WASHINGTON STATE DEPT OF NATURAL RESOURCES

Application for Use of State-Owned Aquatic Lands

Applicant Name:	J.E. McAmis, Inc.
County:	Wahkiakum, Cowlitz and Clark Counties
Water Body:	Columbia River
Type of Authorization - Use:	License – Dredge Material Removal and Sale
Authorization Number:	31-100182
Term:	5 years
Description:	This agreement will allow the use of State-owned aquatic lands for the sole purpose of dredge material removal and sale. It is located in the Columbia River, in Wahkiakum, Cowlitz and Clark Counties, Washington.

J.E. McAmis, Inc.
Authorization No. 31-100182
Authorized Use: Dredge Material Removal and Sale
Location: Columbia River, Clark County

Vicinity Map

Every attempt was made to use the most accurate and current geographic data available. However, due to multiple sources, scales, and the currency of the data used to develop this map Washington Department of Natural Resources cannot accept responsibility for errors and omissions in the data. Furthermore, this data is not survey grade information and cannot be substituted for an official survey. Therefore, there are no warranties that accompany this material

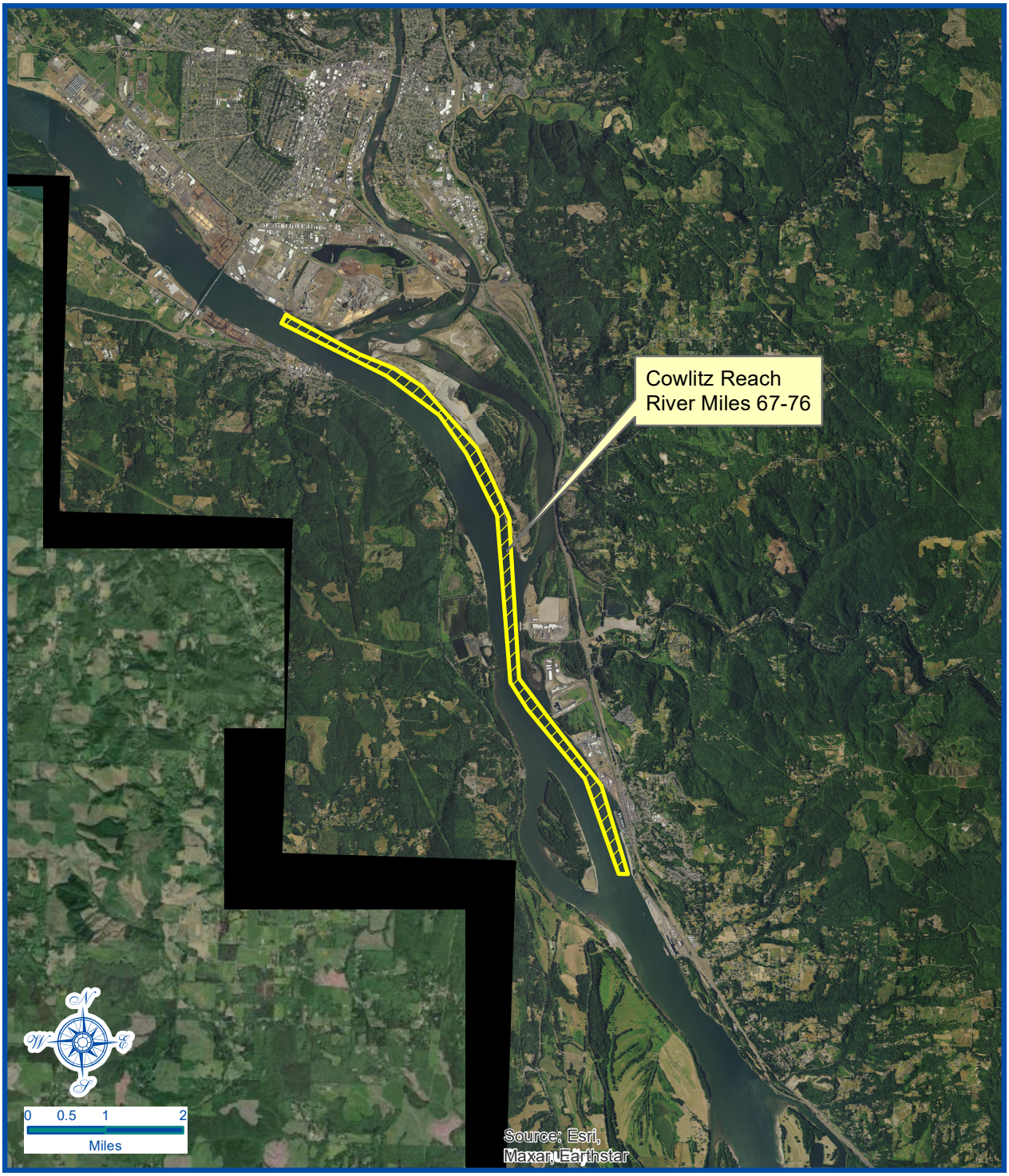
Legal Description

Clark Reach Dredge Prism
Downstream Extent: 45.675205N; -122.770883W
Upstream Extent: 45.619666N; -122.674805W

Section 36, Township 3 North, Range 1 West; and Sections 2, 11, 12, 13, & 24, Township 2 North, Range 1 West; and Sections 19, 20, 27, 28, 29 & 34, Township 2 North, Range 1 East, W.M.

Prepared By: RS Date: 9/28/2023

J.E. McAmis, Inc.
Authorization No. 31-100182
Authorized Use: Dredge Material Removal and Sale
Location: Columbia River, Cowlitz County



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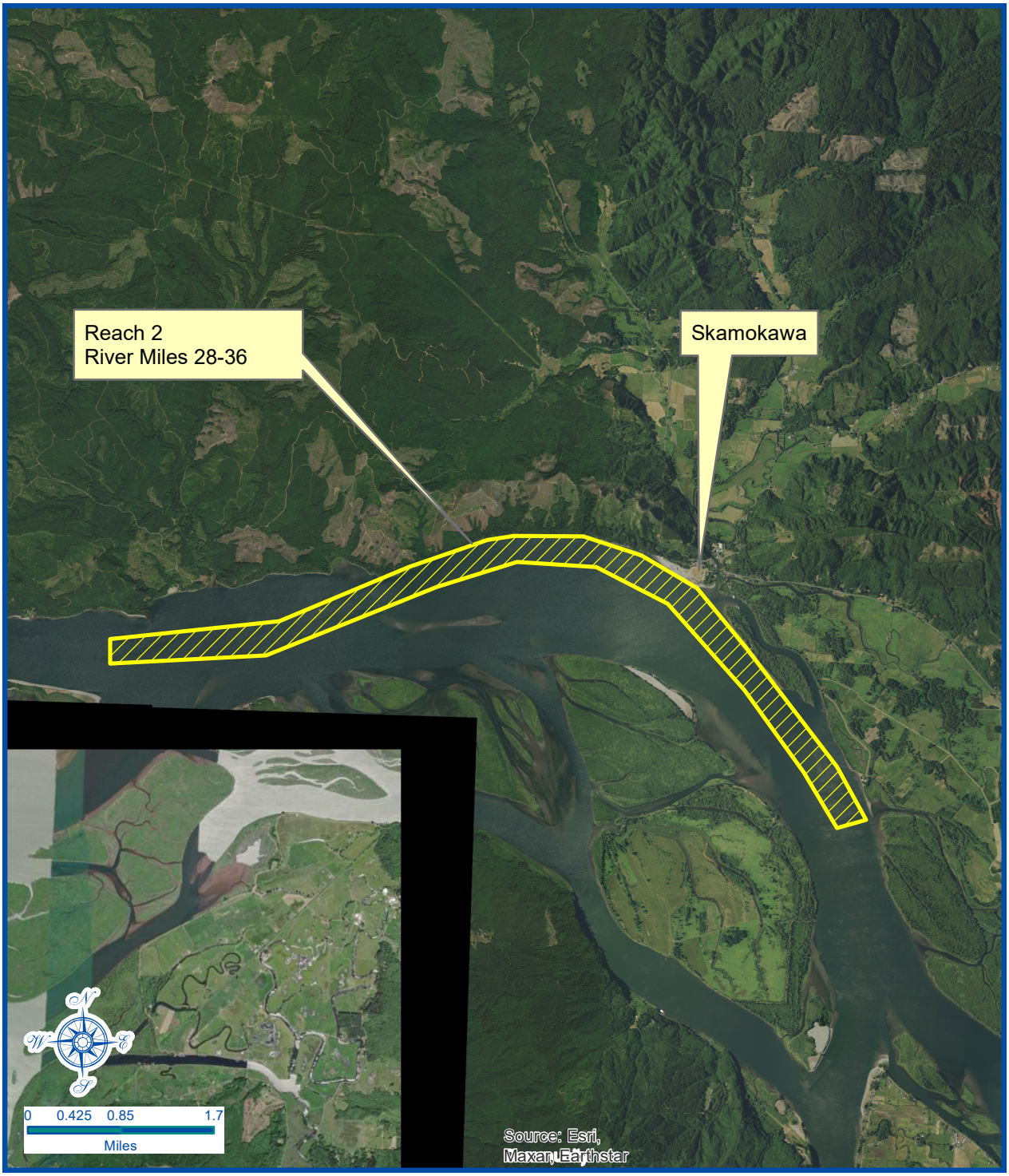
Legal Description

Cowlitz Reach Dredge Prism
Downstream Extent: 46.256647N; -123.87178W
Upstream Extent: 46.237536N; -123.429277W

Sections 8, 9, 10, 14, 15, 23, 24, 25 & 36, Township 7 North, Range 2 West; and Section 1, Township 6 North, Range 2 West; and Sections 7, 17, 18 & 20, Township 6 North, Range 1 West, W.M.

Prepared By: RS Date: 9/28/2023

J.E. McAmis, Inc.
Authorization No. 31-100182
Authorized Use: Dredge Material Removal and Sale
Location: Columbia River, Wahkiakum County



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Legal Description

Reach 2 Dredge Prism

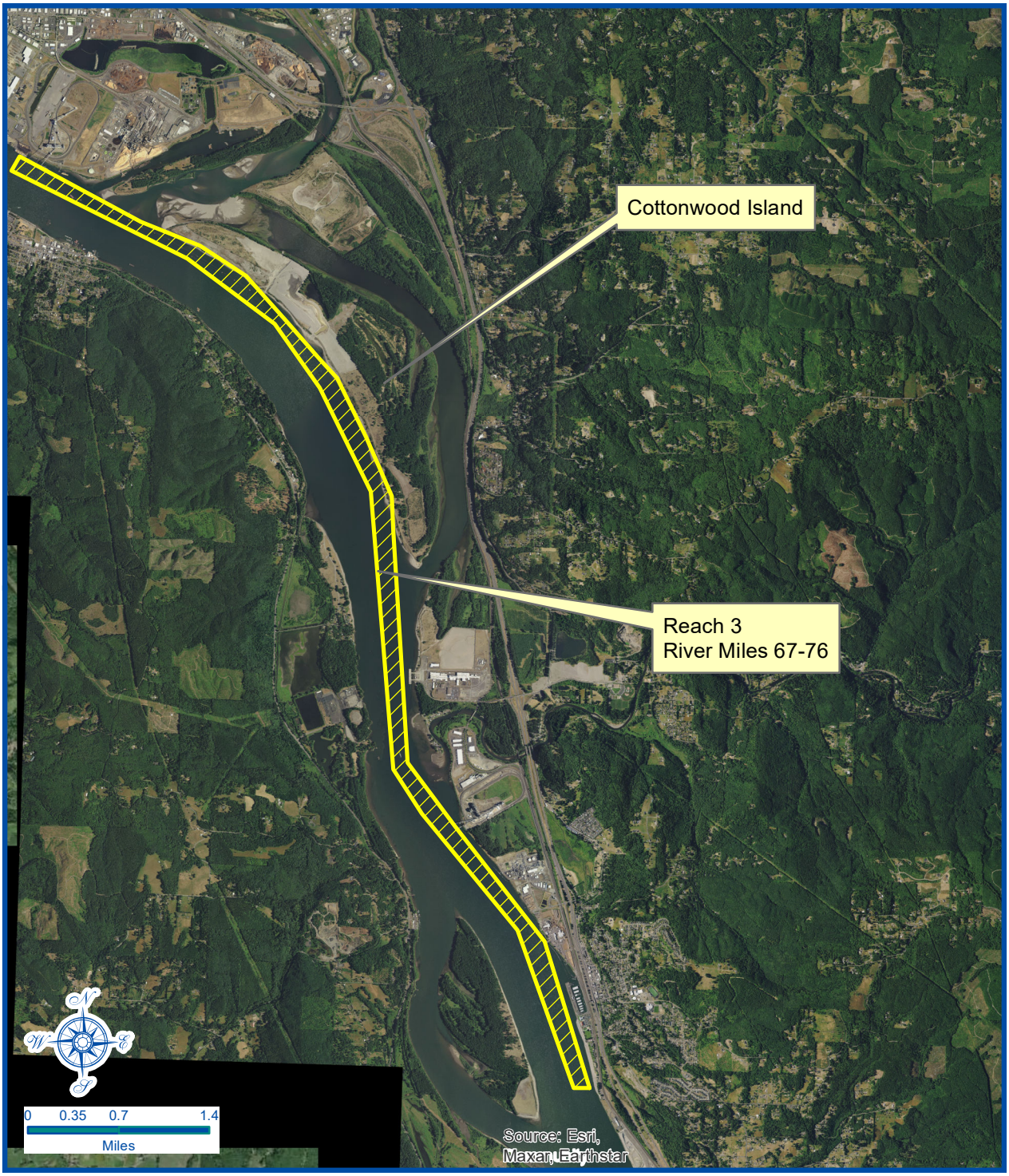
Downstream Extent: 46.256647N; -123.87178W

Upstream Extent: 46.237536N; -123.429277W

Sections 11, 12, 14, 15 & 16, Township 9 North, Range 7 West and Sections 7, 17, 18, 20, 21 & 28, Township 9 North, Range 6 West, W.M.

Prepared By: RS Date: 9/28/2023

J.E. McAmis, Inc.
Authorization No. 31-100182
Authorized Use: Dredge Material Removal and Sale
Location: Columbia River, Cowlitz County



Vicinity Map

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Legal Description

Reach 3 Dredge Prism

Downstream Extent: 46.256647N; -123.87178W
Upstream Extent: 46.237536N; -123.429277W
Sections 8, 9, 10, 14, 15, 23, 24, 25 & 36, Township 7 North, Range 2 West; and Section 1, Township 6 North, Range 2 West; and Sections 7, 17, 18 & 20, Township 6 North, Range 1 West, W.M.

Prepared By: RS Date: 9/28/2023

J.E. McAmis, Inc.
Authorization No. 31-100182
Authorized Use: Dredge Material Removal and Sale
Location: Columbia River, Clark County

Vicinity Map

Every attempt was made to use the most accurate and current geographic data available. However, due to multiple sources, scales, and the currency of the data used to develop this map Washington Department of Natural Resources cannot accept responsibility for errors and omissions in the data. Furthermore, this data is not survey grade information and cannot be substituted for an official survey. Therefore, there are no warranties that accompany this material

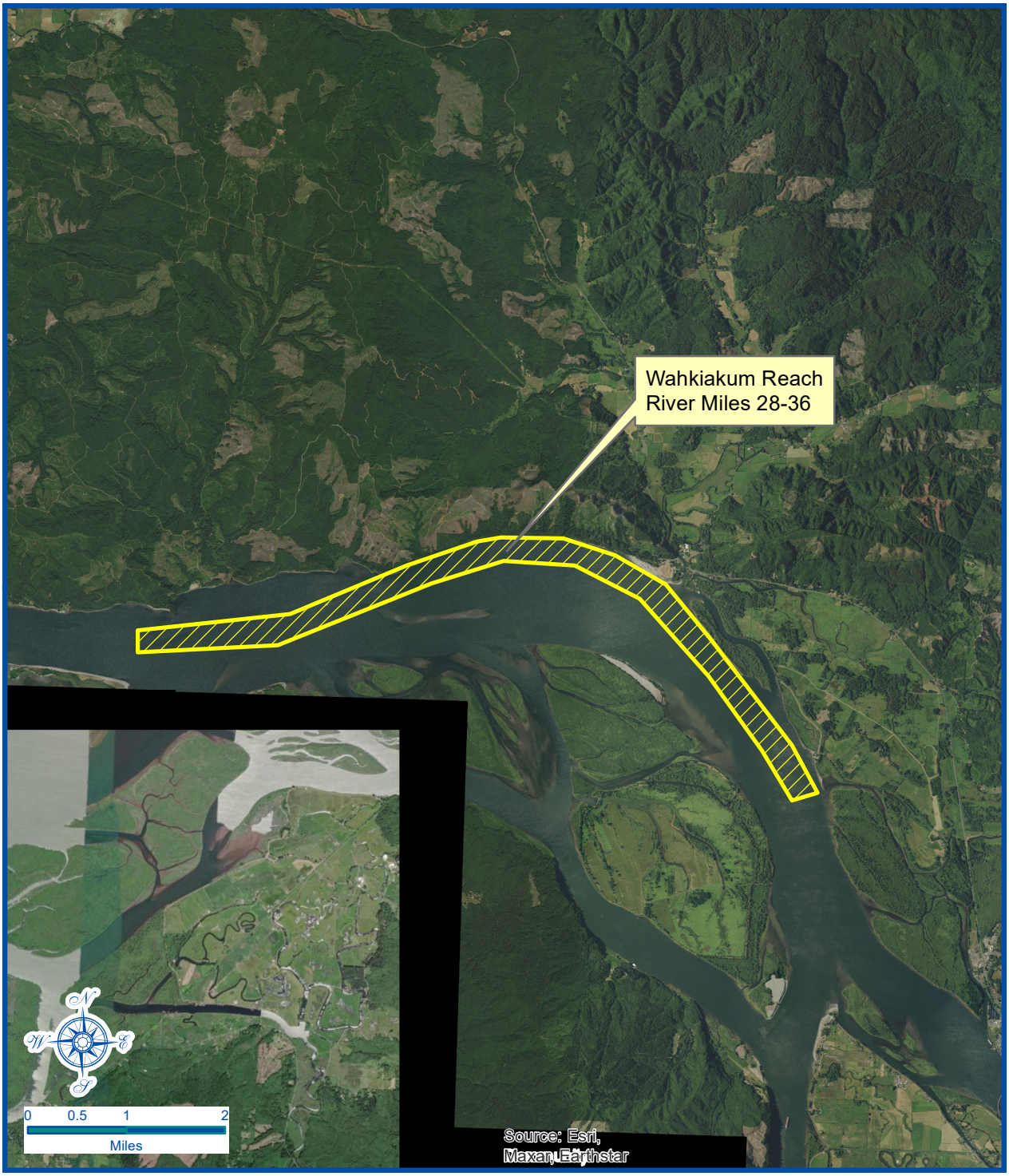
Legal Description

Reach 4 Dredge Prism

Downstream Extent: 45.675205N; -122.770883W
Upstream Extent: 45.619666N; -122.674805W
Section 36, Township 3 North, Range 1 West; and Sections 2, 11, 12, 13, & 24, Township 2 North, Range 1 West; and Sections 19, 20, 27, 28, 29 & 34, Township 2 North, Range 1 East, W.M.

