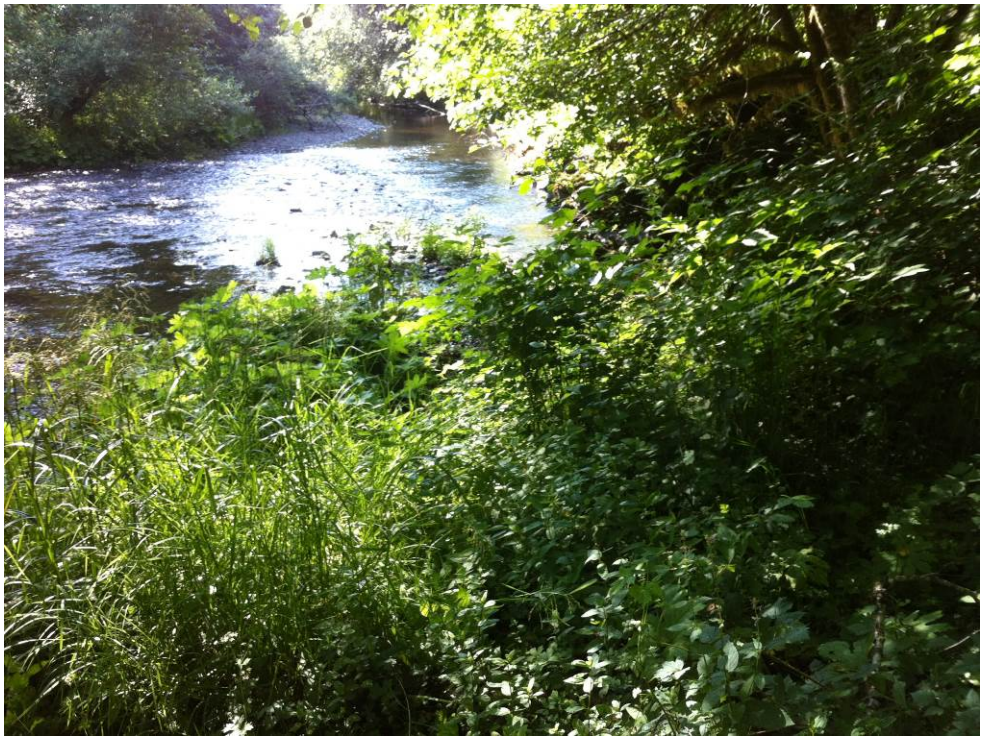
Photograph 36 (7/25/2012) – Wetland E SP15 Vegetation [WETLAND]

Photograph 37 (7/25/2012) – Wetland E SP16 Soil Pit [UPLAND]

Photograph 38 (7/25/2012) – Wetland E SP16 Vegetation [UPLAND]

Wetland F

Photograph 39 (7/25/2012) – Typical Wetland F Emergent



Photograph 40 (7/25/2012) – Typical Wetland F Emergent (looking northwest), Cook Creek on right of photo.

Photograph 41 (7/25/2012) – Looking at Stream 3 culvert entrance into Wetland F.

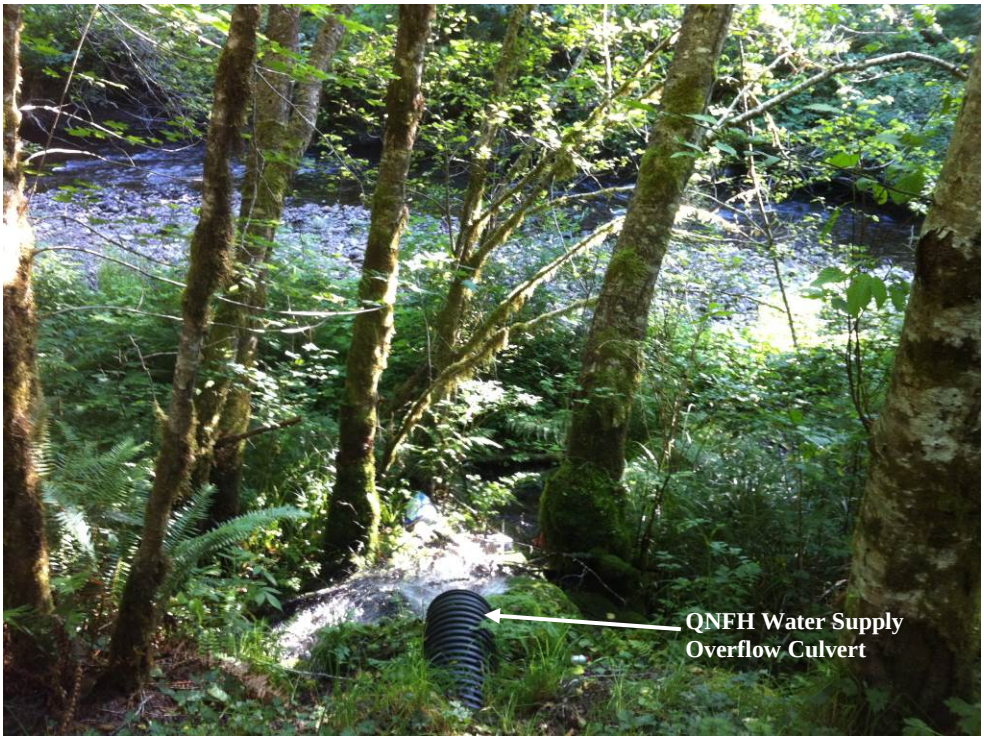
Photograph 42 (7/25/2012) – Wetland F SP11 Soil Pit [WETLAND]

Photograph 43 (7/25/2012) – Wetland F SP11 Vegetation [WETLAND]

Photograph 44 (7/25/2012) – Wetland F SP12 Soil Pit [UPLAND]

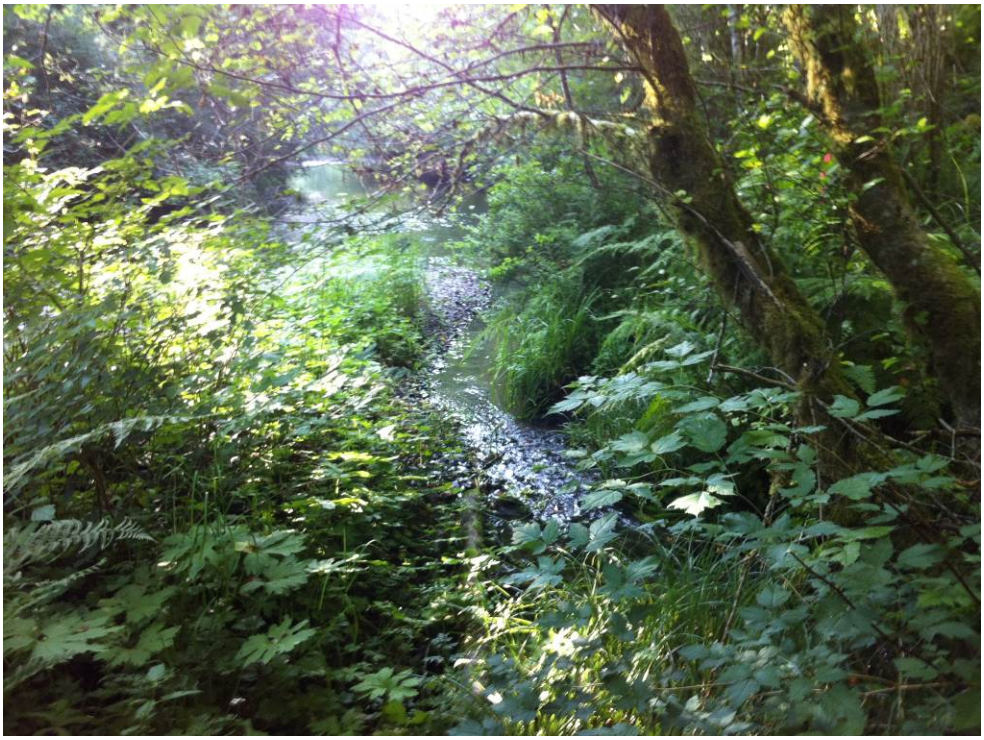
Photograph 45 (7/25/2012) – Wetland F SP12 Vegetation [UPLAND]

Wetland G



Photograph 46 (7/25/2012) – Typical Wetland G Forested (looking west), Cook Creek in background.

Photograph 47 (7/25/2012) – Typical Wetland G Forested (looking north)



Photograph 48 (7/25/2012) – Typical Wetland G Forested (looking northwest), Cook Creek in background.

Photograph 49 (7/25/2012) – Wetland G SP13 Soil Pit [WETLAND]

Photograph 50 (7/25/2012) – Wetland G SP13 Vegetation [WETLAND]

Photograph 51 (7/25/2012) – Wetland G SP14 Soil Pit [UPLAND]

Photograph 52 (7/25/2012) – Wetland G SP14 Vegetation [UPLAND]

Stream 1

Photograph 53 (7/26/2011) – Stream 1 Channel (looking southeast downstream).

Photograph 54 (7/26/2011) – Stream 1 Outlet into Cook Creek (looking northeast).

Stream 2

Photograph 55 (7/25/2012) – Stream 2 Channel (looking north downstream)

Photograph 56 (7/25/2012) – Stream 2 Outlet into Cook Creek (looking north).

Stream 3

Photograph 57 (7/25/2012) – Stream 3 Channel (looking southwest downstream).

Photograph 58 (7/25/2012) – Culvert Entrance into Stream 3 (looking northeast).

Cook Creek

Photograph 59 (7/25/2012) – Cook Creek at the Fish Barrier during low flow conditions (looking south).

Photograph 60 (9/25/2014) – Cook Creek at the Fish Barrier during high flow conditions (looking south).

APPENDIX E

WETLAND RATING FORMS

Wetland name or number A

RATING SUMMARY – Western Washington

Name of wetland (or ID #): A Date of site visit: 7/25/12

Rated by Greg Allington Trained by Ecology? X Yes ___ No Date of training 2008

HGM Class used for rating Riverine Wetland has multiple HGM classes? ___ Y X N

NOTE: Form is not complete without the figures requested *(figures can be combined).*

Source of base aerial photo/map Google Earth

OVERALL WETLAND CATEGORY IV (based on functions___ or special characteristics___)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

_____**Category III** – Total score = 16 - 19

X **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
		Circle the appropriate ratings		
Site Potential	H (M) L	H M (L)	H M (L)	
Landscape Potential	H (M) L	H (M) L	(H) M L	
Value	H M (L)	H M (L)	H (M) L	TOTAL
Score Based on Ratings	5	4	6	15

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	

Wetland name or number A

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   NO – go to 3 **YES** – The wetland class is **Flats**
   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ___At least 30% of the open water area is deeper than 6.6 ft (2 m).

   NO – go to 4 **YES** – The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   ___The wetland is on a slope (*slope can be very gradual*),
   ___The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   X The water leaves the wetland **without being impounded**.

   NO – go to 5 **YES** – The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   X The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   X The overbank flooding occurs at least once every 2 years.

Wetland name or number A

NO – go to 6 **YES** – The wetland class is **Riverine**
NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

   NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

   NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number A

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

R 1.0. Does the site have the potential to improve water quality?		
R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a flooding event:		2
Depressions cover > $^3/_4$ area of wetland	points = 8	
Depressions cover > ½ area of wetland	points = 4	
X Depressions present but cover < ½ area of wetland	points = 2	
No depressions present	points = 0	
R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, **not** Cowardin classes)		6
Trees or shrubs > $^2/_3$ area of the wetland	points = 8	
X Trees or shrubs > $^1/_3$ area of the wetland	points = 6	
Herbaceous plants (> 6 in high) > $^2/_3$ area of the wetland	points = 6	
Herbaceous plants (> 6 in high) > $^1/_3$ area of the wetland	points = 3	
Trees, shrubs, and ungrazed herbaceous < $^1/_3$ area of the wetland	points = 0	
Total for R 1	Add the points in the boxes above	8

Rating of Site Potential If score is: ___ **12-16 = H** X **6-11 = M** ___ **0-5 = L** *Record the rating on the first page*

R 2.0. Does the landscape have the potential to support the water quality function of the site?		
R 2.1. Is the wetland within an incorporated city or within its UGA?	Yes = 2 (No = 0)	0
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area?	Yes = 1 (No = 0)	0
R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years?	(Yes = 1) No = 0	1
R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 (No = 0)	0
R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1-R 2.4 Other sources _____	Yes = 1 (No = 0)	0
Total for R 2	Add the points in the boxes above	1

Rating of Landscape Potential If score is: ___ **3-6 = H** X **1 or 2 = M** ___ **0 = L** *Record the rating on the first page*

R 3.0. Is the water quality improvement provided by the site valuable to society?		
R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi?	Yes = 1 (No = 0)	0
R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens?	Yes = 1 (No = 0)	0
R 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? (*answer YES if there is a TMDL for the drainage in which the unit is found*)	Yes = 2 (No = 0)	0
Total for R 3	Add the points in the boxes above	0

Rating of Value If score is: ___ **2-4 = H** ___ **1 = M** X **0 = L** *Record the rating on the first page*

Wetland name or number A

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Hydrologic Functions - Indicators that site functions to reduce flooding and stream erosion

R 4.0. Does the site have the potential to reduce flooding and erosion?	
R 4.1. Characteristics of the overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average width of stream between banks).* If the ratio is more than 20 — points = 9 If the ratio is 10-20 — points = 6 If the ratio is 5-<10 — points = 4 If the ratio is 1-<5 — points = 2 X If the ratio is < 1 — points = 1	1
R 4.2. Characteristics of plants that slow down water velocities during floods: *Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are NOT Cowardin classes).* Forest or shrub for > $^1/_3$ area OR emergent plants > $^2/_3$ area — points = 7 X Forest or shrub for > $^1/_{10}$ area OR emergent plants > $^1/_3$ area — points = 4 Plants do not meet above criteria — points = 0	4
Total for R 4 — Add the points in the boxes above	5

Rating of Site Potential If score is: ___ **12-16 = H** ___ **6-11 = M** X **0-5 = L** *Record the rating on the first page*

R 5.0. Does the landscape have the potential to support the hydrologic functions of the site?		
R 5.1. Is the stream or river adjacent to the wetland downcut?	Yes = 0 (No = 1)	1
R 5.2. Does the up-gradient watershed include a UGA or incorporated area?	Yes = 1 (No = 0)	0
R 5.3. Is the up-gradient stream or river controlled by dams?	Yes = 0 (No = 1)	1
Total for R 5	Add the points in the boxes above	2

Rating of Landscape Potential If score is: ___ **3 = H** X **1 or 2 = M** ___ **0 = L** *Record the rating on the first page*

R 6.0. Are the hydrologic functions provided by the site valuable to society?	
R 6.1. Distance to the nearest areas downstream that have flooding problems? *Choose the description that best fits the site.* The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) — points = 2 Surface flooding problems are in a sub-basin farther down-gradient — points = 1 X No flooding problems anywhere downstream — points = 0	0
R 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 (No = 0)	0
Total for R 6 — Add the points in the boxes above	0

Rating of Value If score is: ___ **2-4 = H** ___ **1 = M** X **0 = L** *Record the rating on the first page*

Wetland name or number A

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

____Aquatic bed	4 structures or more: points = 4
X Emergent	3 structures: points = 2
X Scrub-shrub (areas where shrubs have > 30% cover)	X 2 structures: points = 1
____Forested (areas where trees have > 30% cover)	1 structure: points = 0

If the unit has a Forested class, check if:

____The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

1

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

____Permanently flooded or inundated	4 or more types present: points = 3
X Seasonally flooded or inundated	3 types present: points = 2
____Occasionally flooded or inundated	X 2 types present: points = 1
____Saturated only	1 type present: points = 0
X Permanently flowing stream or river in, or adjacent to, the wetland	
____Seasonally flowing stream in, or adjacent to, the wetland	
____**Lake Fringe wetland**	**2 points**
____**Freshwater tidal wetland**	**2 points**

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species	points = 2
X 5 - 19 species	points = 1
< 5 species	points = 0

1

H 1.4. Interspersion of habitats

Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*

None = 0 points

X **Low** = 1 point

Moderate = 2 points

All three diagrams in this row are **HIGH** = 3points

1

Wetland name or number A

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ____Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ____Standing snags (dbh > 4 in) within the wetland ____Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ____At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* X Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	1
Total for H 1 — Add the points in the boxes above	5

Rating of Site Potential If score is:___**15-18 = H** ___**7-14 = M** X **0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat 80 + [(% moderate and low intensity land uses)/2] 10 = 90 % If total accessible habitat is: X > $^1/_3$ (33.3%) of 1 km Polygon — points = 3 20-33% of 1 km Polygon — points = 2 10-19% of 1 km Polygon — points = 1 < 10% of 1 km Polygon — points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat 80 + [(% moderate and low intensity land uses)/2] 10 = 90 % X Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10-50% and in 1-3 patches — points = 2 Undisturbed habitat 10-50% and > 3 patches — points = 1 Undisturbed habitat < 10% of 1 km Polygon — points = 0	3
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use — points = (- 2) X ≤ 50% of 1 km Polygon is high intensity — points = 0	0
Total for H 2 — Add the points in the boxes above	6

Rating of Landscape Potential If score is: X **4-6 = H** ___**1-3 = M** ___**< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: — points = 2 — It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan X Site has 1 or 2 priority habitats (listed on next page) within 100 m — points = 1 Site does not meet any of the criteria above — points = 0	1

Rating of Value If score is:___**2 = H** X **1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number A