Prepared By: RS Date: 9/28/2023

J.E. McAmis, Inc.
Authorization No. 31-100182
Authorized Use: Dredge Material Removal and Sale
Location: Columbia River, Wahkiakum County



Vicinity Map

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Legal Description

Wahkiakum Reach Dredge Prism

Downstream Extent: 46.256647N; -123.87178W

Upstream Extent: 46.237536N; -123.429277W

Sections 11, 12, 14, 15 & 16, Township 9 North, Range 7 West and Sections 7, 17, 18, 20, 21 & 28, Township 9 North, Range 6 West, W.M.

Prepared By: RS Date: 9/28/2023

ELECTRONICALLY

WASHINGTON STATE
Joint Aquatic Resources Permit Application (JARPA) [help]

US Army Corps of Engineers – Seattle District

AGENCY USE ONLY

Date received: _____; ☐ Town

☒ Application Fee Received; ☐ Fee N/A

☒ New Application; ☐ Renewal Application

Type/Prefix #: 31 ; NaturE Use Code: 2274

LM Initials & BP#: RSTZ 1064399

RE Assets Finance BP#: 1067643

New Application Number: 31-100182

Trust(s): 15 ; County: 08/06/35

AQR Plate #(s): _____

Gov Lot #(s): See White sheet

Tax Parcel #(s): _____

Attachment E:
Aquatic Use Authorization on Department of Natural Resources (DNR)-managed aquatic lands [help]

Complete this attachment and submit it with the completed JARPA form only if you are applying for an Aquatic Use Authorization with DNR. Call (360) 902-1100 or visit http://www.dnr.wa.gov/programs-and-services/aquatics/leasing-and-land-transactions for more information.

- DNR recommends you discuss your proposal with a DNR land manager before applying for regulatory permits. Contact your regional land manager for more information on potential permit and survey requirements. You can find your regional land manager by calling (360) 902-1100 or going to http://www.dnr.wa.gov/programs-and-services/aquatics/aquatic-districts-and-land-managers-map. [help]
- The applicant may not begin work on DNR-managed aquatic lands until DNR grants an Aquatic Use Authorization.
- Include a $25 non-refundable application processing fee, payable to the "Washington Department of Natural Resources." (Contact your Land Manager to determine if and when you are required to pay this fee.) [help]

DNR may reject the application at any time prior to issuing the applicant an Aquatic Use Authorization. [help]

Use black or blue ink to enter answers in white spaces below.

1. Applicant Name (Last, First, Middle)

Vandegrift, Scott

2. Project Name (A name for your project that you create. Examples: Smith's Dock or Seabrook Lane Development) [help]

Lower Columbia River Maintenance Dredging Project

3. Phone Number and Email

530-891-5061 scott@jemcamis.com

4. Which of the following applies to Applicant? Check one and, if applicable, attach the written authority – bylaws, power of attorney, etc. [help]

☒ Corporation	☐ Individual
☐ Limited Partnership	☐ Marital Community (Identify spouse):
☐ General Partnership	_____
☐ Limited Liability Company	☐ Government Agency
Home State of Registration:	☐ Other (Please Explain):
_____	_____

5. Washington UBI (Unified Business Identifier) number, if applicable: [help]
600-515-930
6. Are you aware of any existing or previously expired Aquatic Use Authorizations at the project location?
☐ Yes ☐ No ☒ Don't know If Yes, Authorization number(s): _____
7. Do you intend to sublease the property to someone else?
☐ Yes ☒ No If Yes, contact your Land Manager to discuss subleasing.
8. If fill material was used previously on DNR-managed aquatic lands, describe below the type of fill material and the purpose for using it. [help]
Not applicable.

To be completed by DNR and a copy returned to the applicant.

Signature for projects on DNR-managed aquatic lands:

Applicant must obtain the signature of DNR Aquatics District Manager OR Assistant Division Manager if the project is located on DNR-managed aquatic lands.

I, a designated representative of the Dept. of Natural Resources, am aware that the project is being proposed on Dept. of Natural Resources-managed aquatic lands and agree that the applicant or his/her representative may pursue the necessary regulatory permits. My signature does not authorize the use of DNR-managed aquatic lands for this project.

Renelle Smith		11-15-2019
Printed Name	**Signature**	**Date**
Dept. of Natural Resources District Manager or Assistant Division Manager	Dept. of Natural Resources District Manager or Assistant Division Manager	

If you require this document in another format, contact the Governor's Office for Regulatory Innovation and Assistance (ORIA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341. ORIA Publication ORIA-16-016 rev. 10/2016

WASHINGTON STATE
Joint Aquatic Resources Permit Application (JARPA) Form[1,2] [help]

US Army Corps of Engineers
Seattle District

USE BLACK OR BLUE INK TO ENTER ANSWERS IN THE WHITE SPACES BELOW.

AGENCY USE ONLY

Date received:

Agency reference #: _____

Tax Parcel #(s): _____

_____

Part 1–Project Identification

1. Project Name (A name for your project that you create. Examples: Smith's Dock or Seabrook Lane Development) [help]
Lower Columbia River Maintenance Dredging Project

Part 2–Applicant

The person and/or organization responsible for the project. [help]

2a. Name (Last, First, Middle)			
Vandegrift, Scott			
2b. Organization (If applicable)			
J.E. McAmis, Inc. (JEM)			
2c. Mailing Address (Street or PO Box)			
621 Country Drive			
2d. City, State, Zip			
Chico, California 95928			
2e. Phone (1)	**2f.** Phone (2)	**2g.** Fax	**2h.** E-mail
530-891-5061			scott@jemcamis.com

[1]Additional forms may be required for the following permits:
- If your project may qualify for Department of the Army authorization through a Regional General Permit (RGP), contact the U.S. Army Corps of Engineers for application information (206) 764-3495.
- Not all cities and counties accept the JARPA for their local Shoreline permits. If you need a Shoreline permit, contact the appropriate city or county government to make sure they accept the JARPA.

[2]To access an online JARPA form with [help] screens, go to http://www.epermitting.wa.gov/site/alias__resourcecenter/jarpa_jarpa_form/9984/jarpa_form.aspx.

For other help, contact the Governor's Office for Regulatory Innovation and Assistance at (800) 917-0043 or help@oria.wa.gov.

Part 3–Authorized Agent or Contact

Person authorized to represent the applicant about the project. (Note: Authorized agent(s) must sign 11b of this application.) [help]

3a. Name (Last, First, Middle)			
Elliott, Joshua			
3b. Organization (If applicable)			
Maul Foster & Alongi, Inc.			
3c. Mailing Address (Street or PO Box)			
2001 NW 19th Avenue, Ste. 200			
3d. City, State, Zip			
Portland, Oregon 97209			
3e. Phone (1)	**3f.** Phone (2)	**3g.** Fax	**3h.** E-mail
503-501-5236		971-544-2140	jelliott@maulfoster.com

Part 4–Property Owner(s)

Contact information for people or organizations owning the property(ies) where the project will occur. Consider both **upland and aquatic** ownership because the upland owners may not own the adjacent aquatic land. [help]

☒ Same as applicant. (Skip to Part 5.)

☐ Repair or maintenance activities on existing rights-of-way or easements. (Skip to Part 5.)

☐ There are multiple upland property owners. Complete the section below and fill out JARPA Attachment A for each additional property owner.

☒ Your project is on Department of Natural Resources (DNR)-managed aquatic lands. If you don't know, contact the DNR at (360) 902-1100 to determine aquatic land ownership. If yes, complete JARPA Attachment E to apply for the Aquatic Use Authorization.

4a. Name (Last, First, Middle)			
4b. Organization (If applicable)			
4c. Mailing Address (Street or PO Box)			
4d. City, State, Zip			
4e. Phone (1)	**4f.** Phone (2)	**4g.** Fax	**4h.** E-mail

Part 5–Project Location(s)

Identifying information about the property or properties where the project will occur. [help]

☒ There are multiple project locations (e.g., linear projects). Complete the section below and use JARPA Attachment B for each additional project location.

5a. Indicate the type of ownership of the property. (Check all that apply.) [help]

☒ Private
☐ Federal
☐ Publicly owned (state, county, city, special districts like schools, ports, etc.)
☐ Tribal
☒ Department of Natural Resources (DNR) – managed aquatic lands (Complete JARPA Attachment E)

5b. Street Address (Cannot be a PO Box. If there is no address, provide other location information in 5p.) [help]

JEM upland material storage facility (UMSF): 100 Tennant Way
(See Plan Sheet C1 attached to this JARPA application for other proposed dredging areas without a physical address in the Lower Columbia River Federal Navigation Channel [FNC]).

5c. City, State, Zip (If the project is not in a city or town, provide the name of the nearest city or town.) [help]

JEM UMSF: Longview, Washington 98632
Dredge areas are adjacent to Astoria, Oregon; Skamokawa, Washington; Longview, Washington; and Vancouver, Washington.

5d. County [help]

Cowlitz

5e. Provide the section, township, and range for the project location. [help]

¼ Section	Section	Township	Range
SE	10	7N	2W
SW	11	7N	2W

5f. Provide the latitude and longitude of the project location. [help]

- Example: 47.03922 N lat. / -122.89142 W long. (Use decimal degrees - NAD 83)

JEM UMSF: 46.103397 N latitude / -122.907870 W longitude
Dredge Reach 1: Columbia River Miles 14 to 22
Dredge Reach 2: Columbia River Miles 32 to 36
Dredge Reach 3: Columbia River Miles 66 to 76
Dredge Reach 4: Columbia River Miles 100 to 106.4

5g. List the tax parcel number(s) for the project location. [help]

- The local county assessor's office can provide this information.

Cowlitz County Parcels WH1114001, WH1110003, and WH1111001.

5h. Contact information for all adjoining property owners. (If you need more space, use JARPA Attachment C.) [help]

Name	Mailing Address	Tax Parcel # (if known)
Pacific Fibre Products, Inc.	20 Fibre Way Longview, Washington 98632	101250400

KapStone Kraft Paper Corporation	PO Box 3000 Longview, Washington 98632	6151101
Cowlitz County Tennant Way Closed Landfill	1600 13th Ave. S. Kelso, WA 98626	WH1110001

5i. List all wetlands on or adjacent to the project location. [help]

There are no wetlands in the FNC. Dredging operations will contained within FNC.

Results of an investigation conducted by Anchor QEA, LLC, biologists on April 6, 2016, indicated that no wetlands are present on the upland portion of the Project site, the area designated as the UMSF. Wetland habitat at the site is found primarily adjacent to the Cowlitz River, along the south shoreline of the forested berm on the peninsula that separates the Old Mouth of the Cowlitz River (OMCR) from the current Cowlitz River channel. No work on the peninsula is proposed.

5j. List all waterbodies (other than wetlands) on or adjacent to the project location. [help]

Dredging in the FNC is proposed: river miles (RMs) 14 to 22 (Reach 1), 28 to 36 (Reach 2), 66 to 76 (Reach 3), and 100 to 106.5 (Reach 4). The proposed JEM UMSF is adjacent to the OMCR.

5k. Is any part of the project area within a 100-year floodplain? [help]

☒ Yes ☐ No ☐ Don't know

5l. Briefly describe the vegetation and habitat conditions on the property. [help]

The Project area consists of four reaches of the Columbia River in and adjacent to the FNC, and the UMSF at the JEM property.

The FNC is actively maintained via ongoing dredging activities by the U.S. Army Corps of Engineers (ACOE) and other permitted agents. The FNC is a migration corridor for several species of Pacific salmon, steelhead, and other native fish species. The FNC also provides habitat for several species of birds, mammals, and other wildlife. The channel substrate in the Project areas consists of clean sand and gravel with very little organic content, typical of the Columbia River below the Bonneville Dam (RM 146.1). No aquatic vegetation is known to exist in the FNC.

The UMSF is an active industrial site characterized by areas of unpaved gravel and weedy grasses. The upland site topography is generally flat, with steep shorelines. The upland vegetation in the active industrial area of the property is limited to mostly grasses and weedy ground cover that is maintained as open lawn space. Portions of the upper banks along the OMCR near the active industrial area of the property include a few isolated trees (cottonwood, red alder, and willow) and nonnative Himalayan blackberry. There is minimal overhanging vegetation or accumulated large woody debris along the industrialized portions of the OMCR.

5m. Describe how the property is currently used. [help]

The Columbia River hosts a variety of uses and is accessible from multiple ports, marinas, and boat launches along the four reaches where Project actions would take place. The approximately 500-foot-wide FNC is an active shipping channel for container ships and other large vessels. Recreational boaters and anglers also frequently use the Columbia River across its entire width. The JEM property is currently used for industrial, water-related construction equipment and materials logistics.

5n. Describe how the adjacent properties are currently used. [help]

The Lower Columbia River in and around the FNC is used for shipping, recreational boating, and fishing.
Reach 1 is just downstream of Astoria, Oregon, and near the mouth of the Columbia River. Upstream Reach 1 is characterized by industrial, commercial, and recreational activity from the Port of Astoria, many private marine businesses, and recreational boating and fishing. The rest of the reach is mostly neighbored by uninhabited islands and shoreline.
Reach 2 is adjacent to Skamokawa, Washington, and several islands on the Oregon side. The FNC is a corridor for transportation, industrial, commercial, and recreational activities.
Reach 3 includes commercial and industrial uses at the Port of Longview, Washington, and commercial, residential, and recreational uses near Rainier, Oregon.
Reach 4 is adjacent to the Port of Vancouver and is frequently used by large container ships and other commercial and industrial vessels. Recreational boaters also use this area. Shoreline and upland uses by the ports of Vancouver and Portland in this reach are largely industrial and commercial. The western half of Hayden Island, between RMs 102.5 and 104.6, is largely undeveloped and is characterized by areas of semi-naturalized woodland and grassland. Approximately 800 square acres of this is a nature preserve. Beaches are publicly accessible, but there are no public roads on this part of Hayden Island.

JEM's property neighbors the permanently closed Cowlitz County Tennant Way Landfill, where activities include periodic inspection, landfill cover maintenance, and environmental monitoring. The property also borders a lagoon on Pacific Fibre Products, Inc.'s parcel. The lagoon is believed to be a former log pond. JEM owns the parcels immediately south of the OMCR; this property is not currently in use and consists of shrubs and woodland.

5o. Describe the structures (above and below ground) on the property, including their purpose(s) and current condition. [help]

There are few structures at the JEM property. These include a portable office trailer, an enclosed shop building, and a covered storage area. The JEM property includes sheetpile and timber bulkheads and riprap stabilization, as well as two boat ramps. A number of dilapidated piles and dolphins across the OMCR remain from past owners, on both the JEM and DNR properties.

5p. Provide driving directions from the closest highway to the project location, and attach a map. [help]

From Interstate 5, take exit 36 to State Route 432 (WA-432) in Longview, Washington. Continue 0.7 mile on WA-432 westbound toward Dike Road, turn right onto Frontage Road, and then turn left onto Dike Road. Continue approximately 0.5 mile west, then veer left to enter the Project site, just before the road makes a sharp right.

Part 6–Project Description

6a. Briefly summarize the overall project. You can provide more detail in 6b. [help]

The proposed work includes dredging for sand in predetermined shoaling areas in Columbia River RMs 14 to 22 (Reach 1), 32-36 (Reach 2), 66 to 76 (Reach 3) and RMs 100 to 106.5 (Reach 4). Dredging locations were identified in consultation with Jon Gornick, ACOE (Waterways Maintenance Section – Portland District). All proposed dredging will take place in the FNC, then the dredged material will be transported to JEM's UMSF for processing, storage, and eventual commercial or environmental benefit use.

6b. Describe the purpose of the project and why you want or need to perform it. [help]

The purpose of this Project is to obtain clean sand suitable for environmental capping and restoration by removing shoaling areas in the FNC. There is a need to perform ongoing maintenance dredging of the FNC to maintain the permitted depth of -43 feet Columbia River Datum, particularly in areas of shoaling. Maintenance dredging is typically performed by ACOE, however, JEM proposes to dredge the specific reaches within the FNC identified in this application and confirmed with J. Gornick (ACOE). The proposed project will reduce the maintenance burden on the ACOE and affords JEM a commercial opportunity to provide clean fill material for a variety of projects. All maintenance dredging proposed will be coordinated with the ACOE and be conducted consistent with conditions and parameters applicable to ACOE's own routine maintenance dredging of the FNC, including limits on the areas and depth of maintenance dredging allowed.

6c. Indicate the project category. (Check all that apply) [help]

☒ Commercial ☐ Residential ☐ Institutional ☐ Transportation ☐ Recreational

☒ Maintenance ☐ Environmental Enhancement

6d. Indicate the major elements of your project. (Check all that apply) [help]

☐ Aquaculture	☐ Culvert	☐ Float	☐ Retaining Wall (upland)
☐ Bank Stabilization	☐ Dam / Weir	☐ Floating Home	☐ Road
☐ Boat House	☐ Dike / Levee / Jetty	☐ Geotechnical Survey	☐ Scientific Measurement Device
☐ Boat Launch	☐ Ditch	☐ Land Clearing	☐ Stairs
☐ Boat Lift	☐ Dock / Pier	☐ Marina / Moorage	☐ Stormwater facility
☐ Bridge	☒ Dredging	☒ Mining	☐ Swimming Pool
☐ Bulkhead	☐ Fence	☐ Outfall Structure	☐ Utility Line
☐ Buoy	☐ Ferry Terminal	☐ Piling/Dolphin	
☐ Channel Modification	☐ Fishway	☐ Raft	

☒ Other: Beneficial reuse of dredge sand material

6e. Describe how you plan to construct each project element checked in 6d. Include specific construction methods and equipment to be used. [help]

- Identify where each element will occur in relation to the nearest waterbody.
- Indicate which activities are within the 100-year floodplain.

Dredging will be performed by clamshell bucket suspended by a floating derrick. Dredged sediment will be loaded into a materials barge with sidewalls for transport to JEM's UMSF. Materials barges will be carefully loaded to avoid overtopping the bin walls with sediment-laden water. Materials barges will be transported by tug to JEM's UMSF or directly to Project sites (permitted separately).

6f. What are the anticipated start and end dates for project construction? (Month/Year) [help]

- If the project will be constructed in phases or stages, use JARPA Attachment D to list the start and end dates of each phase or stage.

Start Date: after issuance End Date: ten years after permit obtained ☐ See JARPA Attachment D

6g. Fair market value of the project, including materials, labor, machine rentals, etc. [help]

$250,000

6h. Will any portion of the project receive federal funding? [help]

- **If yes**, list each agency providing funds.

☐ Yes ☒ No ☐ Don't know

Part 7–Wetlands: Impacts and Mitigation

☐ Check here if there are wetlands or wetland buffers on or adjacent to the project area. (If there are none, skip to Part 8.) [help]

7a. Describe how the project has been designed to avoid and minimize adverse impacts to wetlands. [help]

☐ Not applicable

7b. Will the project impact wetlands? [help]

☐ Yes ☐ No ☐ Don't know

7c. Will the project impact wetland buffers? [help]

☐ Yes ☐ No ☐ Don't know

7d. Has a wetland delineation report been prepared? [help]

- **If Yes**, submit the report, including data sheets, with the JARPA package.