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

— **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

X **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

— **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

— **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number A

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes –Go to **SC 1.1** No – **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = **Category I** No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to **SC 2.2** No – Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = **Category I** No = **Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes – **Contact WNHP/WDNR and go to SC 2.4** No = **Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes = **Category I** No = **Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to **SC 3.3** No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 3.3** No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = **Is a Category I bog** No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = **Is a Category I bog** No = **Is not a bog**	**Cat. I**

Wetland name or number A

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** — **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). Yes = **Category I** No = **Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* Yes – Go to **SC 5.1** No = **Not a wetland in a coastal lagoon**	**Cat. I**
SC 5.1. Does the wetland meet all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) Yes = **Category I** No = **Category II**	**Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yes – Go to **SC 6.1** No = **not an interdunal wetland for rating**	**Cat I**
SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = **Category I** No – Go to **SC 6.2**	**Cat. II**
SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = **Category II** No – Go to **SC 6.3**	**Cat. III**
SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = **Category III** No = **Category IV**	**Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	NA

Wetland name or number B

RATING SUMMARY – Western Washington

Name of wetland (or ID #): B Date of site visit: 7/25/12

Rated by Greg Allington Trained by Ecology? X Yes ___ No Date of training 2008

HGM Class used for rating Riverine Wetland has multiple HGM classes? ___ Y X N

NOTE: Form is not complete without the figures requested *(figures can be combined).*
Source of base aerial photo/map Google Earth

OVERALL WETLAND CATEGORY IV (based on functions___ or special characteristics___)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

_____**Category III** – Total score = 16 - 19

X **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
		Circle the appropriate ratings		
Site Potential	H M (L)	H M (L)	H M (L)	
Landscape Potential	H (M) L	H (M) L	(H) M L	
Value	H M (L)	H M (L)	H (M) L	TOTAL
Score Based on Ratings	4	4	6	14

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	

Wetland name or number B

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   NO – go to 3 **YES** – The wetland class is **Flats**
   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   ___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   ___At least 30% of the open water area is deeper than 6.6 ft (2 m).

   NO – go to 4 **YES** – The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   ___The wetland is on a slope (*slope can be very gradual*),
   ___The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   X The water leaves the wetland **without being impounded**.

   NO – go to 5 **YES** – The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   X The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   X The overbank flooding occurs at least once every 2 years.

Wetland name or number B

NO – go to 6 **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number B

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

R 1.0. Does the site have the potential to improve water quality?		
R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a flooding event:		2
Depressions cover > $^3/_4$ area of wetland	points = 8	
Depressions cover > ½ area of wetland	points = 4	
X Depressions present but cover < ½ area of wetland	points = 2	
No depressions present	points = 0	
R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, **not** Cowardin classes)		3
Trees or shrubs > $^2/_3$ area of the wetland	points = 8	
Trees or shrubs > $^1/_3$ area of the wetland	points = 6	
Herbaceous plants (> 6 in high) > $^2/_3$ area of the wetland	points = 6	
X Herbaceous plants (> 6 in high) > $^1/_3$ area of the wetland	points = 3	
Trees, shrubs, and ungrazed herbaceous < $^1/_3$ area of the wetland	points = 0	
Total for R 1	Add the points in the boxes above	5

Rating of Site Potential If score is: ___ **12-16 = H** ___ **6-11 = M** X **0-5 = L** *Record the rating on the first page*

R 2.0. Does the landscape have the potential to support the water quality function of the site?		
R 2.1. Is the wetland within an incorporated city or within its UGA?	Yes = 2 (No = 0)	0
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area?	Yes = 1 (No = 0)	0
R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years?	(Yes = 1) No = 0	1
R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 (No = 0)	0
R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1-R 2.4 Other sources _____	Yes = 1 (No = 0)	0
Total for R 2	Add the points in the boxes above	1

Rating of Landscape Potential If score is: ___ **3-6 = H** X **1 or 2 = M** ___ **0 = L** *Record the rating on the first page*

R 3.0. Is the water quality improvement provided by the site valuable to society?		
R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi?	Yes = 1 (No = 0)	0
R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens?	Yes = 1 (No = 0)	0
R 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? (*answer YES if there is a TMDL for the drainage in which the unit is found*)	Yes = 2 (No = 0)	0
Total for R 3	Add the points in the boxes above	0

Rating of Value If score is: ___ **2-4 = H** ___ **1 = M** X **0 = L** *Record the rating on the first page*

Wetland name or number B

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Hydrologic Functions - Indicators that site functions to reduce flooding and stream erosion

R 4.0. Does the site have the potential to reduce flooding and erosion?		
R 4.1. Characteristics of the overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average width of stream between banks).* If the ratio is more than 20	points = 9	1
If the ratio is 10-20	points = 6	
If the ratio is 5-<10	points = 4	
If the ratio is 1-<5	points = 2	
X If the ratio is < 1	points = 1	
R 4.2. Characteristics of plants that slow down water velocities during floods: *Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are NOT Cowardin classes).* Forest or shrub for > $^1/_3$ area OR emergent plants > $^2/_3$ area	points = 7	4
X Forest or shrub for > $^1/_{10}$ area OR emergent plants > $^1/_3$ area	points = 4	
Plants do not meet above criteria	points = 0	
Total for R 4	Add the points in the boxes above	5

Rating of Site Potential If score is:___**12-16 = H** ___**6-11 = M** X **0-5 = L** *Record the rating on the first page*

R 5.0. Does the landscape have the potential to support the hydrologic functions of the site?		
R 5.1. Is the stream or river adjacent to the wetland downcut?	Yes = 0 (No = 1)	1
R 5.2. Does the up-gradient watershed include a UGA or incorporated area?	Yes = 1 (No = 0)	0
R 5.3. Is the up-gradient stream or river controlled by dams?	Yes = 0 (No = 1)	1
Total for R 5	Add the points in the boxes above	2

Rating of Landscape Potential If score is:___**3 = H** X **1 or 2 = M** ___**0 = L** *Record the rating on the first page*

R 6.0. Are the hydrologic functions provided by the site valuable to society?		
R 6.1. Distance to the nearest areas downstream that have flooding problems? *Choose the description that best fits the site.* The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds)	points = 2	0
Surface flooding problems are in a sub-basin farther down-gradient	points = 1	
X No flooding problems anywhere downstream	points = 0	
R 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?	Yes = 2 (No = 0)	0
Total for R 6	Add the points in the boxes above	0

Rating of Value If score is:___**2-4 = H** ___**1 = M** X **0 = L** *Record the rating on the first page*

Wetland name or number B

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

___Aquatic bed	4 structures or more: points = 4
X Emergent	3 structures: points = 2
X Scrub-shrub (areas where shrubs have > 30% cover)	2 structures: points = 1
___Forested (areas where trees have > 30% cover)	1 structure: points = 0

If the unit has a Forested class, check if:

___The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

1

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

___Permanently flooded or inundated	4 or more types present: points = 3
X Seasonally flooded or inundated	3 types present: points = 2
___Occasionally flooded or inundated	X 2 types present: points = 1
___Saturated only	1 type present: points = 0
X Permanently flowing stream or river in, or adjacent to, the wetland	
___Seasonally flowing stream in, or adjacent to, the wetland	
___**Lake Fringe wetland**	**2 points**
___**Freshwater tidal wetland**	**2 points**

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species	points = 2
X 5 - 19 species	points = 1
< 5 species	points = 0

1

H 1.4. Interspersion of habitats

Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*

None = 0 points X **Low** = 1 point **Moderate** = 2 points

All three diagrams in this row are **HIGH** = 3points

1

Wetland name or number B

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ____Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ____Standing snags (dbh > 4 in) within the wetland ____Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ____At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* X Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	1
Total for H 1 — Add the points in the boxes above	5

Rating of Site Potential If score is:___**15-18 = H** ___**7-14 = M** X **0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat 80 + [(% moderate and low intensity land uses)/2] 10 = 90 % If total accessible habitat is: X > 1/3 (33.3%) of 1 km Polygon — points = 3 20-33% of 1 km Polygon — points = 2 10-19% of 1 km Polygon — points = 1 < 10% of 1 km Polygon — points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat 80 + [(% moderate and low intensity land uses)/2] 10 = 90 % X Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10-50% and in 1-3 patches — points = 2 Undisturbed habitat 10-50% and > 3 patches — points = 1 Undisturbed habitat < 10% of 1 km Polygon — points = 0	3
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use — points = (- 2) X ≤ 50% of 1 km Polygon is high intensity — points = 0	0
Total for H 2 — Add the points in the boxes above	6

Rating of Landscape Potential If score is: X **4-6 = H** ___**1-3 = M** ___**< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: — points = 2 — It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan X Site has 1 or 2 priority habitats (listed on next page) within 100 m — points = 1 Site does not meet any of the criteria above — points = 0	1

Rating of Value If score is:___**2 = H** X **1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number B