☐ Yes ☐ No

7e. Have the wetlands been rated using the Western Washington or Eastern Washington Wetland Rating System? [help]

- **If Yes**, submit the wetland rating forms and figures with the JARPA package.

☐ Yes ☐ No ☐ Don't know

7f. Have you prepared a mitigation plan to compensate for any adverse impacts to wetlands? [help]

- **If Yes**, submit the plan with the JARPA package and answer 7g.
- **If No, or Not applicable**, explain below why a mitigation plan should not be required.

☐ Yes ☐ No ☐ Don't know

7g. Summarize what the mitigation plan is meant to accomplish, and describe how a watershed approach was used to design the plan. [help]

7h. Use the table below to list the type and rating of each wetland impacted, the extent and duration of the impact, and the type and amount of mitigation proposed. Or if you are submitting a mitigation plan with a similar table, you can state (below) where we can find this information in the plan. [help]

Activity (fill, drain, excavate, flood, etc.)	Wetland Name[1]	Wetland type and rating category[2]	Impact area (sq. ft. or Acres)	Duration of impact[3]	Proposed mitigation type[4]	Wetland mitigation area (sq. ft. or acres)

[1] If no official name for the wetland exists, create a unique name (such as "Wetland 1"). The name should be consistent with other project documents, such as a wetland delineation report.
[2] Ecology wetland category based on current Western Washington or Eastern Washington Wetland Rating System. Provide the wetland rating forms with the JARPA package.
[3] Indicate the days, months or years the wetland will be measurably impacted by the activity. Enter "permanent" if applicable.
[4] Creation (C), Re-establishment/Rehabilitation (R), Enhancement (E), Preservation (P), Mitigation Bank/In-lieu fee (B)

Page number(s) for similar information in the mitigation plan, if available: _____

7i. For all filling activities identified in 7h, describe the source and nature of the fill material, the amount in cubic yards that will be used, and how and where it will be placed into the wetland. [help]

7j. For all excavating activities identified in 7h, describe the excavation method, type and amount of material in cubic yards you will remove, and where the material will be disposed. [help]

Part 8–Waterbodies (other than wetlands): Impacts and Mitigation

In Part 8, "waterbodies" refers to non-wetland waterbodies. (See Part 7 for information related to wetlands.) [help]

☒ Check here if there are waterbodies on or adjacent to the project area. (If there are none, skip to Part 9.)

8a. Describe how the project is designed to avoid and minimize adverse impacts to the aquatic environment. [help]

☐ Not applicable

Maintenance dredging within the FNC will be performed during ACOE's in-water work window for the Lower Columbia from November 1 to February 28. Dredging will only take place outside of this window with preauthorization from the ACOE and consultation with resource agencies (NMFS, USFWS). The following best management practices (BMPs) will be utilized during all dredging operations:

- Following the water quality monitoring requirements of the 401 Water Quality Certification.
- Following the requirements of the Hydraulic Project Approval during all in-water activities.
- Sequencing and/or phasing work activities to minimize the extent and duration of in-water disturbances.
- Employing experienced operators.
- Dredging in a controlled manner via the following:
  - Minimize dragging of bucket.
  - No stockpiling of material in water.
  - Completing dredge passes in lifts, such that the shallow lift is completed prior to moving to a deeper lift.
  - Avoid "glory holing."
  - Not overfilling the dredge bucket.
  - Closing the bucket slowly at the bottom of the grab.
  - Pausing before hoisting the bucket off the bottom to allow any excess material to settle prior to raising the bucket through the water column.
  - Hoisting the bucket slowly.
  - Pausing the bucket at the water surface to minimize the freefall distance of water discharging from the bucket.
  - Slamming the open bucket over the materials barge after the material is placed in the barge to dislodge any additional material potentially clinging to the bucket.
  - Ensuring that all material has dumped from the bucket into the materials barge prior to resumption of dredging activities.
  - Removing material from the water with each bucket closure.
- Conducting periodic progress surveys to verify that sediment is being dredged to prescribed lines, grades, and tolerances.
- Visually monitoring each dredged material load during transit to verify that dredged material is not released.
- Use of support vessels during all in-water activities—vessels will be equipped with containment booms and sorbent pads to immediately contain and/or absorb debris and sheens.

8b. Will your project impact a waterbody or the area around a waterbody? [help]

☒ Yes ☐ No

8c. Have you prepared a mitigation plan to compensate for the project's adverse impacts to non-wetland waterbodies? [help]

- **If Yes**, submit the plan with the JARPA package and answer 8d.
- **If No, or Not applicable,** explain below why a mitigation plan should not be required.

☐ Yes ☒ No ☐ Don't know

Dredging and sand mining will take place in shoaling areas of the FNC identified by ACOE soundings. Mitigation for this maintenance work is not required; the use of appropriate BMPs, defined in Section 8a above, reduces the risk of environmental impacts.

8d. Summarize what the mitigation plan is meant to accomplish. Describe how a watershed approach was used to design the plan.

- If you already completed 7g you do not need to restate your answer here. [help]

No mitigation plan is proposed.

8e. Summarize impact(s) to each waterbody in the table below. [help]

Activity (clear, dredge, fill, pile drive, etc.)	Waterbody name[1]	Impact location[2]	Duration of impact[3]	Amount of material (cubic yards) to be placed in or removed from waterbody	Area (sq. ft. or linear ft.) of waterbody directly affected
Maintenance Dredging	Lower Columbia River	In-water	10 years	Up to 50,000 cubic yards annually	Varies

[1] If no official name for the waterbody exists, create a unique name (such as "Stream 1") The name should be consistent with other documents provided.
[2] Indicate whether the impact will occur in or adjacent to the waterbody. If adjacent, provide the distance between the impact and the waterbody and indicate whether the impact will occur within the 100-year flood plain.
[3] Indicate the days, months or years the waterbody will be measurably impacted by the work. Enter "permanent" if applicable.

8f. For all activities identified in 8e, describe the source and nature of the fill material, amount (in cubic yards) you will use, and how and where it will be placed into the waterbody. [help]

No fill material will be placed in water under this permit. Dredged material from the Lower Columbia River will be placed at the JEM UMSF. Any in-water placement of this dredged material for use during environmental capping and/or restoration will be permitted separately.

8g. For all excavating or dredging activities identified in 8e, describe the method for excavating or dredging, type and amount of material you will remove, and where the material will be disposed. [help]

The applicant will mechanically dredge material from the FNC with a clamshell bucket. Material to be dredged is typically sandy in nature. The Project includes removing up to 50,000 cubic yards of shoaled material from the FNC annually for the ten-year duration of the requested permit. Material will be dredged, placed in a materials barge, and transported via tug to JEM's UMSF, where it will be offloaded and stored for future use.

Part 9–Additional Information

Any additional information you can provide helps the reviewer(s) understand your project. Complete as much of this section as you can. It is ok if you cannot answer a question.

9a. If you have already worked with any government agencies on this project, list them below. [help]

Agency Name	Contact Name	Phone	Most Recent Date of Contact
Cowlitz County Building & Planning	Ron Melin	(360) 577-3062 x. 6661	July 2019
ACOE	Danette Guy	(206) 348-3999	August 2019
ACOE	Jon Gornick	(503) 808-4341	June 2019
ACOE	Marci Johnson	(503) 808-4765	July 2019

9b. Are any of the wetlands or waterbodies identified in Part 7 or Part 8 of this JARPA on the Washington Department of Ecology's 303(d) List? [help]

- **If Yes,** list the parameter(s) below.
- If you don't know, use Washington Department of Ecology's Water Quality Assessment tools at: https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-improvement/Assessment-of-state-waters-303d.

☒ Yes ☐ No

The Columbia River in the Project vicinity is listed for temperature, bacteria, and dioxin.

All reaches must adhere to the Water Quality Criteria set forth by Ecology for Temperature (17.5 degrees Celsius), dissolved oxygen (8 milligrams per liter O_2), pH (6.5 to 8.5), turbidity, and bacteria (fecal coliform levels). The following list presents Category 5 water-medium listings for each reach.

Reach 1: None
Reach 2: None
Reach 3: Temperature, bacteria
Reach 4: Temperature, bacteria, dissolved oxygen

9c. What U.S. Geological Survey Hydrological Unit Code (HUC) is the project in? [help]

- Go to http://cfpub.epa.gov/surf/locate/index.cfm to help identify the HUC.

Reach 1: 17080006
Reaches 2 and 3, UMSF: 17080003
Reach 4: 17080001

9d. What Water Resource Inventory Area Number (WRIA #) is the project in? [help]

- Go to to find the WRIA #.

Reach 1: 24
Reach 2: 25
Reach 3 and UMSF: 26
Reach 4: 28

9e. Will the in-water construction work comply with the State of Washington water quality standards for turbidity? [help]

- Go to https://ecology.wa.gov/Water-Shorelines/Water-quality/Freshwater/Surface-water-quality-standards/Criteria for the standards.

☒ Yes ☐ No ☐ Not applicable

9f. If the project is within the jurisdiction of the Shoreline Management Act, what is the local shoreline environment designation? [help]

- If you don't know, contact the local planning department.
- For more information, go to: https://ecology.wa.gov/Water-Shorelines/Shoreline-coastal-management/Shoreline-coastal-planning/Shoreline-laws-rules-and-cases.

☒ Urban ☐ Natural ☐ Aquatic ☐ Conservancy ☐ Other: _____

9g. What is the Washington Department of Natural Resources Water Type? [help]

- Go to http://www.dnr.wa.gov/forest-practices-water-typing for the Forest Practices Water Typing System.

☒ Shoreline ☒ Fish ☐ Non-Fish Perennial ☐ Non-Fish Seasonal

9h. Will this project be designed to meet the Washington Department of Ecology's most current stormwater manual? [help]

- **If No**, provide the name of the manual your project is designed to meet.

☒ Yes ☐ No

Name of manual: _____

9i. Does the project site have known contaminated sediment? [help]

- **If Yes**, please describe below.

☐ Yes ☒ No

9j. If you know what the property was used for in the past, describe below. [help]

The area to be dredged is in the FNC. The FNC has been a maintained shipping channel for more than 128 years. The most recent authorized changed in depth for the Lower Columbia was in 1999, increasing the depth to -43 feet CRD. Maintenance dredging of the FNC occurs regularly

The land on which the UMSF will be located was not developed until 1924 when the Long-Bell Lumber Mill was constructed. Sometime between its start and 1933, the OMCR was created immediately west of the Cowlitz River, likely by the mill. By 1956, the Long-Bell Lumber Mill was bought by the International Paper Company and was operational until approximately 1960. The site has been used for storage since. JEM purchased the property in 2015. In 2016, geotechnical investigation showed approximately 7.5' of fill, including wood, sawdust, concrete, sand, aggregate, and other miscellaneous debris, corroborating its former use as a log and storage yard.

9k. Has a cultural resource (archaeological) survey been performed on the project area? [help]

- **If Yes**, attach it to your JARPA package.

☐ Yes ☒ No

The Project area includes no modifications or demolition of structures older than 50 years. Archaeological materials are not likely to be present or affected because the in-water portion of the Project area has been repeatedly dredged in the past, and the upland portion of the Project area contains several feet of fill.

9l. Name each species listed under the federal Endangered Species Act that occurs in the vicinity of the project area or might be affected by the proposed work. [help]

Species listed under the federal Endangered Species Act (ESA) that may occur in the vicinity of the Project area or that might be affected by the proposed work include the following:

- Chinook salmon (*Oncorhynchus tshawytscha*)
- Steelhead trout (*Oncorhynchus mykiss*)
- Coho salmon (*Oncorhynchus kisutch*)
- Chinook salmon (*Oncorhynchus tshawytscha*)
- Sockeye salmon (*Oncorhynchus nerka*)
- Steelhead trout (*Oncorhynchus mykiss*)
- Chum salmon (*Oncorhynchus keta*)
- Bull trout (*Salvelinus confluentus*)
- Green sturgeon (*Acipenser medirostris*)
- Eulachon (*Thaleichthys pacificus*)

See the Biological Evaluation (Attachment 4) for more detailed information on ESA-listed species.

9m. Name each species or habitat on the Washington Department of Fish and Wildlife's Priority Habitats and Species List that might be affected by the proposed work. [help]

Fish species listed in the WDFW Priority Species list for the Columbia River include resident coastal cutthroat trout, Dolly Varden/bull trout, green sturgeon, white sturgeon, fall Chinook, summer steelhead, winter steelhead, spring Chinook, summer Chinook, sockeye, fall chum, coho, and pink salmon (odd year).

Part 10–SEPA Compliance and Permits

Use the resources and checklist below to identify the permits you are applying for.

- Online Project Questionnaire at http://apps.oria.wa.gov/opas/.
- Governor's Office for Regulatory Innovation and Assistance at (800) 917-0043 or help@oria.wa.gov.
- For a list of addresses to send your JARPA to, click on agency addresses for completed JARPA.

10a. Compliance with the State Environmental Policy Act (SEPA). (Check all that apply.) [help]

- For more information about SEPA, go to https://ecology.wa.gov/regulations-permits/SEPA-environmental-review.

☐ A copy of the SEPA determination or letter of exemption is included with this application.

☒ A SEPA determination is pending with the Cowlitz County Building and Planning Department (lead agency). The expected decision date is 90 days from submittal.

☐ I am applying for a Fish Habitat Enhancement Exemption. (Check the box below in 10b.) [help]

☐ This project is exempt (choose type of exemption below).

☐ Categorical Exemption. Under what section of the SEPA administrative code (WAC) is it exempt?

_____

☐ Other: _____

☐ SEPA is pre-empted by federal law.

10b. Indicate the permits you are applying for. (Check all that apply.) [help]

LOCAL GOVERNMENT

Local Government Shoreline permits:

☒ Substantial Development ☐ Conditional Use ☐ Variance

☐ Shoreline Exemption Type (explain):

Other City/County permits:

☐ Floodplain Development Permit ☐ Critical Areas Ordinance

STATE GOVERNMENT

Washington Department of Fish and Wildlife:

☒ Hydraulic Project Approval (HPA) ☐ Fish Habitat Enhancement Exemption – Attach Exemption Form

Washington Department of Natural Resources:

☒ Aquatic Use Authorization

Complete JARPA Attachment E and submit a check for $25 payable to the Washington Department of Natural Resources. **Do not send cash.**

Washington Department of Ecology:

☒ Section 401 Water Quality Certification

FEDERAL AND TRIBAL GOVERNMENT

United States Department of the Army (U.S. Army Corps of Engineers):

☒ Section 404 (discharges into waters of the U.S.) ☒ Section 10 (work in navigable waters)

United States Coast Guard:

☐ General Bridge Act Permit ☐ Private Aids to Navigation (for non-bridge projects)

United States Environmental Protection Agency:

☐ Section 401 Water Quality Certification (discharges into waters of the U.S.) on tribal lands where tribes do not have treatment as a state (TAS)

Tribal Permits: (Check with the tribe to see if there are other tribal permits, e.g., Tribal Environmental Protection Act, Shoreline Permits, Hydraulic Project Permits, or other in addition to CWA Section 401 WQC)

☐ Section 401 Water Quality Certification (discharges into waters of the U.S.) where the tribe has treatment as a state (TAS).

Part 11–Authorizing Signatures

Signatures are required before submitting the JARPA package. The JARPA package includes the JARPA form, project plans, photos, etc. [help]

11a. Applicant Signature (required) [help]

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities, and I agree to start work only after I have received all necessary permits.

I hereby authorize the agent named in Part 3 of this application to act on my behalf in matters related to this application. SV (initial)

By initialing here, I state that I have the authority to grant access to the property. I also give my consent to the permitting agencies entering the property where the project is located to inspect the project site or any work related to the project. SV (initial)*

Scott Vandegrift	Scott Vandegrift	3 October 2019
Applicant Printed Name	Applicant Signature	Date

11b. Authorized Agent Signature [help]

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities and I agree to start work only after all necessary permits have been issued.

Joshua Elliott		3 October 2019
Authorized Agent Printed Name	Authorized Agent Signature	Date

11c. Property Owner Signature (if not applicant) [help]

Not required if project is on existing rights-of-way or easements (provide copy of easement with JARPA).

I consent to the permitting agencies entering the property where the project is located to inspect the project site or any work. These inspections shall occur at reasonable times and, if practical, with prior notice to the landowner.

Property Owner Printed Name	Property Owner Signature	Date

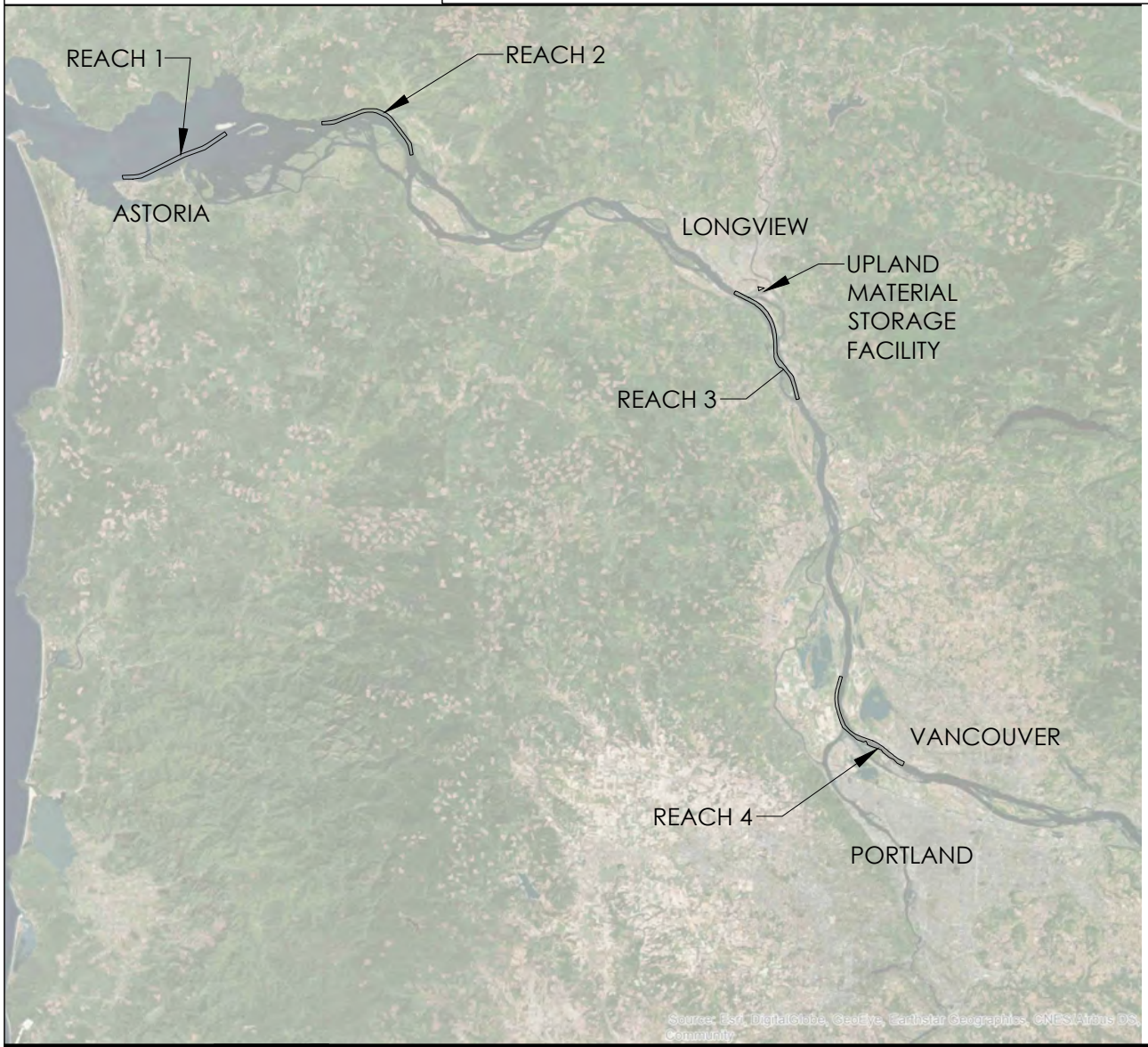
18 U.S.C §1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious, or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious, or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than 5 years or both.