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

— **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

X **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

— **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

— **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number B

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes –Go to **SC 1.1** No= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = **Category I** No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to **SC 2.2** No – Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = **Category I** No = **Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes – **Contact WNHP/WDNR and go to SC 2.4** No = **Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes = **Category I** No = **Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to **SC 3.3** No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 3.3** No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = **Is a Category I bog** No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = **Is a Category I bog** No = **Is not a bog**	**Cat. I**

Wetland name or number B

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** — **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). Yes = **Category I** No = **Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* Yes – Go to **SC 5.1** No = **Not a wetland in a coastal lagoon**	**Cat. I**
SC 5.1. Does the wetland meet all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) Yes = **Category I** No = **Category II**	**Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yes – Go to **SC 6.1** No = **not an interdunal wetland for rating**	**Cat I**
SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = **Category I** No – Go to **SC 6.2**	**Cat. II**
SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = **Category II** No – Go to **SC 6.3**	**Cat. III**
SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = **Category III** No = **Category IV**	**Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	NA

Wetland name or number C

RATING SUMMARY – Western Washington

Name of wetland (or ID #): C Date of site visit: 7/25/12

Rated by Greg Allington Trained by Ecology? X Yes ___ No Date of training 2008

HGM Class used for rating Riverine Wetland has multiple HGM classes? ___ Y X N

NOTE: Form is not complete without the figures requested *(figures can be combined).*

Source of base aerial photo/map Google Earth

OVERALL WETLAND CATEGORY IV (based on functions___ or special characteristics___)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

_____**Category III** – Total score = 16 - 19

X **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
		Circle the appropriate ratings		
Site Potential	H M (L)	H M (L)	H M (L)	
Landscape Potential	H (M) L	H (M) L	(H) M L	
Value	H M (L)	H M (L)	H (M) L	TOTAL
Score Based on Ratings	4	4	6	14

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	

Wetland name or number C

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO – go to 3 **YES** – The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m).

NO – go to 4 **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
___The wetland is on a slope (*slope can be very gradual*),
___The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
X The water leaves the wetland **without being impounded**.

NO – go to 5 **YES –** The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
X The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
X The overbank flooding occurs at least once every 2 years.

Wetland name or number C

NO – go to 6 **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number C

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

R 1.0. Does the site have the potential to improve water quality?		
R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a flooding event:		2
Depressions cover > $^3/_4$ area of wetland	points = 8	
Depressions cover > ½ area of wetland	points = 4	
X Depressions present but cover < ½ area of wetland	points = 2	
No depressions present	points = 0	
R 1.2. Structure of plants in the wetland (areas with >90% cover at person height, **not** Cowardin classes)		3
Trees or shrubs > $^2/_3$ area of the wetland	points = 8	
Trees or shrubs > $^1/_3$ area of the wetland	points = 6	
Herbaceous plants (> 6 in high) > $^2/_3$ area of the wetland	points = 6	
X Herbaceous plants (> 6 in high) > $^1/_3$ area of the wetland	points = 3	
Trees, shrubs, and ungrazed herbaceous < $^1/_3$ area of the wetland	points = 0	
Total for R 1 Add the points in the boxes above		5

Rating of Site Potential If score is: ___ **12-16 = H** ___ **6-11 = M** X **0-5 = L** *Record the rating on the first page*

R 2.0. Does the landscape have the potential to support the water quality function of the site?		
R 2.1. Is the wetland within an incorporated city or within its UGA?	Yes = 2 (No = 0)	0
R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area?	Yes = 1 (No = 0)	0
R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years?	(Yes = 1) No = 0	1
R 2.4. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 (No = 0)	0
R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1-R 2.4 Other sources _____	Yes = 1 (No = 0)	0
Total for R 2 Add the points in the boxes above		1

Rating of Landscape Potential If score is: ___ **3-6 = H** X **1 or 2 = M** ___ **0 = L** *Record the rating on the first page*

R 3.0. Is the water quality improvement provided by the site valuable to society?		
R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi?	Yes = 1 (No = 0)	0
R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens?	Yes = 1 (No = 0)	0
R 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? (*answer YES if there is a TMDL for the drainage in which the unit is found*)	Yes = 2 (No = 0)	0
Total for R 3 Add the points in the boxes above		0

Rating of Value If score is: ___ **2-4 = H** ___ **1 = M** X **0 = L** *Record the rating on the first page*

Wetland name or number C

RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS

Hydrologic Functions - Indicators that site functions to reduce flooding and stream erosion

R 4.0. Does the site have the potential to reduce flooding and erosion?	
R 4.1. Characteristics of the overbank storage the wetland provides: *Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average width of stream between banks).* If the ratio is more than 20 — points = 9 If the ratio is 10-20 — points = 6 If the ratio is 5-<10 — points = 4 If the ratio is 1-<5 — points = 2 X If the ratio is < 1 — points = 1	1
R 4.2. Characteristics of plants that slow down water velocities during floods: *Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have >90% cover at person height. These are NOT Cowardin classes).* Forest or shrub for > $^1/_3$ area OR emergent plants > $^2/_3$ area — points = 7 X Forest or shrub for > $^1/_{10}$ area OR emergent plants > $^1/_3$ area — points = 4 Plants do not meet above criteria — points = 0	4
Total for R 4 — Add the points in the boxes above	5

Rating of Site Potential If score is: ___ **12-16 = H** ___ **6-11 = M** X **0-5 = L** *Record the rating on the first page*

R 5.0. Does the landscape have the potential to support the hydrologic functions of the site?		
R 5.1. Is the stream or river adjacent to the wetland downcut?	Yes = 0 (No = 1)	1
R 5.2. Does the up-gradient watershed include a UGA or incorporated area?	Yes = 1 (No = 0)	0
R 5.3. Is the up-gradient stream or river controlled by dams?	Yes = 0 (No = 1)	1
Total for R 5	Add the points in the boxes above	2

Rating of Landscape Potential If score is: ___ **3 = H** X **1 or 2 = M** ___ **0 = L** *Record the rating on the first page*

R 6.0. Are the hydrologic functions provided by the site valuable to society?	
R 6.1. Distance to the nearest areas downstream that have flooding problems? *Choose the description that best fits the site.* The sub-basin immediately down-gradient of the wetland has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) — points = 2 Surface flooding problems are in a sub-basin farther down-gradient — points = 1 X No flooding problems anywhere downstream — points = 0	0
R 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 (No = 0)	0
Total for R 6 — Add the points in the boxes above	0

Rating of Value If score is: ___ **2-4 = H** ___ **1 = M** X **0 = L** *Record the rating on the first page*

Wetland name or number C

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

___Aquatic bed	4 structures or more: points = 4
X Emergent	3 structures: points = 2
X Scrub-shrub (areas where shrubs have > 30% cover)	X 2 structures: points = 1
___Forested (areas where trees have > 30% cover)	1 structure: points = 0

If the unit has a Forested class, check if:

___The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

1

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

___Permanently flooded or inundated	4 or more types present: points = 3
X Seasonally flooded or inundated	3 types present: points = 2
___Occasionally flooded or inundated	X 2 types present: points = 1
___Saturated only	1 type present: points = 0
X Permanently flowing stream or river in, or adjacent to, the wetland	
___Seasonally flowing stream in, or adjacent to, the wetland	
___**Lake Fringe wetland**	**2 points**
___**Freshwater tidal wetland**	**2 points**

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

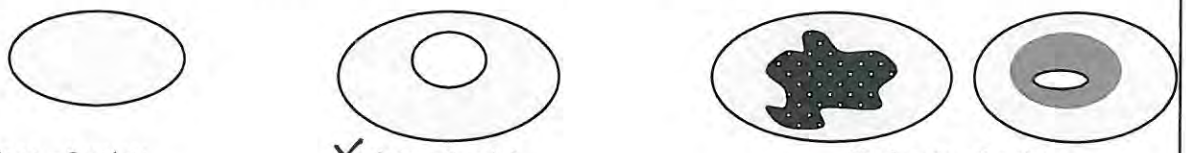
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species	points = 2
X 5 - 19 species	points = 1
< 5 species	points = 0

1

H 1.4. Interspersion of habitats

Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



None = 0 points

X **Low** = 1 point

Moderate = 2 points

All three diagrams in this row are **HIGH** = 3points

1

Wetland name or number C

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ____Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ____Standing snags (dbh > 4 in) within the wetland ____Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ____At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* X Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	1
Total for H 1 — Add the points in the boxes above	5

Rating of Site Potential If score is:___**15-18 = H** ___**7-14 = M** X **0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat 80 + [(% moderate and low intensity land uses)/2] 10 = 90 % If total accessible habitat is: X > $^1/_3$ (33.3%) of 1 km Polygon — points = 3 20-33% of 1 km Polygon — points = 2 10-19% of 1 km Polygon — points = 1 < 10% of 1 km Polygon — points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat 80 + [(% moderate and low intensity land uses)/2] 10 = 90 % X Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10-50% and in 1-3 patches — points = 2 Undisturbed habitat 10-50% and > 3 patches — points = 1 Undisturbed habitat < 10% of 1 km Polygon — points = 0	3
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use — points = (- 2) X ≤ 50% of 1 km Polygon is high intensity — points = 0	0
Total for H 2 — Add the points in the boxes above	6