If you require this document in another format, contact the Governor's Office for Regulatory Innovation and Assistance (ORIA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341. ORIA publication number: ORIA-16-011 rev. 09/2018

DRAWINGS

SITE VICINITY MAP

PERMIT DOCUMENT



SHEET INDEX:

ADJACENT PROPERTY OWNERS:

1. PACIFIC FIBRE PRODUCTS, INC.
2. KAPSTONE KRAFT PAPER CORPORATION
3. COWLITZ COUNTY PUBLIC WORKS DEPARTMENT
4. WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES
5. OREGON DEPARTMENT OF STATE LANDS

HORIZONTAL DATUM: NAD83, OREGON STATE PLANE NORTH, US SURVEY FEET
VERTICAL DATUM: COLUMBIA RIVER DATUM (CRD)

LATITUDE: 46.10° N
LONGITUDE: 122.91° W

MFA JOB #:	1618.01.01-02
CHECKED:	J. ELLIOTT
DRAWN:	E. LUNDEEN
DATE:	10/01/2019

MAUL FOSTER ALONGI
2001 NW 19th AVE, Suite 200
Portland, OR 97209
971.544.2139 (p) 971.544.2140 (f)
www.maulfoster.com

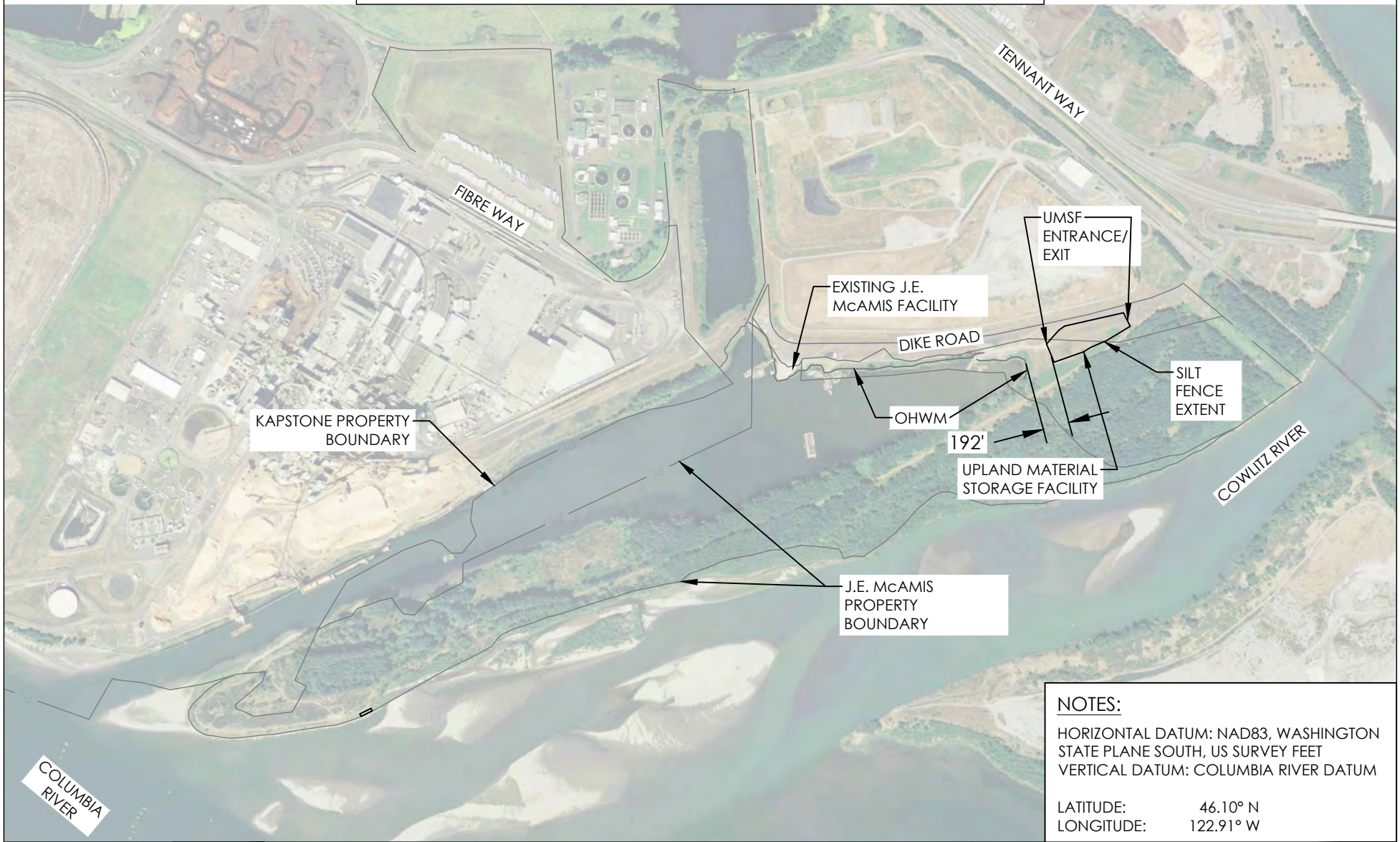
REFERENCE #:	NWS-XXXX-XX
APPLICANT NAME:	J.E. MCAMIS, INC.
PROPOSED PROJECT:	LOWER COLUMBIA RIVER MAINTENANCE DREDGING
PROJECT ADDRESS:	100 TENNANT WAY LONGVIEW, WASHINGTON
WATERWAY: [IF ANY]	COLUMBIA RIVER
SHEET # OF #:	1 OF 10

DRAWING NOT TO SCALE

SHEET
C0.0

UPLAND MATERIAL STORAGE FACILITY MAP

PERMIT DOCUMENT



NOTES:

HORIZONTAL DATUM: NAD83, WASHINGTON STATE PLANE SOUTH, US SURVEY FEET
VERTICAL DATUM: COLUMBIA RIVER DATUM

LATITUDE: 46.10° N
LONGITUDE: 122.91° W

MFA JOB #:	1618.01.01-02
CHECKED:	J. ELLIOTT
DRAWN:	M. TARBERT
DATE:	10/01/2019

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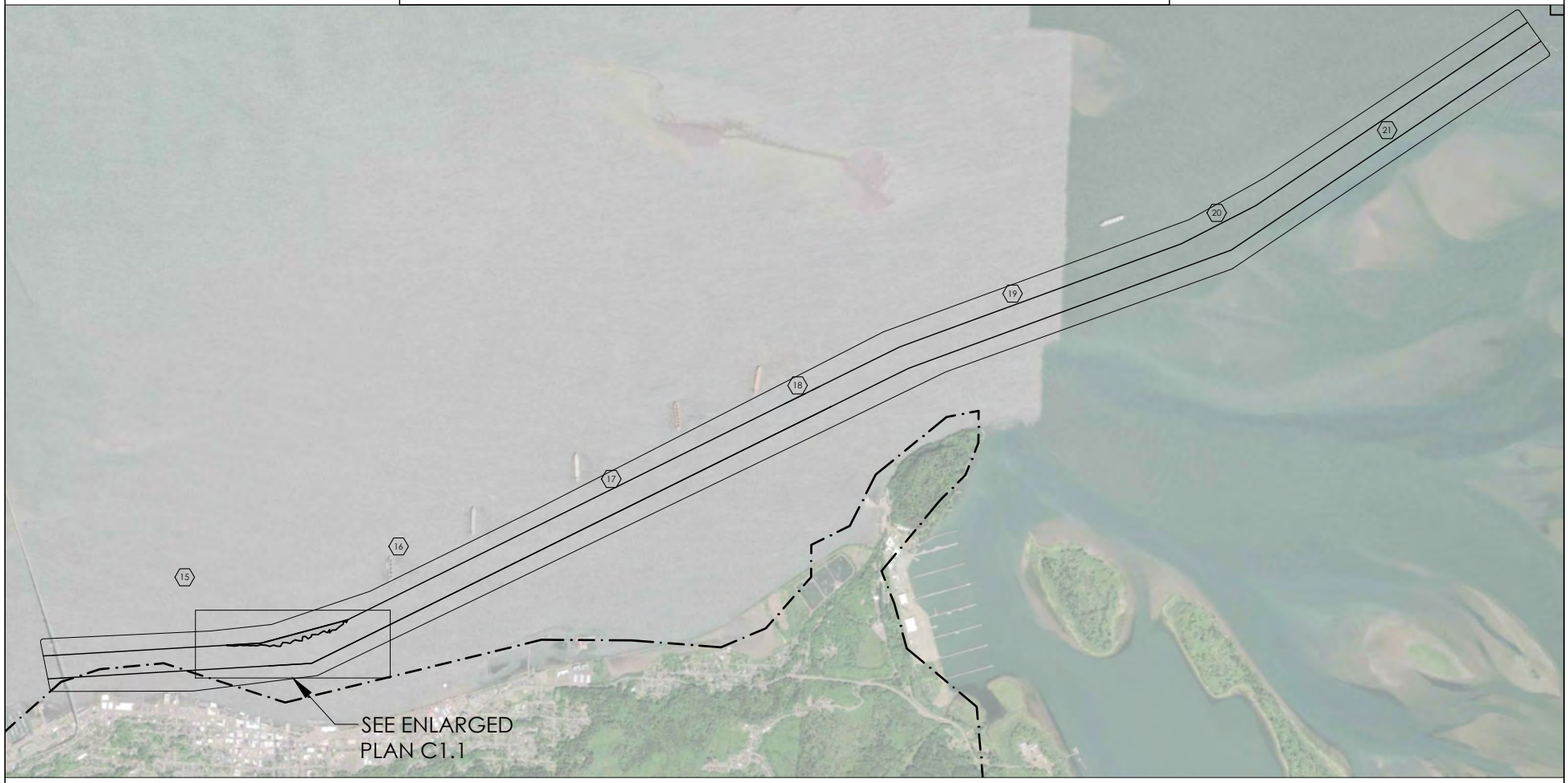
PROPOSED PROJECT:	LOWER COLUMBIA RIVER MAINTENANCE DREGDING
PROJECT ADDRESS:	100 TENNANT WAY LONGVIEW, WASHINGTON
WATERWAY: [IF ANY]	N/A
SHEET # OF #:	2 OF 10

0 1000'

NOTE: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.

SHEET
C0.1

REACH 1 OVERVIEW



LEGEND:

- EXISTING SHOALING AREA TO BE DREDGED
- DREDGE ACTION AREAS
- FEDERAL NAVIGATION CHANNEL BOUNDARY
- (#) COLUMBIA RIVER MILE MARKER
- OREGON/WASHINGTON STATE BOUNDARY

MFA JOB #:	1618.01.01-02
CHECKED:	J. ELLIOTT
DRAWN:	E. LUNDEEN
DATE:	10/01/2019

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2001 NW 19th AVE, Suite 200
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www.maulfoster.com

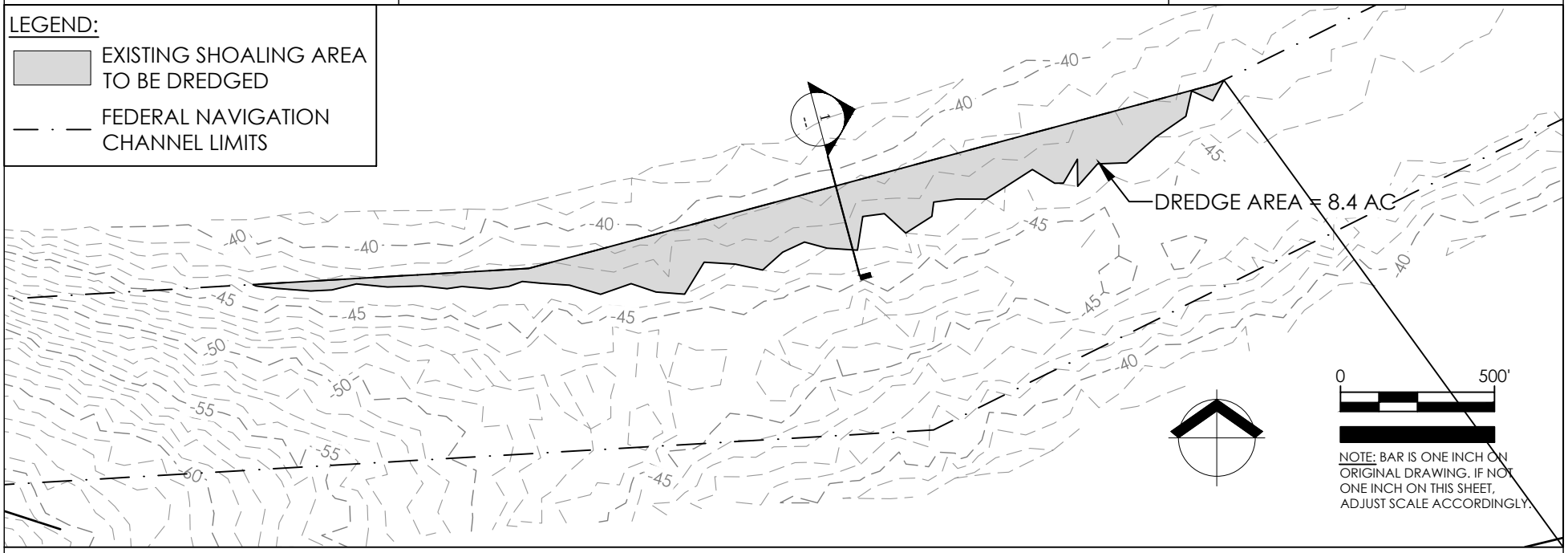
REFERENCE #:	NWS-XXXX-XX
APPLICANT NAME:	J.E. MCAMIS, INC.
PROPOSED PROJECT:	LOWER COLUMBIA RIVER MAINTENANCE DREGDING
PROJECT ADDRESS:	100 TENNANT WAY LONGVIEW, WASHINGTON
WATERWAY: [IF ANY]	COLUMBIA RIVER
SHEET # OF #:	3 OF 10

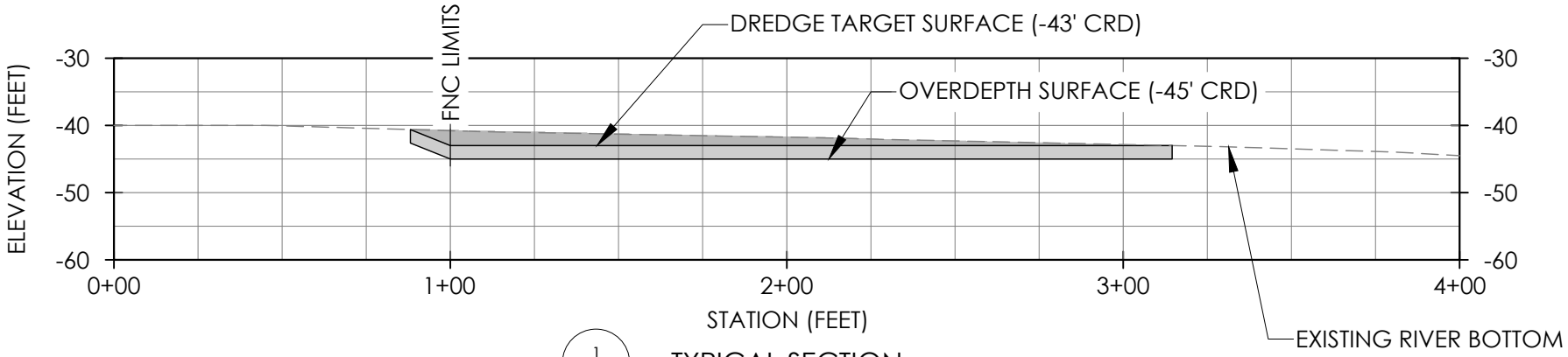
0 4000'

NOTE: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.