Rating of Landscape Potential If score is: X **4-6 = H** ___**1-3 = M** ___**< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: — points = 2 — It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan X Site has 1 or 2 priority habitats (listed on next page) within 100 m — points = 1 Site does not meet any of the criteria above — points = 0	1

Rating of Value If score is:___**2 = H** X **1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number C

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

— **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

X **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

— **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

— **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number C

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes –Go to **SC 1.1** No= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = **Category I** No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to **SC 2.2** No – Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = **Category I** No = **Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes – **Contact WNHP/WDNR and go to SC 2.4** No = **Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes = **Category I** No = **Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to **SC 3.3** No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 3.3** No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = **Is a Category I bog** No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = **Is a Category I bog** No = **Is not a bog**	**Cat. I**

Wetland name or number C

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** — **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). Yes = **Category I** No = **Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* Yes – Go to **SC 5.1** No = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yes – Go to **SC 6.1** No = **not an interdunal wetland for rating** SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = **Category I** No – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = **Category II** No – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = **Category III** No = **Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	NA

Wetland name or number D

RATING SUMMARY – Western Washington

Name of wetland (or ID #): D Date of site visit: 7/25/12

Rated by Greg Allington Trained by Ecology? X Yes ___ No Date of training 2008

HGM Class used for rating Depressional Wetland has multiple HGM classes? ___ Y X N

NOTE: Form is not complete without the figures requested *(figures can be combined).*

Source of base aerial photo/map Google Earth

OVERALL WETLAND CATEGORY III (based on functions___ or special characteristics___)

1. Category of wetland based on FUNCTIONS

_____ **Category I** – Total score = 23 - 27

_____ **Category II** – Total score = 20 - 22

X **Category III** – Total score = 16 - 19

_____ **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
		Circle the appropriate ratings		
Site Potential	H (M) L	H (M) L	H (M) L	
Landscape Potential	H (M) L	H (M) L	(H) M L	
Value	H M (L)	H M (L)	H (M) L	TOTAL
Score Based on Ratings	5	5	7	17

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	

Wetland name or number D

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO – go to 3 **YES** – The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m).

NO – go to 4 **YES** – The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
___The wetland is on a slope (*slope can be very gradual*),
___The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
___The water leaves the wetland **without being impounded**.

NO – go to 5 **YES** – The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
___The overbank flooding occurs at least once every 2 years.

Wetland name or number D

NO – go to 6 **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

   NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

   NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number D

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 X Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*. Yes = 4 (No = 0)	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 X Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^1/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^1/_{10}$ of area points = 0	3
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* X Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	4
Total for D 1 Add the points in the boxes above	9

Rating of Site Potential If score is: ___ **12-16 = H** X **6-11 = M** ___ **0-5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? (Yes = 1) No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? (Yes = 1) No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 (No = 0)	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source_____ Yes = 1 (No = 0)	0
Total for D 2 Add the points in the boxes above	2

Rating of Landscape Potential If score is: ___ **3 or 4 = H** X **1 or 2 = M** ___ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 (No = 0)	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 (No = 0)	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)? Yes = 2 (No = 0)	0
Total for D 3 Add the points in the boxes above	0

Rating of Value If score is: ___ **2-4 = H** ___ **1 = M** X **0 = L** *Record the rating on the first page*

Wetland name or number D

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?	
D 4.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression with no surface water leaving it (no outlet) points = 4 X Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet points = 2 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch points = 1 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0	2
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 ● Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 The wetland is a "headwater" wetland points = 3 Wetland is flat but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft (6 in) points = 0	5
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of the unit points = 5 X The area of the basin is 10 to 100 times the area of the unit points = 3 The area of the basin is more than 100 times the area of the unit points = 0 Entire wetland is in the Flats class points = 5	3
Total for D 4 Add the points in the boxes above	10

Rating of Site Potential If score is: ___ **12-16 = H** X **6-11 = M** ___ **0-5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?	
D 5.1. Does the wetland receive stormwater discharges? Yes = 1 (circled) No = 0	1
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 (circled) No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? Yes = 1 No = 0 (circled)	0
Total for D 5 Add the points in the boxes above	2

Rating of Landscape Potential If score is: ___ **3 = H** X **1 or 2 = M** ___ **0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?	
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.* The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds): • Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2 • Surface flooding problems are in a sub-basin farther down-gradient. points = 1 Flooding from groundwater is an issue in the sub-basin. points = 1 The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. *Explain why* _____ points = 0 X There are no problems with flooding downstream of the wetland. points = 0	0
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0 (circled)	0
Total for D 6 Add the points in the boxes above	0

Rating of Value If score is: ___ **2-4 = H** ___ **1 = M** X **0 = L** *Record the rating on the first page*

Wetland name or number D

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

X Aquatic bed	4 structures or more: points = 4
X Emergent	3 structures: points = 2
X Scrub-shrub (areas where shrubs have > 30% cover)	2 structures: points = 1
___ Forested (areas where trees have > 30% cover)	1 structure: points = 0

If the unit has a Forested class, check if:

___ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

2

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

X Permanently flooded or inundated	4 or more types present: points = 3
___ Seasonally flooded or inundated	3 types present: points = 2
___ Occasionally flooded or inundated	2 types present: points = 1
X Saturated only	1 type present: points = 0
___ Permanently flowing stream or river in, or adjacent to, the wetland	
X Seasonally flowing stream in, or adjacent to, the wetland	
___ **Lake Fringe wetland**	**2 points**
___ **Freshwater tidal wetland**	**2 points**

2

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species	points = 2
X 5 - 19 species	points = 1
< 5 species	points = 0

1

H 1.4. Interspersion of habitats

Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*

None = 0 points **Low** = 1 point X **Moderate** = 2 points

All three diagrams in this row are **HIGH** = 3points

2

Wetland name or number D

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* X Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). X Standing snags (dbh > 4 in) within the wetland ___ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) X Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* X At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* X Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	5
Total for H 1 — Add the points in the boxes above	12

Rating of Site Potential If score is: ___ **15-18 = H** X **7-14 = M** ___ **0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat 80 + [(% moderate and low intensity land uses)/2] 10 = 90 % If total accessible habitat is: X > $^1/_3$ (33.3%) of 1 km Polygon — points = 3 20-33% of 1 km Polygon — points = 2 10-19% of 1 km Polygon — points = 1 < 10% of 1 km Polygon — points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat 80 + [(% moderate and low intensity land uses)/2] 10 = 90 % X Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10-50% and in 1-3 patches — points = 2 Undisturbed habitat 10-50% and > 3 patches — points = 1 Undisturbed habitat < 10% of 1 km Polygon — points = 0	3
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use — points = (- 2) X ≤ 50% of 1 km Polygon is high intensity — points = 0	0
Total for H 2 — Add the points in the boxes above	6

Rating of Landscape Potential If score is: X **4-6 = H** ___ **1-3 = M** ___ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: — points = 2 — It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan X Site has 1 or 2 priority habitats (listed on next page) within 100 m — points = 1 Site does not meet any of the criteria above — points = 0	1

Rating of Value If score is: ___ **2 = H** X **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number D

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

— **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

X **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

— **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

— **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number D

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes –Go to **SC 1.1** No= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = **Category I** No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to **SC 2.2** No – Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = **Category I** No = **Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes – **Contact WNHP/WDNR and go to SC 2.4** No = **Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes = **Category I** No = **Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to **SC 3.3** No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 3.3** No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = **Is a Category I bog** No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = **Is a Category I bog** No = **Is not a bog**	**Cat. I**

Wetland name or number D

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** — **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). Yes = **Category I** No = **Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* Yes – Go to **SC 5.1** No = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yes – Go to **SC 6.1** No = **not an interdunal wetland for rating** SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = **Category I** No – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = **Category II** No – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = **Category III** No = **Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	NA

Wetland name or number E

RATING SUMMARY – Western Washington

Name of wetland (or ID #): E Date of site visit: 7/25/12

Rated by Greg Allington Trained by Ecology? X Yes ___ No Date of training 2008

HGM Class used for rating Depressional Wetland has multiple HGM classes? ___ Y X N

NOTE: Form is not complete without the figures requested *(figures can be combined).*
Source of base aerial photo/map Google Earth

OVERALL WETLAND CATEGORY III (based on functions___ or special characteristics___)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

X **Category III** – Total score = 16 - 19

_____**Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
	Circle the appropriate ratings			
Site Potential	H (M) L	H (M) L	H (M) L	
Landscape Potential	H (M) L	H (M) L	(H) M L	
Value	H M (L)	H M (L)	H (M) L	TOTAL
Score Based on Ratings	5	5	7	17

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
None of the above	

Wetland name or number E

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

NO – go to 3 **YES** – The wetland class is **Flats**
*If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m).

NO – go to 4 **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
___The wetland is on a slope (*slope can be very gradual*),
___The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
___The water leaves the wetland **without being impounded**.

NO – go to 5 **YES –** The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
___The overbank flooding occurs at least once every 2 years.

Wetland name or number E

NO – go to 6 **YES** – The wetland class is **Riverine**

NOTE: The Riverine unit can contain depressions that are filled with water when the river is not flooding

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year? *This means that any outlet, if present, is higher than the interior of the wetland.*

   NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding? The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

   NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a Depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within the wetland unit being scored.

   NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the HGM class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM classes within the wetland unit being rated	HGM class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine along stream within boundary of depression	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE

If you are still unable to determine which of the above criteria apply to your wetland, or if you have ***more than 2 HGM classes*** *within a wetland boundary, classify the wetland as Depressional for the rating.*

Wetland name or number E

DEPRESSIONAL AND FLATS WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

D 1.0. Does the site have the potential to improve water quality?	
D 1.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). points = 3 X Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 1 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. points = 1	2
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*. Yes = 4 No = 0	0
D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area points = 5 X Wetland has persistent, ungrazed, plants > ½ of area points = 3 Wetland has persistent, ungrazed plants > $^1/_{10}$ of area points = 1 Wetland has persistent, ungrazed plants < $^1/_{10}$ of area points = 0	3
D 1.4. Characteristics of seasonal ponding or inundation: *This is the area that is ponded for at least 2 months. See description in manual.* X Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0	4
Total for D 1 Add the points in the boxes above	9

Rating of Site Potential If score is: ___ **12-16 = H** X **6-11 = M** ___ **0-5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges? Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? Yes = 1 No = 0	1
D 2.3. Are there septic systems within 250 ft of the wetland? Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? Source_____ Yes = 1 No = 0	0
Total for D 2 Add the points in the boxes above	2

Rating of Landscape Potential If score is: ___ **3 or 4 = H** X **1 or 2 = M** ___ **0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 No = 0	0
D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? Yes = 1 No = 0	0
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the basin in which the unit is found*)? Yes = 2 No = 0	0
Total for D 3 Add the points in the boxes above	0

Rating of Value If score is: ___ **2-4 = H** ___ **1 = M** X **0 = L** *Record the rating on the first page*

Wetland name or number E

DEPRESSIONAL AND FLATS WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation

D 4.0. Does the site have the potential to reduce flooding and erosion?	
D 4.1. Characteristics of surface water outflows from the wetland: Wetland is a depression or flat depression with no surface water leaving it (no outlet) points = 4 X Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet points = 2 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch points = 1 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0	2
D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 X Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 The wetland is a "headwater" wetland points = 3 Wetland is flat but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft (6 in) points = 0	5
D 4.3. Contribution of the wetland to storage in the watershed: *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of the unit points = 5 X The area of the basin is 10 to 100 times the area of the unit points = 3 The area of the basin is more than 100 times the area of the unit points = 0 Entire wetland is in the Flats class points = 5	3
Total for D 4 Add the points in the boxes above	10

Rating of Site Potential If score is: ___ **12-16 = H** X **6-11 = M** ___ **0-5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support hydrologic functions of the site?	
D 5.1. Does the wetland receive stormwater discharges? Yes = 1 No = 0	1
D 5.2. Is >10% of the area within 150 ft of the wetland in land uses that generate excess runoff? Yes = 1 No = 0	1
D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at >1 residence/ac, urban, commercial, agriculture, etc.)? Yes = 1 No = 0	0
Total for D 5 Add the points in the boxes above	2

Rating of Landscape Potential If score is: ___ **3 = H** X **1 or 2 = M** ___ **0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?	
D 6.1. The unit is in a landscape that has flooding problems. *Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.* The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds): • Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2 • Surface flooding problems are in a sub-basin farther down-gradient. points = 1 Flooding from groundwater is an issue in the sub-basin. points = 1 The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. *Explain why* _____ points = 0 X There are no problems with flooding downstream of the wetland. points = 0	0
D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 No = 0	0
Total for D 6 Add the points in the boxes above	0

Rating of Value If score is: ___ **2-4 = H** ___ **1 = M** X **0 = L** *Record the rating on the first page*

Wetland name or number E

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

X Aquatic bed — 4 structures or more: points = 4
X Emergent — 3 structures: points = 2
X Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points = 1
____ Forested (areas where trees have > 30% cover) — 1 structure: points = 0

If the unit has a Forested class, check if:

____ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

2

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

____ Permanently flooded or inundated — 4 or more types present: points = 3
X Seasonally flooded or inundated — 3 types present: points = 2
____ Occasionally flooded or inundated — 2 types present: points = 1
X Saturated only — 1 type present: points = 0
X Permanently flowing stream or river in, or adjacent to, the wetland
____ Seasonally flowing stream in, or adjacent to, the wetland
____ **Lake Fringe wetland** — **2 points**
____ **Freshwater tidal wetland** — **2 points**

2

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species — points = 2
X 5 - 19 species — points = 1
< 5 species — points = 0

1

H 1.4. Interspersion of habitats

Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*

None = 0 points — **Low** = 1 point — X **Moderate** = 2 points

All three diagrams in this row are **HIGH** = 3points

2

Wetland name or number E

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* X Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). X Standing snags (dbh > 4 in) within the wetland ___ Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) X Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* X At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* X Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	5
Total for H 1 — Add the points in the boxes above	12

Rating of Site Potential If score is: ___ **15-18 = H** X **7-14 = M** ___ **0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat 80 + [(% moderate and low intensity land uses)/2] 10 = 90 % If total accessible habitat is: X > 1/3 (33.3%) of 1 km Polygon — points = 3 20-33% of 1 km Polygon — points = 2 10-19% of 1 km Polygon — points = 1 < 10% of 1 km Polygon — points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat 80 + [(% moderate and low intensity land uses)/2] 10 = 90 % Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10-50% and in 1-3 patches — points = 2 Undisturbed habitat 10-50% and > 3 patches — points = 1 Undisturbed habitat < 10% of 1 km Polygon — points = 0	3
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use — points = (- 2) ≤ 50% of 1 km Polygon is high intensity — X points = 0	0
Total for H 2 — Add the points in the boxes above	6

Rating of Landscape Potential If score is: X **4-6 = H** ___ **1-3 = M** ___ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: — points = 2 — It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan X Site has 1 or 2 priority habitats (listed on next page) within 100 m — points = 1 Site does not meet any of the criteria above — points = 0	1

Rating of Value If score is: ___ **2 = H** X **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number E

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

— **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

X **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

— **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

— **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number E

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	**Category**
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes –Go to **SC 1.1** No= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = **Category I** No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to **SC 2.2** No – Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = **Category I** No = **Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes – **Contact WNHP/WDNR and go to SC 2.4** No = **Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes = **Category I** No = **Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to **SC 3.3** No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 3.3** No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = **Is a Category I bog** No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = **Is a Category I bog** No = **Is not a bog**	**Cat. I**

Wetland name or number E

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** — **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). Yes = **Category I** No = **Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* Yes – Go to **SC 5.1** No = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yes – Go to **SC 6.1** No = **not an interdunal wetland for rating** SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = **Category I** No – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = **Category II** No – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = **Category III** No = **Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	NA

Wetland name or number F

RATING SUMMARY – Western Washington

Name of wetland (or ID #): F Date of site visit: 7/25/12

Rated by Greg Allington Trained by Ecology? X Yes ___ No Date of training 2008

HGM Class used for rating Slope Wetland has multiple HGM classes? ___ Y X N

NOTE: Form is not complete without the figures requested *(figures can be combined).*

Source of base aerial photo/map Google Earth

OVERALL WETLAND CATEGORY IV (based on functions___ or special characteristics___)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

_____**Category III** – Total score = 16 - 19

X **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
		Circle the appropriate ratings		
Site Potential	H M (L)	H M (L)	H M (L)	
Landscape Potential	H M (L)	H M (L)	(H) M L	
Value	H M (L)	H M (L)	H (M) L	TOTAL
Score Based on Ratings	3	3	6	12

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
(None of the above)	

Wetland name or number E

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   NO – go to 3 **YES** – The wetland class is **Flats**
   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   __The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   __At least 30% of the open water area is deeper than 6.6 ft (2 m).

   NO – go to 4 **YES** – The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   X The wetland is on a slope (*slope can be very gradual*),
   X The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   X The water leaves the wetland **without being impounded**

   NO – go to 5 **YES** – The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ___The overbank flooding occurs at least once every 2 years.