SHEET
C1.0

REACH 1 ENLARGED PLAN & TYPICAL SECTION





1

TYPICAL SECTION
HORIZONTAL SCALE 1" = 50'
VERTICAL SCALE 1" = 25'

MFA JOB #:	1618.01.01-02
CHECKED:	J. ELLIOTT
DRAWN:	E. LUNDEEN
DATE:	10/01/2019

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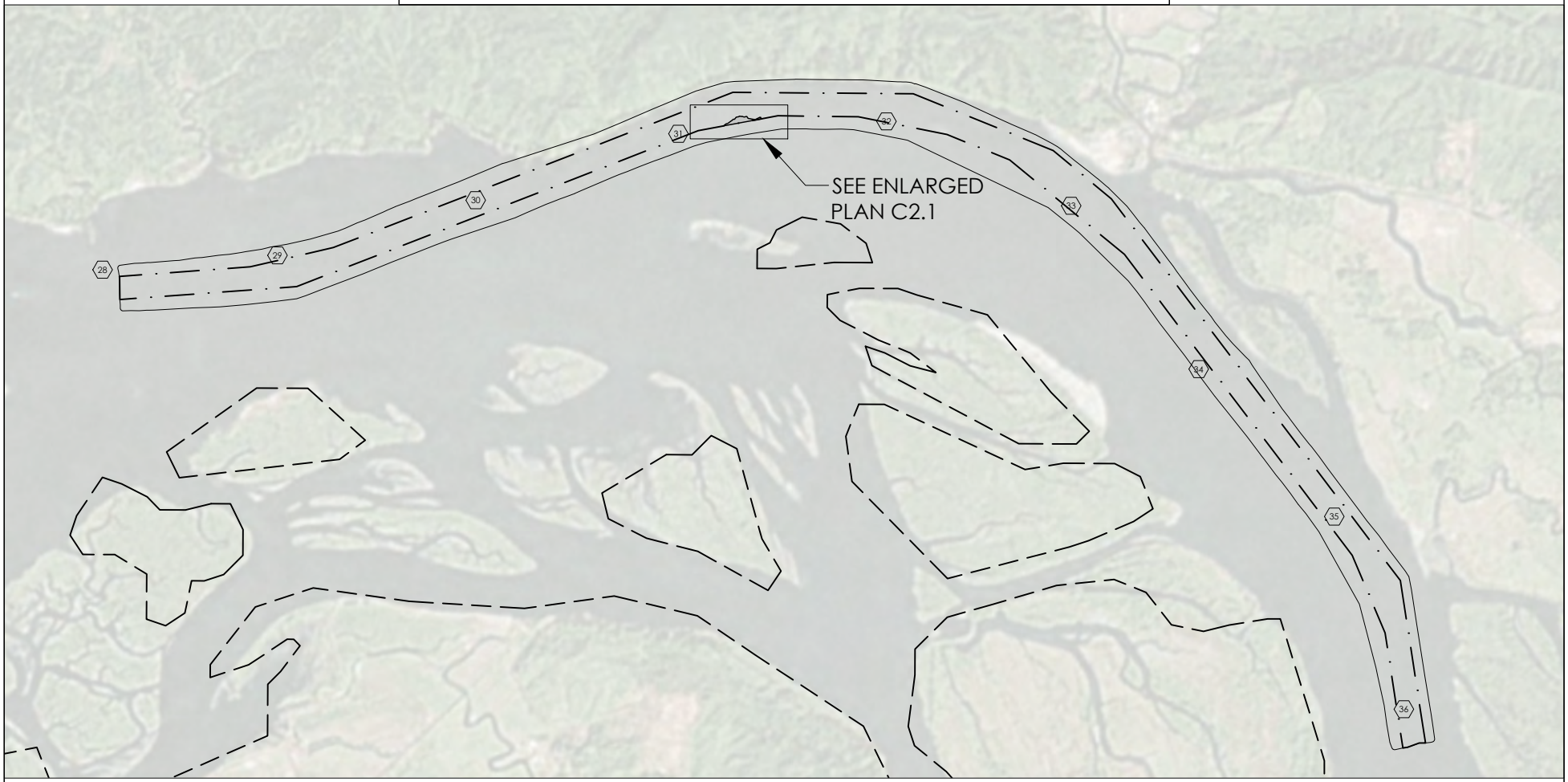
APPLICANT NAME:	J.E. MCAMIS, INC.
PROPOSED PROJECT:	LOWER COLUMBIA RIVER MAINTENANCE DREDGING
PROJECT ADDRESS:	100 TENNANT WAY LONGVIEW, WASHINGTON
WATERWAY: [IF ANY]	COLUMBIA RIVER
SHEET # OF #:	4 OF 10

SHEET
C1.1

REACH 2 OVERVIEW

PERMIT DOCUMENT



LEGEND:

- EXISTING SHOALING AREA TO BE DREDGED
- DREDGE ACTION AREAS
- FEDERAL NAVIGATION CHANNEL BOUNDARY
- # COLUMBIA RIVER MILE MARKER
- OREGON/WASHINGTON STATE BOUNDARY

MFA JOB #:	1618.01.01-02
CHECKED:	J. ELLIOTT
DRAWN:	E. LUNDEEN
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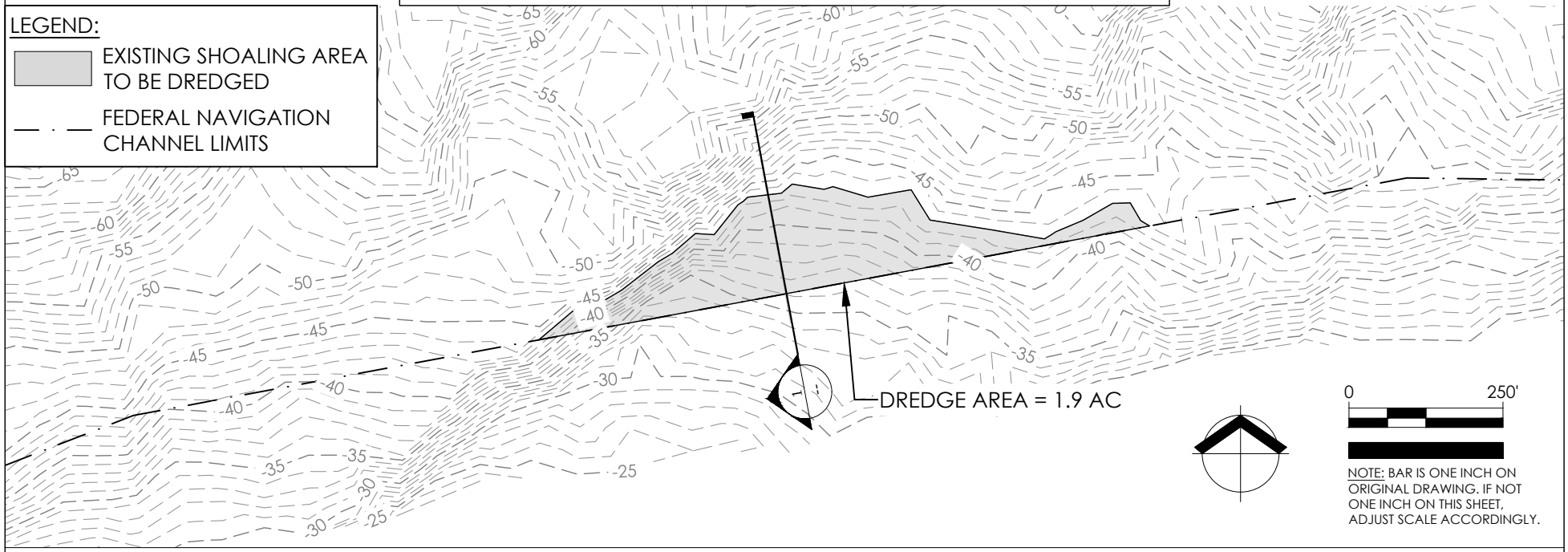
REFERENCE #:	NWS-XXXX-XX
APPLICANT NAME:	J.E. MCAMIS, INC.
PROPOSED PROJECT:	LOWER COLUMBIA RIVER MAINTENANCE DREDGING
PROJECT ADDRESS:	100 TENNANT WAY LONGVIEW, WASHINGTON
WATERWAY: [IF ANY]	COLUMBIA RIVER
SHEET # OF #:	5 OF 10

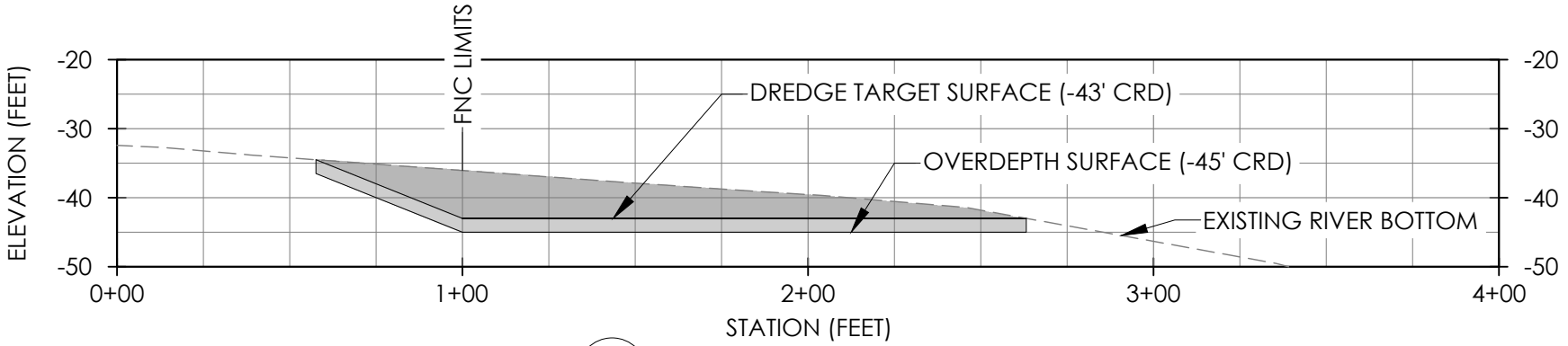
0 4000'

NOTE: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.

SHEET
C2.0

REACH 2 ENLARGED PLAN & TYPICAL SECTION





1

TYPICAL SECTION
HORIZONTAL SCALE 1" = 50'
VERTICAL SCALE 1" = 25'

MFA JOB #:	1618.01.01-02
CHECKED:	J. ELLIOTT
DRAWN:	E. LUNDEEN
DATE:	10/01/2019

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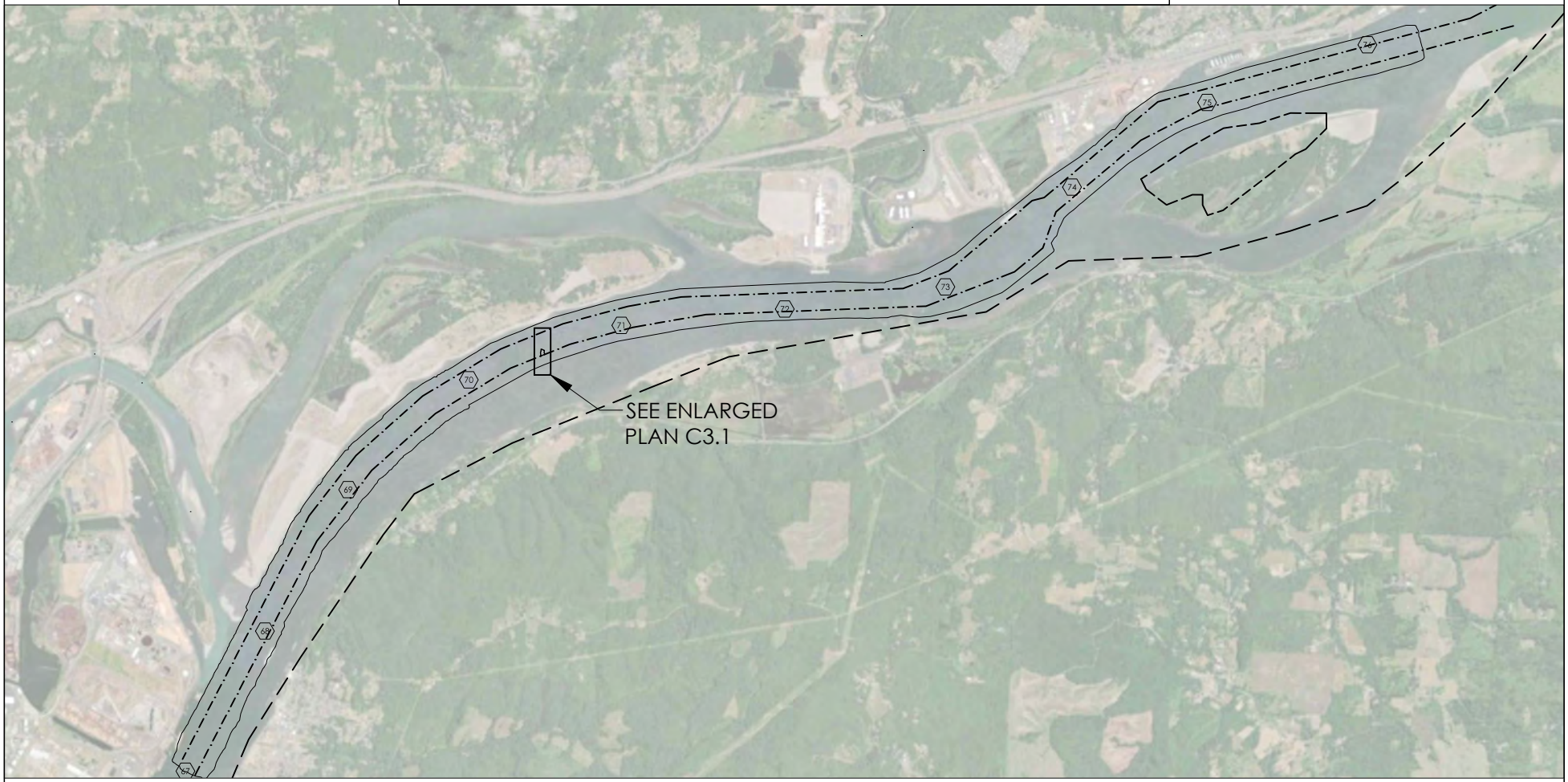
APPLICANT NAME:	J.E. MCAMIS, INC.
PROPOSED PROJECT:	LOWER COLUMBIA RIVER MAINTENANCE DREDGING
PROJECT ADDRESS:	100 TENNANT WAY LONGVIEW, WASHINGTON
WATERWAY: [IF ANY]	COLUMBIA RIVER
SHEET # OF #:	6 OF 10

SHEET
C2.1

REACH 3 OVERVIEW

PERMIT DOCUMENT



LEGEND:

- EXISTING SHOALING AREA TO BE DREDGED
- DREDGE ACTION AREAS
- FEDERAL NAVIGATION CHANNEL BOUNDARY
- (#) COLUMBIA RIVER MILE MARKER
- OREGON/WASHINGTON STATE BOUNDARY

MFA JOB #:	1618.01.01-02
CHECKED:	J. ELLIOTT
DRAWN:	E. LUNDEEN
DATE:	10/01/2019

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REFERENCE #:	NWS-XXXX-XX
APPLICANT NAME:	J.E. MCAMIS, INC.
PROPOSED PROJECT:	LOWER COLUMBIA RIVER MAINTENANCE DREGDING
PROJECT ADDRESS:	100 TENNANT WAY LONGVIEW, WASHINGTON
WATERWAY: [IF ANY]	COLUMBIA RIVER
SHEET # OF #:	7 OF 10

0 5000'

NOTE: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.

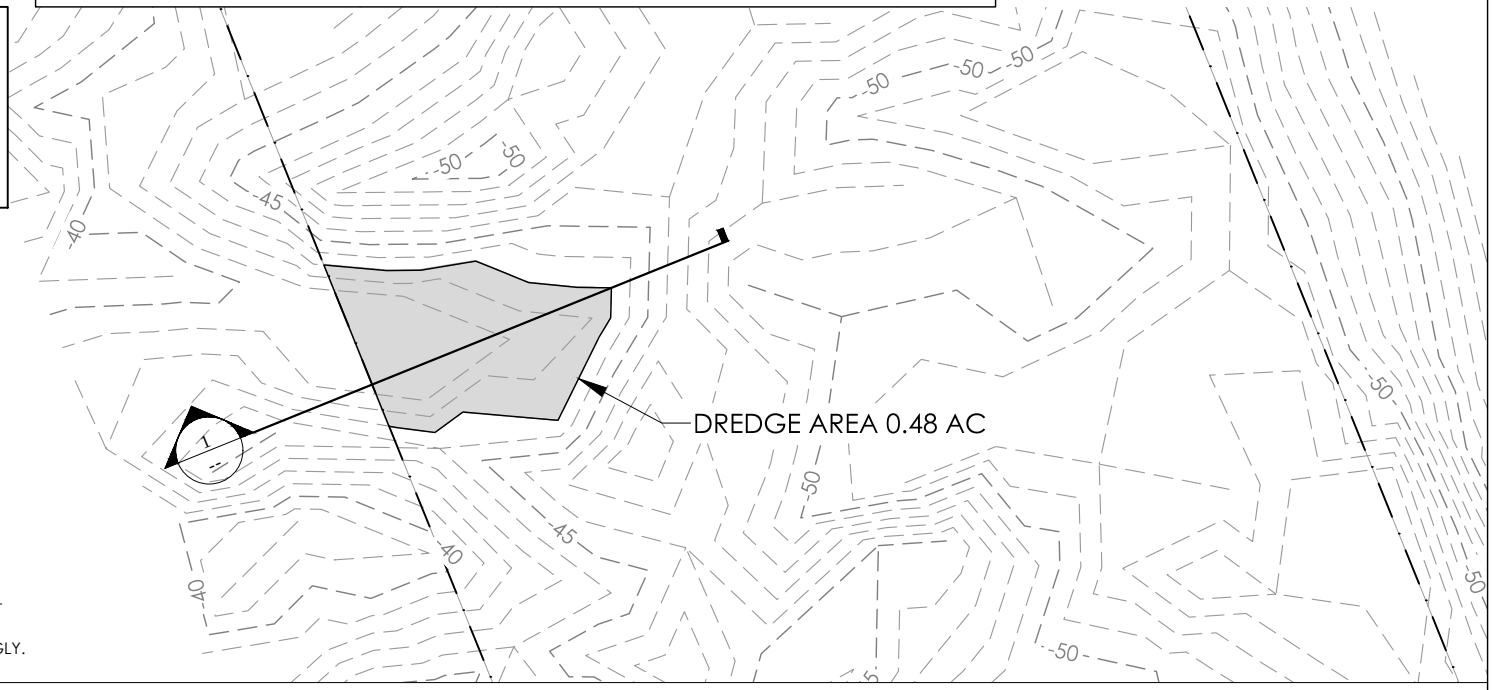
SHEET
C3.0

REACH 3 ENLARGED PLAN & TYPICAL SECTION

LEGEND:

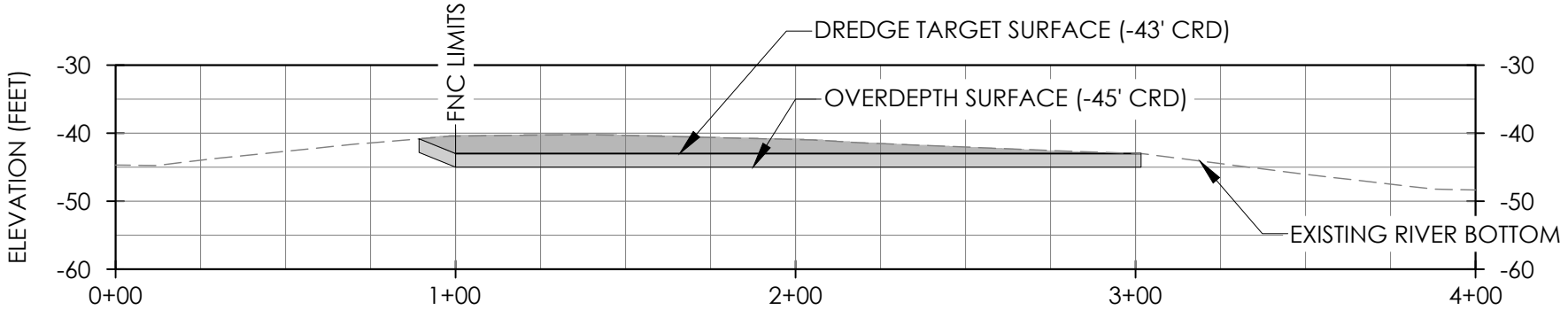
EXISTING SHOALING AREA TO BE DREDGED

FEDERAL NAVIGATION CHANNEL LIMITS



0 150'

NOTE: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.



1
--

TYPICAL SECTION
HORIZONTAL SCALE 1" = 50'
VERTICAL SCALE 1" = 25'

MFA JOB #:	1618.01.01-02
CHECKED:	J. ELLIOTT
DRAWN:	E. LUNDEEN
DATE:	10/01/2019

MAUL FOSTER ALONGI
2001 NW 19th AVE, Suite 200
Portland, OR 97209
971.544.2139 (p) 971.544.2140 (f)
www.maulfoster.com

REFERENCE #:	NWS-XXXX-XX
APPLICANT NAME:	J.E. MCAMIS, INC.
PROPOSED PROJECT:	LOWER COLUMBIA RIVER MAINTENANCE DREDGING
PROJECT ADDRESS:	100 TENNANT WAY LONGVIEW, WASHINGTON
WATERWAY: [IF ANY]	COLUMBIA RIVER
SHEET # OF #:	8 OF 10

SHEET
C3.1

REACH 4 OVERVIEW

PERMIT DOCUMENT

LEGEND:

- EXISTING SHOALING AREA TO BE DREDGED
- DREDGE ACTION AREAS
- FEDERAL NAVIGATION CHANNEL BOUNDARY
- (#) COLUMBIA RIVER MILE MARKER
- OREGON/WASHINGTON STATE BOUNDARY

MFA JOB #:	1618.01.01-02
CHECKED:	J. ELLIOTT
DRAWN:	E. LUNDEEN
DATE:	10/01/2019

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PROJECT ADDRESS:	100 TENNANT WAY LONGVIEW, WASHINGTON
WATERWAY: [IF ANY]	COLUMBIA RIVER
SHEET # OF #:	9 OF10

0 6000'

NOTE: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.

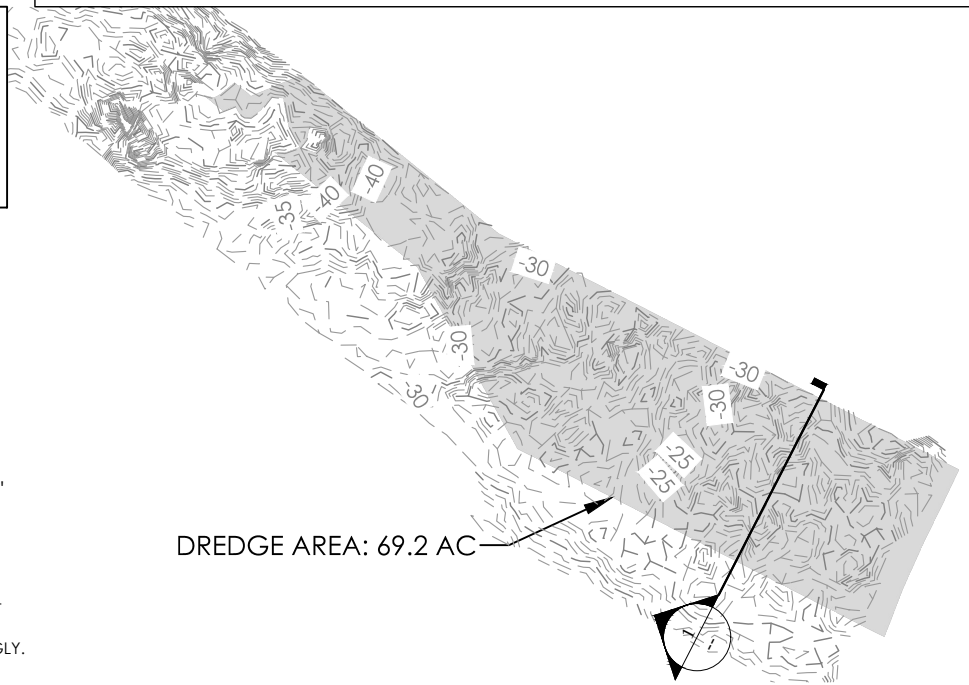
SHEET
C4.0

REACH 4 ENLARGED PLAN & TYPICAL SECTION

LEGEND:

EXISTING SHOALING AREA TO BE DREDGED

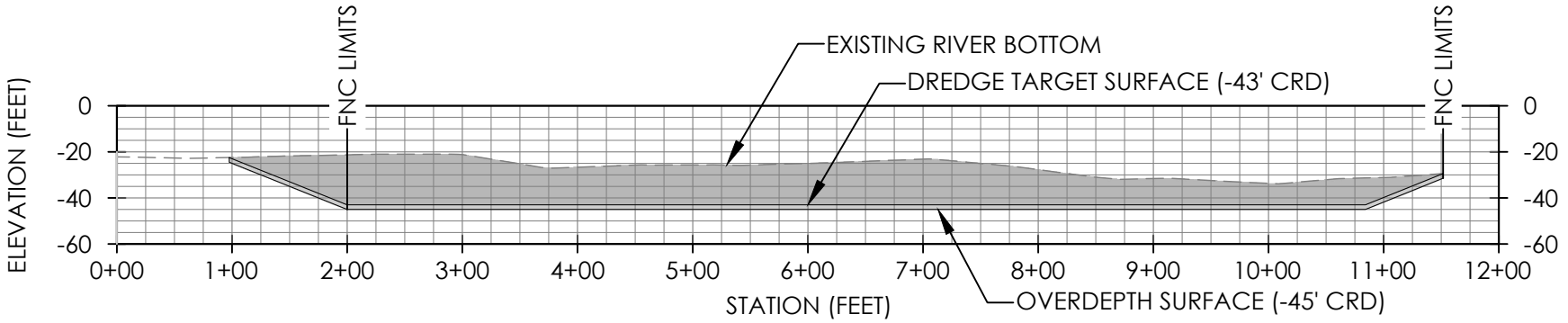
FEDERAL NAVIGATION CHANNEL LIMITS



DREDGE AREA: 69.2 AC

0 1000'

NOTE: BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS SHEET, ADJUST SCALE ACCORDINGLY.



1

TYPICAL SECTION

HORIZONTAL SCALE 1" = 150'

VERTICAL SCALE 1" = 75'

MFA JOB #:	1618.01.01-02
CHECKED:	J. ELLIOTT
DRAWN:	E. LUNDEEN
DATE:	10/01/2019

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REFERENCE #:	NWS-XXXX-XX
APPLICANT NAME:	J.E. MCAMIS, INC.
PROPOSED PROJECT:	LOWER COLUMBIA RIVER MAINTENANCE DREDGING
PROJECT ADDRESS:	100 TENNANT WAY LONGVIEW, WASHINGTON
WATERWAY: [IF ANY]	COLUMBIA RIVER
SHEET # OF #:	10OF 10

SHEET

C4.1

JARPA FORM ATTACHMENT

ATTACHMENT E OF THE
JOINT AQUATIC RESOURCES PERMIT APPLICATION

J.E. MCAMIS LOWER COLUMBIA RIVER DREDGING PROJECT
LONGVIEW WASHINGTON

Prepared for
J.E. MCAMIS, INC.
LONGVIEW, WA
October 01, 2019
Project No. 1618.01.02

Prepared by
Maul Foster & Alongi, Inc.
2001 NW 19th Avenue, Suite 200, Portland, OR 97209

MAUL
FOSTER
ALONGI

WASHINGTON STATE
Joint Aquatic Resources Permit Application (JARPA) [help]

US Army Corps of Engineers
Seattle District

AGENCY USE ONLY

Date received:_____; ☐ Town

☐ Application Fee Received; ☐ Fee N/A

☐ New Application; ☐ Renewal Application

Type/Prefix #:_____; NaturE Use Code:_____

LM Initials & BP#:_____

RE Assets Finance BP#:_____

New Application Number:_____

Trust(s):_____; County:_____

AQR Plate #(s):_____

Gov Lot #(s):_____

Tax Parcel #(s):_____

Attachment E:
Aquatic Use Authorization on Department of Natural Resources (DNR)-managed aquatic lands [help]

Complete this attachment and submit it with the completed JARPA form only if you are applying for an Aquatic Use Authorization with DNR. Call (360) 902-1100 or visit http://www.dnr.wa.gov/programs-and-services/aquatics/leasing-and-land-transactions for more information.

- DNR recommends you discuss your proposal with a DNR land manager before applying for regulatory permits. Contact your regional land manager for more information on potential permit and survey requirements. You can find your regional land manager by calling (360) 902-1100 or going to http://www.dnr.wa.gov/programs-and-services/aquatics/aquatic-districts-and-land-managers-map. [help]
- The applicant may not begin work on DNR-managed aquatic lands until DNR grants an Aquatic Use Authorization.
- Include a $25 non-refundable application processing fee, payable to the "Washington Department of Natural Resources." (Contact your Land Manager to determine if and when you are required to pay this fee.) [help]

DNR may reject the application at any time prior to issuing the applicant an Aquatic Use Authorization. [help]

Use black or blue ink to enter answers in white spaces below.

1. Applicant Name (Last, First, Middle)

Vandegrift, Scott

2. Project Name (A name for your project that you create. Examples: Smith's Dock or Seabrook Lane Development) [help]

Lower Columbia River Maintenance Dredging Project

3. Phone Number and Email

530-891-5061 scott@jemcamis.com

4. Which of the following applies to Applicant? Check one and, if applicable, attach the written authority – bylaws, power of attorney, etc. [help]

☒ Corporation	☐ Individual
☐ Limited Partnership	☐ Marital Community (Identify spouse):
☐ General Partnership	
☐ Limited Liability Company	☐ Government Agency
Home State of Registration:	☐ Other (Please Explain):
_____	_____

5. Washington UBI (Unified Business Identifier) number, if applicable: [help]
600-515-930
6. Are you aware of any existing or previously expired Aquatic Use Authorizations at the project location?
☐ Yes ☐ No ☒ Don't know If Yes, Authorization number(s): _____
7. Do you intend to sublease the property to someone else?
☐ Yes ☒ No If Yes, contact your Land Manager to discuss subleasing.
8. If fill material was used previously on DNR-managed aquatic lands, describe below the type of fill material and the purpose for using it. [help]
Not applicable.

To be completed by DNR and a copy returned to the applicant.

Signature for projects on DNR-managed aquatic lands:

Applicant must obtain the signature of DNR Aquatics District Manager OR Assistant Division Manager if the project is located on DNR-managed aquatic lands.

I, a designated representative of the Dept. of Natural Resources, am aware that the project is being proposed on Dept. of Natural Resources-managed aquatic lands and agree that the applicant or his/her representative may pursue the necessary regulatory permits. My signature does not authorize the use of DNR-managed aquatic lands for this project.

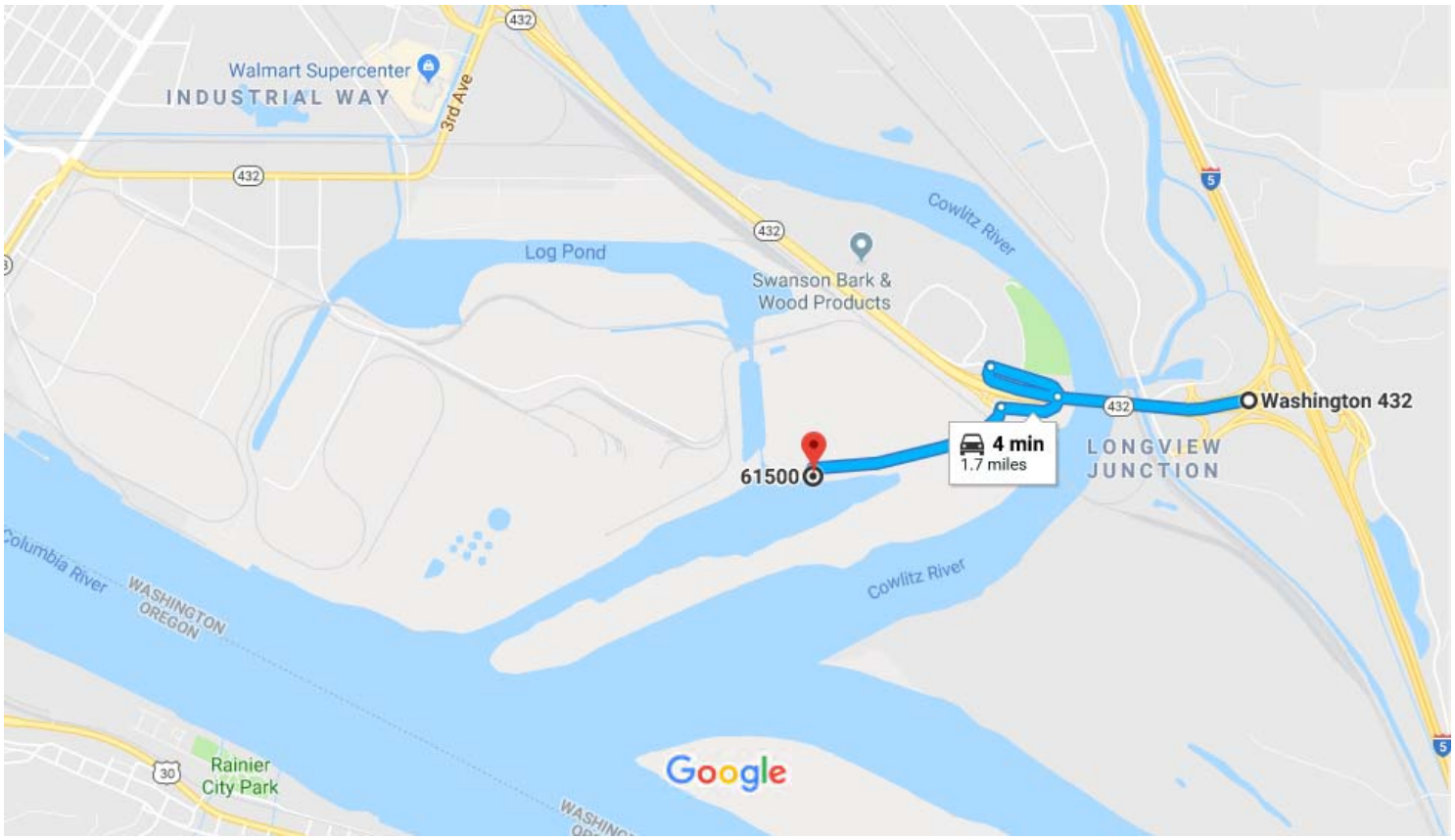
Printed Name	**Signature**	**Date**
Dept. of Natural Resources District Manager or Assistant Division Manager	Dept. of Natural Resources District Manager or Assistant Division Manager	

If you require this document in another format, contact the Governor's Office for Regulatory Innovation and Assistance (ORIA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341. ORIA Publication ORIA-16-016 rev. 10/2016

ATTACHMENT 1

DRIVING DIRECTIONS AND MAP

Google Maps WA-432, Kelso, WA 98626 to 61500, Washington 98632 Drive 1.7 miles, 4 min



Map data ©2018 Google 2000 ft

WA-432
Kelso, WA 98626

1. Head west on WA-432 W — 0.5 mi
2. Take the exit toward Dike Rd — 0.2 mi
3. Turn right onto Frontage Rd — 0.4 mi
4. Turn left onto Dike Rd — 0.6 mi

61500
Washington 98632

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

ATTACHMENT 2

BIOLOGICAL EVALUATION

BIOLOGICAL EVALUATION

J.E. MCAMIS LOWER COLUMBIA RIVER DREDGING PROJECT
LONGVIEW, WASHINGTON

MAUL
FOSTER
ALONGI

Prepared for
J.E. MCAMIS
Project No. 1618.01.02

Prepared by
Maul Foster & Alongi, Inc.
400 E Mill Plain Blvd., Suite 400, Vancouver WA 98660

The material and data in this report were prepared under the supervision and direction of the undersigned.

MAUL FOSTER & ALONGI, INC.

Sarah Colee
Staff Environmental Scientist

CONTENTS

TABLES AND ILLUSTRATIONS

ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
BE	biological evaluation
BMP	best management practice
COE	U.S. Army Corps of Engineers
CRD	Columbia River Datum
DPS	Distinct Population Segment
Ecology	Washington State Department of Ecology
EFH	essential fish habitat
ESA	Endangered Species Act of 1973, as amended
ESU	evolutionarily significant unit
FMP	fishery management plan
FR	Federal Register
IPAC	Information for Planning and Conservation
JEM	J.E. McAmis, Inc.
m	meter
MFA	Maul Foster & Alongi, Inc.
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NMFS	National Marine Fisheries Service
OHWM	ordinary high water mark
OMCR	Old Mouth of the Cowlitz River
PCE	primary constituent elements
SEF	Sediment Evaluation Framework
USFWS	U.S. Fish and Wildlife Service
WDFW	Washington Department of Fish and Wildlife

1 INTRODUCTION

On behalf of J.E. McAmis (JEM), Maul Foster & Alongi, Inc. (MFA) has prepared this biological evaluation (BE) for the JEM lower Columbia River maintenance dredging project. The project proposes maintenance dredging of sand shoals in four reaches of the lower Columbia River federal navigation channel (FNC) and the temporary storage of dredged materials at JEM's upland material storage facility (UMSF) (see Figure 1-1). This BE is provided in support of a Joint Aquatic Resource Permit Application submitted for the planned project.

The project area includes four reaches of the lower Columbia River FNC and JEM's UMSF. The UMSF is located at the JEM property along the Old Mouth of the Cowlitz River (OMCR) at 100 Tennant Way in Longview, Washington in Cowlitz County. See section 2.1 below for more detailed information regarding the proposed reaches for dredging.

The purpose of the project is twofold, 1) to obtain clean sand from the Columbia River for use as clean upland fill and for environmental remediation (capping), restoration projects, or commercial purposes, and 2) to maintain vessel access in the FNC reaches identified. The planned project proposes annual maintenance dredging of sand shoals (up to 50,000 cubic yards per year) within the four reaches of the existing navigation channel in order to obtain clean sand and to assist the United States Army Corps of Engineers (COE) in maintaining safe vessel access for the duration of the requested ten-year permit. In accordance with the COE's Columbia River FNC Operations and Maintenance program, the project will restore the FNC to the congressionally-authorized depth of -43 feet Columbia River Datum (CRD), plus up to 5 feet of overdredge. The dredge sediments will be stored at JEM's UMSF for future use. Maintenance dredging throughout the duration of the ten-year permit is planned to occur during the Columbia River in-water work window between November 1st to February 28th.

This BE was prepared to fulfill the requirements of Section 7 of the ESA, which requires that federal actions do not jeopardize ESA-listed species or critical habitat. The action agency (the COE) may consult formally or informally with the federal agencies that hold jurisdiction over ESA-listed species. These include the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS).

This BE provides a description of the planned project and analysis of potential effects to ESA-listed species and critical habitat. Consistent with Section 7 of the ESA, the planned project includes impact avoidance and minimization measures. In preparing this BE, MFA reviewed the biological assessment for the continued operations and maintenance dredging program for the Columbia River FNC (COE, 2014), the biological assessment for the major rehabilitation of the jetty system at the mouth of the Columbia River (COE, 2011), the biological evaluation prepared for the KapStone access channel dredging project (Volador, 2016) adjacent to Reach 3 and the UMSF, and the subsequent biological opinion written by NMFS for that project (NMFS, 2016). The determinations of effects due to the planned project are summarized in Table 1-1.