Wetland name or number F

SLOPE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: *(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance)* Slope is 1% or less — points = 3 X Slope is > 1%-2% — points = 2 Slope is > 2%-5% — points = 1 Slope is greater than 5% — points = 0	2
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*: Yes = 3 (No = 0)	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area — points = 6 X Dense, uncut, herbaceous plants > ½ of area — points = 3 Dense, woody, plants > ½ of area — points = 2 Dense, uncut, herbaceous plants > ¼ of area — points = 1 Does not meet any of the criteria above for plants — points = 0	3
Total for S 1 — Add the points in the boxes above	5

Rating of Site Potential If score is: ___ **12 = H** ___ **6-11 = M** X **0-5 = L** *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 (No = 0)	0
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources _____ Yes = 1 (No = 0)	0
Total for S 2 — Add the points in the boxes above	0

Rating of Landscape Potential If score is: ___ **1-2 = M** X **0 = L** *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 (No = 0)	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list.* Yes = 1 (No = 0)	0
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? *Answer YES if there is a TMDL for the basin in which unit is found.* Yes = 2 (No = 0)	0
Total for S 3 — Add the points in the boxes above	0

Rating of Value If score is: ___ **2-4 = H** ___ **1 = M** X **0 = L** *Record the rating on the first page*

Wetland name or number F

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows.* Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1 X All other conditions points = 0	0

Rating of Site Potential If score is:___1 = M X 0 = L *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 (No = 0)	0

Rating of Landscape Potential If score is:___1 = M X 0 = L *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 X No flooding problems anywhere downstream points = 0	0
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 (No = 0)	0
Total for S 6 Add the points in the boxes above	0

Rating of Value If score is:___2-4 = H ___1 = M X 0 = L *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number F

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

____Aquatic bed — 4 structures or more: points = 4
X Emergent — 3 structures: points = 2
X Scrub-shrub (areas where shrubs have > 30% cover) — 2 structures: points = 1
____Forested (areas where trees have > 30% cover) — 1 structure: points = 0

If the unit has a Forested class, check if:

____The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

1

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

____Permanently flooded or inundated — 4 or more types present: points = 3
____Seasonally flooded or inundated — 3 types present: points = 2
____Occasionally flooded or inundated — 2 types present: points = 1
X Saturated only — 1 type present: points = 0
X Permanently flowing stream or river in, or adjacent to, the wetland
____Seasonally flowing stream in, or adjacent to, the wetland
____**Lake Fringe wetland** — **2 points**
____**Freshwater tidal wetland** — **2 points**

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species — points = 2
X 5 - 19 species — points = 1
< 5 species — points = 0

1

H 1.4. Interspersion of habitats

Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*

None = 0 points — **Low** = 1 point — X **Moderate** = 2 points

All three diagrams in this row are **HIGH** = 3points

2

Wetland name or number F

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ____Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). ____Standing snags (dbh > 4 in) within the wetland ____Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ____At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* X Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	1
Total for H 1 Add the points in the boxes above	6

Rating of Site Potential If score is:___**15-18 = H** ___**7-14 = M** X **0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat 80 + [(% moderate and low intensity land uses)/2] 10 = 90 % If total accessible habitat is: X > $^1/_3$ (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat 80 + [(% moderate and low intensity land uses)/2] 10 = 90 % X Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10-50% and in 1-3 patches points = 2 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0	3
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use points = (- 2) X ≤ 50% of 1 km Polygon is high intensity points = 0	0
Total for H 2 Add the points in the boxes above	6

Rating of Landscape Potential If score is: X **4-6 = H** ___**1-3 = M** ___**< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: points = 2 — It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan X Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0	1

Rating of Value If score is:___**2 = H** X **1 = M** ___**0 = L** *Record the rating on the first page*

Wetland name or number F

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

— **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

X **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

— **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

— **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number F

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes –Go to **SC 1.1** No= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = **Category I** No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to **SC 2.2** No – Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = **Category I** No = **Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes – **Contact WNHP/WDNR and go to SC 2.4** No = **Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes = **Category I** No = **Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to **SC 3.3** No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 3.3** No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = **Is a Category I bog** No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = **Is a Category I bog** No = **Is not a bog**	**Cat. I**

Wetland name or number F

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** — **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). Yes = **Category I** No = **Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* Yes – Go to **SC 5.1** No = **Not a wetland in a coastal lagoon**	**Cat. I**
SC 5.1. Does the wetland meet all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) Yes = **Category I** No = **Category II**	**Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yes – Go to **SC 6.1** No = **not an interdunal wetland for rating**	**Cat I**
SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = **Category I** No – Go to **SC 6.2**	**Cat. II**
SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = **Category II** No – Go to **SC 6.3**	**Cat. III**
SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = **Category III** No = **Category IV**	**Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	NA

Wetland name or number G

RATING SUMMARY – Western Washington

Name of wetland (or ID #): G Date of site visit: 7/25/12

Rated by Greg Allington Trained by Ecology? X Yes ___ No Date of training 2008

HGM Class used for rating Slope Wetland has multiple HGM classes? ___ Y X N

NOTE: Form is not complete without the figures requested *(figures can be combined).*

Source of base aerial photo/map Google Earth

OVERALL WETLAND CATEGORY IV (based on functions___ or special characteristics___)

1. Category of wetland based on FUNCTIONS

_____**Category I** – Total score = 23 - 27

_____**Category II** – Total score = 20 - 22

_____**Category III** – Total score = 16 - 19

X **Category IV** – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
		Circle the appropriate ratings		
Site Potential	H M (L)	H M (L)	H (M) L	
Landscape Potential	H M (L)	H M (L)	(H) M L	
Value	H M (L)	H M (L)	H (M) L	TOTAL
Score Based on Ratings	3	3	7	13

Score for each function based on three ratings *(order of ratings is not important)*

9 = H,H,H
8 = H,H,M
7 = H,H,L
7 = H,M,M
6 = H,M,L
6 = M,M,M
5 = H,L,L
5 = M,M,L
4 = M,L,L
3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	CATEGORY
Estuarine	I II
Wetland of High Conservation Value	I
Bog	I
Mature Forest	I
Old Growth Forest	I
Coastal Lagoon	I II
Interdunal	I II III IV
(None of the above)	

Wetland name or number G

HGM Classification of Wetlands in Western Washington

For questions 1-7, the criteria described must apply to the entire unit being rated.

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides except during floods?

   NO – go to 2 **YES** – the wetland class is **Tidal Fringe** – go to 1.1

   1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

   NO – Saltwater Tidal Fringe (Estuarine) **YES – Freshwater Tidal Fringe**
   *If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is an **Estuarine** wetland and is not scored. This method **cannot** be used to score functions for estuarine wetlands.*

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.

   NO – go to 3 **YES** – The wetland class is **Flats**
   *If your wetland can be classified as a Flats wetland, use the form for **Depressional** wetlands.*

3. Does the entire wetland unit **meet all** of the following criteria?
   __The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;
   __At least 30% of the open water area is deeper than 6.6 ft (2 m).

   NO – go to 4 **YES –** The wetland class is **Lake Fringe** (Lacustrine Fringe)

4. Does the entire wetland unit **meet all** of the following criteria?
   X The wetland is on a slope (*slope can be very gradual*),
   X The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
   X The water leaves the wetland **without being impounded**.

   NO – go to 5 **YES –** The wetland class is **Slope**

   NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 ft deep).

5. Does the entire wetland unit **meet all** of the following criteria?
   ___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,
   ___The overbank flooding occurs at least once every 2 years.

Wetland name or number G

SLOPE WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: *(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance)* Slope is 1% or less — points = 3 Slope is > 1%-2% — points = 2 Slope is > 2%-5% — points = 1 X Slope is greater than 5% — points = 0	0
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic *(use NRCS definitions)*: Yes = 3 (No = 0)	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. *Dense means you have trouble seeing the soil surface (>75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.* Dense, uncut, herbaceous plants > 90% of the wetland area — points = 6 Dense, uncut, herbaceous plants > ½ of area — points = 3 Dense, woody, plants > ½ of area — points = 2 X Dense, uncut, herbaceous plants > ¼ of area — points = 1 Does not meet any of the criteria above for plants — points = 0	1
Total for S 1 — Add the points in the boxes above	1

Rating of Site Potential If score is: ___12 = H ___6-11 = M X 0-5 = L *Record the rating on the first page*

S 2.0. Does the landscape have the potential to support the water quality function of the site?	
S 2.1. Is > 10% of the area within 150 ft on the uphill side of the wetland in land uses that generate pollutants? Yes = 1 (No = 0)	0
S 2.2. Are there other sources of pollutants coming into the wetland that are not listed in question S 2.1? Other sources _____ Yes = 1 (No = 0)	0
Total for S 2 — Add the points in the boxes above	0

Rating of Landscape Potential If score is: ___1-2 = M X 0 = L *Record the rating on the first page*

S 3.0. Is the water quality improvement provided by the site valuable to society?	
S 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list? Yes = 1 (No = 0)	0
S 3.2. Is the wetland in a basin or sub-basin where water quality is an issue? *At least one aquatic resource in the basin is on the 303(d) list.* Yes = 1 (No = 0)	0
S 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality? *Answer YES if there is a TMDL for the basin in which unit is found.* Yes = 2 (No = 0)	0
Total for S 3 — Add the points in the boxes above	0