Table 1-1. Summary Determination of Effects

Species	ESU / DPS	Effect on Species	Effect on Designated Critical Habitat
Chinook salmon (*Oncorhynchus tshawytscha*)	Lower Columbia River ESU	Likely to adversely affect	Not likely to adversely affect
	Upper Columbia River spring-run ESU	May affect, not likely to adversely affect	Not likely to adversely affect
	Snake River spring/summer-run ESU	May affect, not likely to adversely affect	Not likely to adversely affect
	Snake River fall-run ESU	May affect, not likely to adversely affect	Not likely to adversely affect
	Upper Willamette River ESU	May affect, not likely to adversely affect	Not likely to adversely affect
Sockeye salmon (*Oncorhynchus nerka*)	Snake River ESU	May affect, not likely to adversely affect	Not likely to adversely affect
Steelhead trout (*Oncorhynchus mykiss*)	Lower Columbia River DPS	Likely to adversely affect	Not likely to adversely affect
	Upper Willamette River DPS	May affect, not likely to adversely affect	Not likely to adversely affect
	Middle Columbia River DPS	May affect, not likely to adversely affect	Not likely to adversely affect
	Upper Columbia River DPS	May affect, not likely to adversely affect	Not likely to adversely affect
	Snake River Basin DPS	May affect, not likely to adversely affect	Not likely to adversely affect
Chum salmon (*Oncorhynchus keta*)	Columbia River ESU	May affect, not likely to adversely affect	Not likely to adversely affect
Coho salmon (*Oncorhynchus kisutch*)	Lower Columbia River ESU	Likely to adversely affect	Not likely to adversely affect
Eulachon (*Thaleichthys pacificus*)	Southern DPS	May affect, not likely to adversely affect	Not likely to adversely affect
Green sturgeon (*Acipenser medirostris*)	Southern DPS	May affect, not likely to adversely affect	Not likely to adversely affect
Bull trout (*Salvelinus confluentus*)	Columbia DPS	May affect, not likely to adversely affect	Not likely to adversely affect
Additional ESA-Listed Species Considered but not Further Evaluated			
Columbian white-tailed deer (*Odocoileus virginianus leucurus*)	Columbia River DPS	No Effect	NA
Streaked horned lark (*Eremophila alpestris strigata*)	NA	No Effect	No Effect
Marbled murrelet (*Brachyramphus marmoratus*)	NA	No Effect	No Effect

Species	ESU / DPS	Effect on Species	Effect on Designated Critical Habitat
Northern Spotted Owl *(Strix occidentalis caurina)*	NA	No Effect	No Effect
Western snowy plover (*Charadrius alexandrinus nivosus)*	NA	No Effect	No Effect
Yellow-billed cuckoo (*Coccyzus americanus*)	Western DPS	No effect	No Effect
Water howellia *(Howellia aquatilis)*	NA	No Effect	NA
Golden paintbrush (*Castilleja levisecta*)	NA	No Effect	NA
Bradshaw's Deser-parsley *(Lomatium bradshawii)*	NA	No Effect	NA
Nelson's checker-mallow *(Sidalcea nelsoniana)*	NA	No Effect	NA
Willamette Daisy *(Erigeron decumbens)*	NA	No Effect	No Effect
NOTES: DPS = distinct population segment. ESU = evolutionarily significant unit.			

The species listed above as "considered but not further discussed" were previously evaluated by the COE in their 2014 biological assessment of the continued operations and maintenance dredging program for the Columbia River FNC and by the USFWS in biological opinion reference numbers 1-7-04-I-489 and 13420-2010-I-0165. These species were either given a 'no effect' determination or the potential adverse effects identified in that report were only due to the in-water or shoreline placement of dredged sediments, which is not applicable to this project. For example, breeding pairs of streak horned larks have been documented adjacent to Reaches 1 and 2 (on Rice Island, Miller Sands Island, Welch Island, and Tenasillahe Island) and adjacent to Reach 3 (on Sandy Island). This project would transport dredged sediments directly to the JEM UMSF and have no effects on the streak horned larks breeding and nesting habitats identified near the project action area.

Regarding potential biological impacts from the dewatering and staging of dredged sand at the JEM UMSF, the active industrial nature of the property and surrounding area make this land improbable as habitat for species listed in Table 1-1. It is highly unlikely that these species would be present at the site during the offloading and stockpiling of dredge material.

In addition, effects to Magnuson-Stevens Fishery Conservation and Management Act (MSA) essential fish habitat (EFH) are assessed in the Essential Fish Habitat Assessment included in this BE. The species with designated EFH in the action area include Coho and Chinook salmon.

2 PLANNED PROJECT

2.1 Project Area

The JEM lower Columbia River maintenance dredging project area includes four reaches of the lower Columbia River FNC and JEM's UMSF (see Figures 1-1, 2-1, 2-2, 2-3, and 2-4). The four reaches are located between the I-5 Bridge (between Portland, Oregon and Vancouver, Washington) and the Astoria-Megler Bridge (between Astoria, Oregon and Point Ellice near Megler, Washington). The maintenance dredging is expected to be completed entirely in-water and no upland work is anticipated. The dredged materials would be stored at JEM's UMSF, which is located at the JEM property along the OMCR at 100 Tennant Way in Longview, Washington in Cowlitz County, in section 10 of township 7 north, range 2 west of the Willamette Meridian (46.10221° N / 122.91285° W).

Reach 1 is located between river mile (RM) 14 and 22, just east of the Astoria-Megler Bridge near Astoria, Oregon in Clatsop County. Reach 2 is located between RM 32 and 36, adjacent to Welsh Island and Tenasillahe Island between Wahkiakum County, Washington to the north and Clatsop County, Oregon to the south. Reach 3 is located between RM 66 and 76, just east of the Lewis and Clark Bridge between Cowlitz County, Washington to the north and Columbia County, Oregon to the south. Reach 4 is located between RM 100 and 106.5, just west of the Interstate 5 (I-5) Bridge near Hayden Island between Clark County, Washington to the north and Multnomah County, Oregon to the south. The identified reaches are chosen based on existing shoaling areas identified by the COE during routine soundings, and were confirmed with John Gornick, COE Technical Manager for Dredging.

All proposed in-water work will take place within the lower Columbia River basin. Reach 1 is in the Lower Columbia River Hydrologic Unit Code (HUC) 17080006 and is approximately 1,470 acres; the western half located in Water Resources Inventory Area (WRIA) 24 (the Willapa watershed) and the eastern half located in WRIA 25 (the Grays-Elochoman watershed). Reach 2, 3, and 4 are all located within the Lower Columbia-Clatskanie HUC 17080003, are approximately 1,300, 1,540, and 1,450 acres in size, respectively. Reach 2 and 3 are in WRIA 25 (Grays-Elochoman watershed) and Reach 4 in WRIA 28 (the Salmon-Washougal watershed).

2.2 Project Purpose and Need

The purpose of the project is twofold, 1) to obtain clean sand from the Columbia River for use as clean upland fill and for environmental remediation (capping) and restoration projects, restoration projects, and/or commercial purposes, and 2) to maintain vessel access in the FNC reaches identified. The planned project proposes annual maintenance dredging of sand shoals within the four reaches of the existing navigation channel in order to obtain clean sand and maintain safe vessel access for the duration of the requested ten-year permit. The planned project would assist the COE to maintain four discrete areas of the lower Columbia River FNC to the congressionally-authorized depth of -43 CRD, plus up to 5 feet of overdredge, feet by removing obstructive sand shoals in the channel and to transport the dredged material to JEM's UMSF for processing, storage, and eventual commercial use

as fill or for future environmental sediment capping projects. In support of the regional and national economy, the COE annually dredges sand shoals in the Columbia River FNC to provide reliable navigation to deep-draft vessels throughout the channel (COE, 2014). The planned project includes maintenance dredge in areas totaling up to 5,760 acres, and therefore would significantly support the COE's ongoing Columbia River FNC maintenance efforts, as discussed in communications with the COE. Maintenance dredging throughout the duration of the ten-year permit is planned to occur during the in-water work window between November 1 to February 28. Mitigation actions for impacts of the overall channel maintenance program have been performed by COE as part of previous maintenance activities. JEM's proposal does not include additional work outside of the COE's responsibility to manage the FNC. No additional impacts are anticipated, and therefore no mitigation measures are proposed.

The removal of sand shoals in the four proposed reaches of the Columbia River FNC would support COE maintenance dredge activities and vessel import/export activities on the river. The dredging of sand shoals in Reach 3 would also help maintain marine access to the JEM property in Longview, Washington, which is used for water-dependent construction equipment logistics, offloading of barges, and transient docking of dredge derricks and support vessels. JEM's operations are water-dependent and require access by the Columbia River FNC in order to fulfill its basic purpose. JEM owns and operates heavy equipment and barges used in waterway construction activities throughout the Pacific Northwest. Finally, obtaining clean sand would provide support for environmental remediation and restoration activities (that require clean capping and natural enhancement materials) throughout the Pacific Northwest, and provide a commercial opportunity for this resource. Similar projects have been permitted recently, including the recent 2016 Northwest Aggregates Company project located between RM 80 and 120. The Biological Opinion for this project found that the project actions were not likely to jeopardize Endangered Species Act (ESA)-listed salmonid species (Thom 2017).

2.3 Construction Activities

The project proposes annual maintenance dredging of sand shoals (up to approximately 50,000 cubic yards a year during the ten-year permit) down to a depth of -43 feet CRD, plus up to 5 feet of overdredge, within the four proposed reaches of the existing navigation channel. Maintenance dredging is planned to occur during the in-water work window, when juvenile salmonids and eulachon are least likely to be present. This work window has been established to minimize potential impacts to important fish, wildlife, and habitat resources in the river. Dredging will typically be conducted during daylight hours, although it may continue 24 hours per day with lighting, if needed to complete the project within the described schedule, though most work is expected to take place between 7:00 a.m. and 10:00 pm. The proposed dredging areas are shown on Figures 2-1, 2-2, 2-3, and 2-4. The specific locations and extent of sand shoals in each reach may vary in any given year.

As sand shoaling occurs, it may be necessary to dredge areas within the four proposed reaches of the Columbia River FNC during the requested ten-year maintenance dredging permit duration. Maintenance dredging to maintain depths to -43 feet would be conducted as needed within the in-water work window and would not exceed 50,000 cubic yards in a single year.

Dredging will be performed by clamshell bucket suspended by a floating derrick barge. Best management practices (BMPs) will be followed to minimize water quality impacts and impacts to aquatic species. Dredge material will be transported to the JEM's UMSF by barge and then offloaded with the clam shell and staged at the 156,397 square-foot, designated sand storage area (Figure 2-3). The material would be offloaded and dewatered prior to sorting and staging at the sand storage area. After dewatering, dredge return water would be monitored and transported to the river after the sediment has settled, so it is expected that any residual Columbia River water in offloaded sediment would be minimal. JEM is applying for an NPDES permit for discharging to the Columbia River to ensure any impacts associated with discharge are avoided or minimized. Dredge return flows at the UMSF would be managed to minimize impacts and conveyed back to the OMCR.

BMPs for the project include:

- Following the water quality monitoring requirements of the 401 Water Quality Certification during all in-water activities.
- Following the requirements of the Washington Department of Fish and Wildlife (WDFW) Hydraulic Project Approval (HPA) during all in-water activities.
- Sequencing and/or phasing work activities to minimize the extent and duration of in-water disturbances.
- In-water work would be performed during the in-water work window of November 1st to February 28th. Work would be performed outside of this time frame only with COE approval and consultation with appropriate agencies (e.g., NMFS, USFW).
- Employing experienced operators.
- Dredging in a controlled manner by implementing the following specific operational BMPs:
  - Not dragging the bucket on the bottom
  - Not stockpiling material underwater
  - Completing a horizontal dredge pass across the dredge surface before moving to the next deeper pass
  - Avoiding "glory holing"
  - Not overfilling the dredge bucket
  - Closing the bucket as slowly as possible on the bottom
  - Pausing before hoisting the bucket off the bottom to allow any excess material to settle prior to raising the bucket through the water column.
  - Hoisting the bucket very slowly
  - Pausing the bucket at the water surface to minimize the freefall distance of water discharging from the bucket.
  - Slam opening the bucket over the materials barge after material is dumped to dislodge any additional material potentially clinging to the bucket

  - Ensure that all material has dumped from the bucket into the materials barge prior to resuming dredging
  - Removing material from the water with each bucket closure (not dumping partial of full buckets of material to the water).
- Conducting periodic progress surveys to verify sediment is being dredged to prescribed lines, grades, and tolerances.
- Visually monitoring each dredged material load during transit to sand storage area at the UMSF to verify that dredged material is not released in transit.
- The use of support vessels during all in-water activities. Support vessels will be equipped with containment booms and sorbent pads to immediately contain and/or absorb debris and any sheen.
- Dredging outside of the FNC will only commence in authorized areas immediately adjacent to the channel, and never above -25 feet CRD.

2.4 Action Area

The action area encompasses the areas directly affected by project activities (the project area) as well as areas that may be directly or indirectly affected by the planned project through either physical, chemical, or biological mechanisms. For the planned project, the action area includes the four in-water work areas (the Reaches), areas immediately adjacent to the in-water work areas, and the sand storage area at the JEM UMSF. Portions of Reaches 1 and 4 action areas are near existing humancentric shoreline activities in Astoria and Vancouver, respectively. Extra coordination during dredging activities may be required in reaches 1 and 4 as space for work and maneuverability could be competitive. Reaches 2 and 3 are generally along uninhabited shorelines. Although all four areas are listed as action areas, only one area will be active at a time, and even then, only a small portion. Dredging will only occur with pre-approval from the COE.

Potential effects in the five identified in-water areas include potential temporary water quality changes, and airborne and in-water noise from dredge construction activities. The most significant likely impact from maintenance dredging would be temporary changes in water quality from increased turbidity. It is assumed that dredge-induced sediment conveyance could affect the river up to 200 feet downstream of the project area in the worst case, although under typical construction conditions (e.g., BMPs to minimize turbidity), effects are not expected to extend this far. Work would be conducted pursuant to a 401 water quality certification. It is similarly assumed that noise above ambient noise levels would extend no more than 25 feet from the project area; the planned activities would take place in, and near, an active marine transportation zone in Reaches 1 and 4, and near industrial facilities where elevated ambient noise levels are common both in air and underwater. Consequently, the action area includes the project footprint and encompasses noise and sediment/hydraulic zones of potential effects (see Figures 2-1, 2-2, 2-3, and 2-4).

3 ENVIRONMENTAL BASELINE CONDITIONS

The project area setting, habitat and vegetation conditions, and non-ESA and ESA species potentially present in the project vicinity are described below. A photolog of existing conditions is provided in Appendix A.

3.1 Existing Conditions

The following subsections discuss existing conditions of the riverbank setting.

3.1.1 Upland and Riverbank Setting

The upland and riverbank areas near Reach 3 have a long history of industrial use associated with the ports of Kalama and Longview, including marine operations, log booming, and upland storage of logs, lumber, and potentially other materials. The Consolidated Diking Improvement District No. 1 dike, the closed Cowlitz County Landfill, the Pacific Fibre Products waterway, and the KapStone Paper Mill facility are located near Reach 3 and the JEM UMSF. The upland vegetation in the UMSF is limited to mostly grasses and weedy ground cover that is maintained as open lawn space. Riverbank features in this area include armored riprap and bulkheads.

The National Wetlands Inventory mapping application shows no wetland classification for the upland sand storage area at the JEM UMSF (USFWS, 2019).

The map indicates the presence of estuarine and marine deepwater habitats, estuarine and marine wetlands, freshwater forested/shrub wetlands, freshwater emergent wetlands, freshwater ponds, and riverine habitats along the banks of the Columbia River adjacent to Reaches 1 and 2 (particularly along Reach 2, which hugs the shoreline of the Julia Butler Hansen National Wildlife Refuge for the Columbian White-Tailed Deer and the Lewis and Clark National Wildlife Refuge). Reach 1 also passes by intertidal sand bars and islands (such as Rice Island and Miller Sands Islands) that are designated as estuarine and marine wetlands and Reach 2 is adjacent to Tenasillahe Island and Welsh Island, which are comprised entirely of freshwater forested/shrub wetlands, freshwater emergent wetlands, estuarine and marine wetlands, and lake habitat.

The map shows some occurrences of freshwater forested/shrub wetlands, freshwater emergent wetlands, freshwater ponds, and riverine habitats along the banks of the Columbia River adjacent to Reaches 3 and 4, but the banks of are substantially more developed and industrialized near Longview and Vancouver, Washington than the banks near Reaches 1 and 2.

3.1.2 Aquatic Setting

The Columbia River estuarine environment extends from the mouth to approximately RM 38 (COE, 2011). Tidal effects extend almost 150 miles upstream (COE, 1983). Although Reaches 1 and 2 are located within the estuary, the maintenance dredging is limited to the established high-traffic, deep-

water navigation channel. Maintenance dredging in Reaches 1 and 2 may temporarily impact water quality and create some additional temporary noise within the action area. The COE's Columbia River Channel Improvements Project was completed in November 2010, which deepened the Columbia River navigation channel to 43 feet CRD to accommodate the current fleet of international bulk cargo and container ships and improved the condition of the Columbia River estuary through the completion of environmental mitigation and restoration projects. While the development and deepening of the Columbia River FNC resulted in some changes to the estuary, the proposed maintenance dredging would be limited to maintaining those depths targeted as part of the improvement project.

The river varies from 2 to 5 miles wide throughout the estuary but narrows to about 1 mile wide by RM 30 (COE, 2011), where Reaches 3 and 4 are located. Marine uses are common at the OMCR near Reach 3 as well as at Reach 4, which is located in the highly industrial Portland-Metro portion of the river. Barges and other vessels are frequently present in and near the action area.

The aquatic substrate in the vicinity of the project area is comprised of fine and medium grained sand. Dredged materials found in the estuarine region of the lower Columbia River (approximately RM 3-29, near Reaches 1 and 2) are predominantly clean quartz sand in the medium to fine-sand size range with generally less than 1 percent by weight of fines and organic content (USACE, 2012). Overall, sediment samples collected from the Columbia River FNC from RM 3.0 to RM 106.5 in 2008, which encompasses the entire project area, indicated a mean grain-size of 92 percent sand (USACE, 2014). This material is considered suitable for unconfined aquatic placement, for construction projects, and other beneficial use options (USACE, 2012), and is less likely to contain sediment contaminants.

The National Wetlands Inventory mapping application shows estuarine and marine deepwater classification for the project action area of Reaches 1 and 2 (wetland classification code E1UBL; estuarine, unconsolidated bottom, subtidal) and a riverine classification (R1UBV; riverine, tidal, unconsolidated bottom, permanently flood-tidal) for the project action area of Reaches 3 and 4.

3.1.3 Biology

The Lower Columbia River provides habitat for invertebrates, fishes, birds, mammals, amphibians, reptiles, and aquatic plants. A variety of biological resources rely on the Lower Columbia River to provide a corridor for upstream and downstream movement and habitat for nesting, breeding, and foraging. However, the natural environment in the project area has been historically altered for decades and is not considered highly functioning due to the presence of regular vessel traffic in the FNC and regular maintenance dredging. Benthic invertebrate studies for the project areas have not been completed; however, typical populations of invertebrates found in the silty areas of the lower Columbia River are expected. Planktonic invertebrates would come and go with tidal changes. Regarding the JEM UMSF, the active industrial nature of the property and surrounding area make this land improbable as habitat for species listed in Table 1-1. The UMSF consists of some open space with ruderal vegetation. It is highly unlikely that these species would be present at the site during the offloading and stockpiling of dredge material.

ESA-listed species that may be present in or near the project area are further evaluated below.

3.2 ESA Species and Critical Habitat

A number of information sources were consulted in compiling and evaluating a list of ESA-listed, proposed, and candidate species that may be present in the action area. This includes review of USFWS, NMFS, the USFWS Information for Planning and Conservation (IPAC) tool (see Appendix B), StreamNet's regional fish distribution StreamNet Mapper tool, and associated species profiles and critical habitat rules published in the Federal Register (FR).