Rating of Value If score is: ___2-4 = H ___1 = M X 0 = L *Record the rating on the first page*

Wetland name or number G

SLOPE WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and stream erosion

S 4.0. Does the site have the potential to reduce flooding and stream erosion?	
S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms: Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually > 1/8 in), or dense enough, to remain erect during surface flows.* Dense, uncut, **rigid** plants cover > 90% of the area of the wetland points = 1 X All other conditions points = 0	0

Rating of Site Potential If score is:___1 = M X 0 = L *Record the rating on the first page*

S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?	
S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff? Yes = 1 (No = 0)	0

Rating of Landscape Potential If score is:___1 = M X 0 = L *Record the rating on the first page*

S 6.0. Are the hydrologic functions provided by the site valuable to society?	
S 6.1. Distance to the nearest areas downstream that have flooding problems: The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds) points = 2 Surface flooding problems are in a sub-basin farther down-gradient points = 1 X No flooding problems anywhere downstream points = 0	0
S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan? Yes = 2 (No = 0)	0
Total for S 6 Add the points in the boxes above	0

Rating of Value If score is:___2-4 = H ___1 = M X 0 = L *Record the rating on the first page*

NOTES and FIELD OBSERVATIONS:

Wetland name or number G

These questions apply to wetlands of all HGM classes.

HABITAT FUNCTIONS - Indicators that site functions to provide important habitat

H 1.0. Does the site have the potential to provide habitat?

H 1.1. Structure of plant community: *Indicators are Cowardin classes and strata within the Forested class.* Check the Cowardin plant classes in the wetland. *Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked.*

___Aquatic bed	4 structures or more: points = 4
X Emergent	3 structures: points = 2
X Scrub-shrub (areas where shrubs have > 30% cover)	2 structures: points = 1
X Forested (areas where trees have > 30% cover)	1 structure: points = 0

If the unit has a Forested class, check if:

___The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon

2

H 1.2. Hydroperiods

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (*see text for descriptions of hydroperiods*).

___Permanently flooded or inundated	4 or more types present: points = 3
___Seasonally flooded or inundated	3 types present: points = 2
___Occasionally flooded or inundated	2 types present: points = 1
X Saturated only	1 type present: points = 0
X Permanently flowing stream or river in, or adjacent to, the wetland	
___Seasonally flowing stream in, or adjacent to, the wetland	
___**Lake Fringe wetland**	**2 points**
___**Freshwater tidal wetland**	**2 points**

1

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft^2.

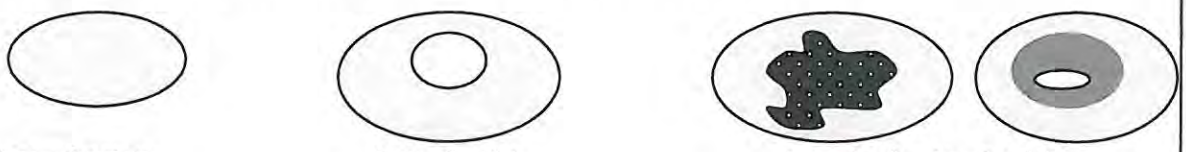
Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. ***Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle***

If you counted: > 19 species	points = 2
X 5 - 19 species	points = 1
< 5 species	points = 0

1

H 1.4. Interspersion of habitats

Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. *If you have four or more plant classes or three classes and open water, the rating is always high.*



None = 0 points **Low** = 1 point X **Moderate** = 2 points

All three diagrams in this row are **HIGH** = 3points

2

Wetland name or number G

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. *The number of checks is the number of points.* ____Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). X Standing snags (dbh > 4 in) within the wetland ____Undercut banks are present for at least 6.6 ft (2 m) **and/or** overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m) ____Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet weathered where wood is exposed)* ____At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated *(structures for egg-laying by amphibians)* X Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)	2
Total for H 1 — Add the points in the boxes above	8

Rating of Site Potential If score is: ___ **15-18 = H** X **7-14 = M** ___ **0-6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*). *Calculate:* % undisturbed habitat 80 + [(% moderate and low intensity land uses)/2] 10 = 90 % If total accessible habitat is: X > $^1/_3$ (33.3%) of 1 km Polygon — points = 3 20-33% of 1 km Polygon — points = 2 10-19% of 1 km Polygon — points = 1 < 10% of 1 km Polygon — points = 0	3
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. *Calculate:* % undisturbed habitat 80 + [(% moderate and low intensity land uses)/2] 10 = 90 % X Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10-50% and in 1-3 patches — points = 2 Undisturbed habitat 10-50% and > 3 patches — points = 1 Undisturbed habitat < 10% of 1 km Polygon — points = 0	3
H 2.3. Land use intensity in 1 km Polygon: If > 50% of 1 km Polygon is high intensity land use — points = (- 2) ≤ 50% of 1 km Polygon is high intensity — points = 0	0
Total for H 2 — Add the points in the boxes above	6

Rating of Landscape Potential If score is: X **4-6 = H** ___ **1-3 = M** ___ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.* Site meets ANY of the following criteria: — points = 2 — It has 3 or more priority habitats within 100 m (see next page) — It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) — It is mapped as a location for an individual WDFW priority species — It is a Wetland of High Conservation Value as determined by the Department of Natural Resources — It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan X Site has 1 or 2 priority habitats (listed on next page) within 100 m — points = 1 Site does not meet any of the criteria above — points = 0	1

Rating of Value If score is: ___ **2 = H** X **1 = M** ___ **0 = L** *Record the rating on the first page*

Wetland name or number G

WDFW Priority Habitats

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp. http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here: http://wdfw.wa.gov/conservation/phs/list/)

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE:*** *This question is independent of the land use between the wetland unit and the priority habitat.*

— **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).

— **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).

— **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.

— **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.

— **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).

X **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

— **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).

— **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

— **Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

— **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

— **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

— **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

— **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.

Wetland name or number G

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type *Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.*	Category
SC 1.0. Estuarine wetlands Does the wetland meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt Yes –Go to **SC 1.1** No= **Not an estuarine wetland**	
SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? Yes = **Category I** No - Go to **SC 1.2**	**Cat. I**
SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are *Spartina*, see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 2.0. Wetlands of High Conservation Value (WHCV) SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? Yes – Go to **SC 2.2** No – Go to **SC 2.3** SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = **Category I** No = **Not a WHCV** SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf Yes – **Contact WNHP/WDNR and go to SC 2.4** No = **Not a WHCV** SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? Yes = **Category I** No = **Not a WHCV**	**Cat. I**
SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? *Use the key below.* ***If you answer YES you will still need to rate the wetland based on its functions.*** SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? Yes – Go to **SC 3.3** No – Go to **SC 3.2** SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond? Yes – Go to **SC 3.3** No = **Is not a bog** SC 3.3. Does an area with peats or mucks have more than 70% cover of mosses at ground level, AND at least a 30% cover of plant species listed in Table 4? Yes = **Is a Category I bog** No – Go to **SC 3.4** **NOTE:** If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16 in deep. If the pH is less than 5.0 and the plant species in Table 4 are present, the wetland is a bog. SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = **Is a Category I bog** No = **Is not a bog**	**Cat. I**

Wetland name or number G

SC 4.0. Forested Wetlands Does the wetland have at least 1 contiguous acre of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? ***If you answer YES you will still need to rate the wetland based on its functions.*** — **Old-growth forests** (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. — **Mature forests** (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). Yes = **Category I** No = **Not a forested wetland for this section**	**Cat. I**
SC 5.0. Wetlands in Coastal Lagoons Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? — The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks — The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)* Yes – Go to **SC 5.1** No = **Not a wetland in a coastal lagoon** SC 5.1. Does the wetland meet all of the following three conditions? — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of aggressive, opportunistic plant species (see list of species on p. 100). — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland is larger than $^{1}/_{10}$ ac (4350 ft^2) Yes = **Category I** No = **Category II**	**Cat. I** **Cat. II**
SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? ***If you answer yes you will still need to rate the wetland based on its habitat functions.*** In practical terms that means the following geographic areas: — Long Beach Peninsula: Lands west of SR 103 — Grayland-Westport: Lands west of SR 105 — Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yes – Go to **SC 6.1** No = **not an interdunal wetland for rating** SC 6.1. Is the wetland 1 ac or larger and scores an 8 or 9 for the habitat functions on the form (rates H,H,H or H,H,M for the three aspects of function)? Yes = **Category I** No – Go to **SC 6.2** SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = **Category II** No – Go to **SC 6.3** SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = **Category III** No = **Category IV**	**Cat I** **Cat. II** **Cat. III** **Cat. IV**
Category of wetland based on Special Characteristics If you answered No for all types, enter "Not Applicable" on Summary Form	NA