As shown in Table 1-1 and Appendix B, several ESA-listed species were identified using the IPAC tool but were not further evaluated. These are species for which suitable habitat is not present in the action area (plants, birds, and terrestrial mammals; see Table 1-1).

Five ESA-listed species of salmon and steelhead use the Columbia River basin: Chinook, sockeye, steelhead, chum, and coho, with several genetically distinct populations. Other ESA-listed species include eulachon, green sturgeon, and bull trout, as shown in Table 3-1. Information regarding species and their and use of the lower Columbia River basin is provided below.

Table 3-1. ESA-listing and Critical Habitat Status

Species	ESU/DPS	ESA Listing Status	Critical Habitat Status
Chinook salmon (*Oncorhynchus tshawytscha*)	Lower Columbia River ESU	Threatened (6/28/05) (70 FR 37160)	9/2/05 (70 FR 52630)
	Upper Columbia River spring-run ESU	Endangered (6/28/05) (70 FR 37160)	9/2/05 (70 FR 52630)
	Snake River spring/summer-run ESU	Threatened (6/28/05) (70 FR 37160)	10/25/99 (64 FR 57399)
	Snake River fall-run ESU	Threatened (6/28/05) (70 FR 37160)	12/28/93 (58 FR 68543)
	Upper Willamette River ESU	Threatened (6/28/05) (70 FR 37160)	9/2/05 (70 FR 52630)
Sockeye salmon (*Oncorhynchus nerka*)	Snake River ESU	Endangered (6/28/05) (70 FR 37160)	12/28/93 (58 FR 68543)
Steelhead trout (*Oncorhynchus mykiss*)	Lower Columbia River DPS	Threatened (6/28/05) (70 FR 37160)	9/2/05 (70 FR 52630)
	Upper Willamette River DPS	Threatened (6/28/05) (70 FR 37160)	9/2/05 (70 FR 52630)
	Middle Columbia River DPS	Threatened (1/5/06) (71 FR 834)	9/2/05 (70 FR 52630)
	Upper Columbia River DPS	Threatened (1/5/06) (71 FR 834)	9/2/05 (70 FR 52630)
	Snake River Basin DPS	Threatened (1/5/06) (71 FR 834)	9/2/05 (70 FR 52630)
Chum salmon (*Oncorhynchus keta*)	Columbia River ESU	Threatened (6/28/05) (70 FR 37160)	9/2/05 (70 FR 52630)
Coho salmon (*Oncorhynchus kisutch*)	Lower Columbia River ESU	Threatened (6/28/05) (70 FR 37160)	9/2/05 (70 FR 52630)
Eulachon (*Thaleichthys pacificus*)	Southern DPS	Threatened (3/18/10) (75 FR 13012)	10/20/11 (76 FR 65324)

Species	ESU/DPS	ESA Listing Status	Critical Habitat Status
Green sturgeon (*Acipenser medirostris*)	Southern DPS	Threatened (4/7/06) (71 FR 17757)	10/09/09 (74 FR 52300)
Bull trout (*Salvelinus confluentus*)	Columbia DPS	Threatened (11/1/99) (64 FR 58910)	10/18/10 (75 FR 63898)

3.2.1 Pacific Salmon and Steelhead

Pacific salmon and steelhead pass through the lower Columbia River when migrating to and from the Pacific Ocean. According to the StreamNet Mapper database, the lower Columbia River is primarily used for migration by salmonids, though Coho use the river for both rearing and migration (StreamNet, 2019). However, because of the deep waters, the lack of biological features, and heavy vessel traffic in the FNC, it is unlikely that the project action areas would be used as freshwater migration corridors and rearing habitats. Stream-type fish migrating through the lower Columbia River would forage primarily in their natal stream systems and ocean-type fish are more dependent on the Columbia River estuary for foraging (near Reaches 1 and 2), however the deeper waters of the FNC is not preferred foraging habitat for salmonids (NMFS, 2010).

Spawning uses in the action area are not identified (StreamNet, 2019). Multiple streams and rivers with spawning and rearing habitat were identified near the action area, but these habitats are located relatively far upstream from the project and should not be impacted by maintenance dredging in the FNC. Mainstem spawning on the Columbia River does not occur until well over 200 miles farther upstream, above the dams (Bonneville Dam located at RM 146.1). However, it is expected that salmon and steelhead will occasionally enter the action area during migrations in the Columbia River.

Based on data from the Fish Passage Center, juvenile subyearling Chinook usually arrive from upriver ESUs in the action area vicinity from March through August, juvenile yearling Chinook from April through June, juvenile steelhead from April through early September, juvenile coho salmon from April through June, and juvenile sockeye from March through August (Columbia Basin Fishery Agencies and Tribes, 2016; Volador, 2016). Adults migrate near the action area as follows: Chinook salmon from March through November, with peaks in spring (spring Chinook) and fall (fall Chinook); coho salmon from August through early December, with a peak in September; steelhead migrate year-round with a peak in July through September; sockeye from May through September; and chum from September through November.

3.2.2 Eulachon

Eulachon are small, anadromous fish that occur in nearshore ocean waters, except for the spawning runs into their natal streams, typically between ages two and five. Spawning runs through the Columbia River occur from late December through May, with peaks in February. The Columbia River mainstem provides spawning sites; spawning substrates can consist of silt, sand, gravel, cobble, or detritus, although pea-sized gravel and coarse sand are the most commonly used, and they spawn (8-20 feet in depth) in shallow water depths and rear in nearshore marine areas. Eulachon are known to occur in the Columbia River and migrate past the action areas on their way to spawning grounds; however,

they are not expected to spawn in the in the action area (due to water depths) nor consistently frequent the action area.

3.2.3 Green Sturgeon

Green sturgeon utilize both freshwater and saltwater habitat. Green sturgeon spawn in deep pools in large, turbulent, freshwater river mainstems, and eggs likely are broadcast over large cobble substrates, but substrates ranging from clean sand to bedrock are used as well. Because green sturgeon do not spawn in the Columbia River or its tributaries, larval and juvenile life stages of this species do not occur in the Columbia River. According to the NOAA-Fisheries green sturgeon range map, its range may extend to the action area; however, they are concentrated in the Columbia River estuary and fewer move upstream. Green sturgeon have been observed to congregate during summer months in the Columbia River estuary (i.e., near Reach 1), however, work would be conducted during winter. They are not expected to be present in significant numbers in the action area during the in-water work window.

3.2.4 Bull Trout

Bull trout are especially dependent on cold, clean streams and rivers for spawning, and may be resident or migratory individuals (i.e., reside solely in the stream in which they were spawned versus fish that migrate from spawning streams to larger rivers, lakes, or the ocean). The closest known spawning habitat is in the upper Lewis River basin, and only small numbers of bull trout are typically found in the Columbia River. They require stable stream channels, clean spawning and rearing gravel, and complex and diverse cover. Use of the action area is not expected, as the favored cooler, rushing waters are rarely observed in the Columbia River.

4 PROJECT EFFECTS

Potential project effects on ESA-listed species and critical habitat are evaluated in this section. Project impacts are evaluated based on habitat components that would be altered or removed, the distribution and life history of the ESA-listed species, and the possibility of direct or indirect impacts to the species and associated critical habitat. Short-term, construction-related impacts and long-term and permanent effects are evaluated.

4.1 Short-Term Effects

The planned work has two primary mechanisms for direct, short-term impacts: (1) construction noise/lighting in the in-water dredge areas and at the upland storage facility, and (2) possible water quality impacts such as increased turbidity from sediment in-water suspension caused by dredging. Construction, noise, and impacts to water quality will be temporary, controlled, and avoided or minimized where possible.

4.1.1 Noise and Lighting

Construction activities will temporarily increase noise levels. Noise and activity during construction could disturb some species in the adjacent shoreline areas and the work area, but this effect is expected to be temporary or not measurable because of elevated ambient noise levels in the vicinity (existing active marine transportation zone and industrial facilities). To minimize noise, all equipment will be shut down when not in use. Similarly, if night work is performed, lights operating on the dredge may temporarily increase ambient lighting levels at night in the immediate vicinity; however, because the lights will be operating for only a short time, they are not expected to adversely affect adjacent habitats. The effects from temporary increases in noise or lighting will be abated immediately after construction ceases.

4.1.2 Water Quality

Construction will be conducted only during the approved in-water work window, when ESA-listed fish species are least likely to be present (November 1 through February 28).

The temporary disturbance of the water column and sediment is expected to signal to fish to avoid the area during construction. Because the dredging and associated debris removal are generally along the center of the channel, adults can readily avoid the disturbed portion of the water column by moving toward the shorelines and either holding there or transiting around the area being dredged. Since a clamshell dredge is being used, entrainment of juveniles is not expected as part of this action, and associated BMPs to further reduce potential for entrainment will be used.

Temporary changes in water quality in the action area during maintenance dredging may include elevated turbidity or increased total suspended solids. Temporary changes in water quality in the OMCR action area during sediment dewatering at the JEM UMSF may occur when JEM discharges the dredge return water back to the river, however associated BMPs will be implemented to address this and proposed in the NPDES permit application. Turbidity can affect fish through decreased visibility for behaviors such as feeding and homing, territoriality, and avoidance responses, as well as direct impairment of oxygen exchange due to clogged or lacerated gills. Some localized turbidity will also occur during removal of debris; however, removal will also provide habitat and substrate improvements. Temporary decreases in dissolved oxygen associated with increased suspended sediments can occur in the immediate dredging plume area. Short-term, temporary effects resulting from decreases in dissolved oxygen include avoidance of the dredging area and reduced foraging during and immediately after dredging. Adult fish are expected to avoid any localized areas of significantly depressed dissolved oxygen and utilize the adjacent, non-dredged areas for refuge during operation of the dredge. Furthermore, given the cooler water temperatures associated with the winter in-water work window and the increased solubility of oxygen in cooler water, it is not expected that dissolved oxygen will be reduced to levels that may cause distress to aquatic organisms. Potential impacts are thus expected to be highly localized and temporary. Operational BMPs (i.e. construction technique) will minimize increases in turbidity and decreases in dissolved oxygen.

Adult salmon generally migrate mid-channel and may be found at depths of up to 50 feet. Adult fish are expected to avoid discharge plumes during the in-water work (NMFS, 2012), and considering that the proposed project will not be disposing of dredge material in the river, the potential for burial of

adult salmon is discountable. Juvenile fish may be exposed to temporary changes in water quality; eulachon and juvenile salmon from upriver ESUs likely would not be impacted, since the dredging would take place outside migration timing windows and in the navigation channel where overwintering is unlikely.

Removal of sediment will temporarily decrease the abundance of benthic infauna. While benthic prey species will be displaced, populations are expected to fully recover after sediment removal activities are completed; Bolam and Rees (2003) reviewed literature on macrofaunal recovery at coastal dredge sites and found that, generally, recovery took between one and four years in unstressed sites and nine months or less in naturally stressed sites. Adjacent undisturbed habitat will continue to provide an established source of benthic invertebrates to colonize the surface substrate. Since new invertebrate communities will recolonize the dredging area, no long-term loss of biological productivity or prey base for fish is expected.

In summary, the Lower Columbia River juvenile salmonids that may be in the action area may experience temporary water quality changes that could result in temporary behavioral impacts. Adult fish will avoid the action area.

4.2 Long-Term and Cumulative Effects

No significant long-term effects are expected as a result of dredging within the FNC to the target depth of -43 feet CRD. Cumulative impacts are defined as all future state, local, or private activities that are reasonably certain to take place in the action areas of the project under consultation. JEM is unaware of any further actions that may be conducted in the action areas. The proposed work would assist the COE to maintain the federally authorized depth of the FNC in the designated reaches for ten years from permit issuance.

4.3 Minimization Measures

Work will be conducted only during prescribed in-water work periods when ESA-listed fish are least likely to be present or affected. Construction impacts will be confined to the minimum area necessary to complete the work. Construction equipment will be employed for the appropriate and intended use and construction will be conducted using equipment having the least impact. The contractor will have emergency spill control plans and will follow BMPs for all work performed to minimize water quality impacts. To minimize noise, all equipment will be shut down when not in use. All in-water construction activities will be conducted consistent with requirements of the Section 401 Water Quality Certification (e.g., water quality monitoring requirements). Sediment to be dredged for access has been evaluated and has been determined to be suitable for commercial use as clean fill and the sediment exposed by dredging meets the State of Washington's antidegradation standard (COE, 2014).

4.4 Effects Determination

The project effects determinations on critical habitat and ESA-listed species are detailed below.

4.4.1 Critical Habitat

Critical habitat is a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection (50 Code of Federal Regulations Part 17). Critical habitat may include an area that is not currently occupied by the species but that will be needed for its recovery. Critical habitat is formally defined in the ESA as follows:

> (i) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 4 of this Act, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 4 of this Act, upon a determination by the Secretary that such areas are essential for the conservation of the species.

Critical habitat for a listed species contains primary constituent elements (PCEs), which are specific elements of physical or biological features that provide for a species' life-history processes and are essential to the conservation of the species. These generally include, but are not limited to: (1) space for individual and population growth; (2) food, water, air, light, minerals, and other nutritional or physiological requirements; (3) cover or shelter; (4) sites for breeding, reproduction, or rearing (or development) of offspring; and (5) habitats that are protected from disturbance or are representative of the historical, geographical, and ecological distributions of a species.

4.4.1.1 Pacific Salmon and Steelhead

PCEs determined essential to the conservation of Pacific salmonids and steelhead generally include the following: (1) juvenile rearing areas; (2) juvenile migration corridors; (3) areas for growth and development to adulthood; (4) adult migration corridors; and (5) spawning areas. Within these areas, essential features of salmon/steelhead critical habitat include adequate: (1) substrate, (2) water quality, (3) water quantity, (4) water temperature, (5) water velocity, (6) cover/shelter, (7) food, (8) riparian vegetation, (9) space, and (10) safe passage conditions. PCEs specific to freshwater habitats are listed below (italicized), and associated existing conditions and effects are discussed. The assessment supports a **may affect, not likely to adversely affect critical habitat** determination.

(1) Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation, and larval development.

The action area is deepwater with limited to no emergent aquatic vegetation. The aquatic substrate in the vicinity of the project area is comprised of fine and medium grained sand. Dredged materials found in the estuarine region of the lower Columbia River (approximately RM 3-29, near Reaches 1 and 2) are predominantly clean quartz sand in the medium to fine-sand size range with generally less than 1 percent by weight of fines and organic content (USACE, 2012). Overall, sediment samples collected from the Columbia River FNC from RM 3.0 to RM 106.5 in 2008, which encompasses the entire project area, indicated a mean grain-size of 92 percent sand (COE, 2014). According to the Washington Department of Fish and Wildlife (WDFW) Salmonscape mapper, no spawning sites have been identified in or adjacent to the action area.

Pacific salmon typically prefer cooler waters for spawning. Chum salmon spawn in the lowest reaches of rivers and streams, typically within 60 miles of the ocean, and typically prefer gravel or larger rocks for spawning; areas where rocks protruding above the substrate create an upwelling, accelerating current; and/or boundaries between pools and riffles. Coho spawning habitat typically consists of small streams with stable gravel substrates. Chinook spawning sites typically have larger gravel and more water flow up through the gravel than the sites used by other Pacific salmon. These favored spawning conditions are uncommon or absent in the action area. The project is not likely to result in any adverse effects to habitat for Pacific salmon.

(2) Freshwater rearing sites with water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; water quality and forage supporting juvenile development; and natural cover such as shade, submerged and overhanging large wood, logjams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.

There is limited to no emergent aquatic vegetation in the action area. According to the WDFW Salmonscape mapper, no rearing sites have been identified in or adjacent to the action area. Short-term potential impacts to habitat include increased turbidity (i.e., suspended sediment), temporary decreases in dissolved oxygen, and increased ambient noise. Removal of sediment could temporarily decrease the abundance of benthic infauna that may serve as prey, although rapid colonization of sediment is expected. Since new invertebrate communities will recolonize the dredging area, no long-term loss of biological productivity or prey base for fish is expected.

(3) Freshwater migration corridors free of obstruction with water quantity and quality conditions and natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels, and undercut banks supporting juvenile and adult mobility and survival.

In-water debris encountered in the project area will be removed. No obstructions will be built.

4.4.1.2 Eulachon

PCEs for freshwater areas are related to freshwater spawning and incubation sites and freshwater migration corridors. PCEs include water flow, quality, and temperature conditions, and substrate supporting spawning and incubation, migratory access for adults and juveniles, and abundant prey items supporting larval feeding (76 FR 65324). The planned project would not change water flow or temperature, or impede fish migration. Short-term potential impacts to water quality include increased turbidity (i.e., suspended sediment) and temporary reduction in dissolved oxygen. The assessment supports a **may affect, not likely to adversely affect critical habitat** determination.

4.4.1.3 Green Sturgeon

Critical habitat for green sturgeon includes the first 46 miles of the Columbia River and excludes the reach between river mile 46 and Bonneville Dam. Critical habitat exists for green sturgeon in the action area (the lower reaches) and proposed project **may affect, not likely to adversely affect critical habitat**.

4.4.1.4 Bull Trout

The PCEs determined essential to the conservation of bull trout are (1) springs, seeps, groundwater sources, and subsurface water connectivity (hyporheic flows) to contribute to water quality and quantity and provide thermal refugia; (2) migratory habitats with minimal physical, biological, or water quality impediments between spawning, rearing, overwintering, and freshwater and marine foraging habitats, including but not limited to permanent, partial, intermittent or seasonal barriers; (3) an abundant food base, including terrestrial organisms of riparian origin, aquatic macroinvertebrates, and forage fish; (4) complex river, stream, lake, reservoir, and marine shoreline aquatic environments and processes with features such as large wood, side channels, pools, undercut banks and substrates, to provide a variety of depths, gradients, velocities, and structure; (5) water temperatures ranging from 2 to 15°C (36 to 59°F), with adequate thermal refugia available for temperatures at the upper end of this range; (6) substrates of sufficient amount, size, and composition to ensure success of egg and embryo overwinter survival, fry emergence, and young-of-the-year and juvenile survival; (7) a natural hydrograph, including peak, high, low, and base flows within historic and seasonal ranges or, for controlled flows, minimal departures from a natural hydrograph; (8) sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited; and (9) few or no non-native predatory (e.g., lake trout, walleye, northern pike, smallmouth bass); inbreeding (e.g., brook trout); or competitive (e.g., brown trout) species present. The PCEs present in the action area are low-functioning because of the lack of suitable habitat for spawning, rearing, overwintering, or foraging. The planned project would not change the PCEs, except for temporary impacts to water quality and the food base. Short-term potential impacts to water quality include increased turbidity (i.e., suspended sediment) and temporary reduction in dissolved oxygen. The assessment supports a **may affect, not likely to adversely affect critical habitat** determination.

4.4.2 ESA Species

Table 1-1 summarizes the ESA-listed species evaluated and the associated effects determinations. Several ESA-listed species are identified as potentially present, but it is extremely unlikely that they will be found in or near the vicinity of the action area because suitable habitat is not present and/or the species are not commonly present (see Section 3.2). The ESA-listed species for which there will be **no effect** due to the project location and surrounding conditions are provided in Table 1-1.

Based on the information provided in Sections 3.2 and 4.1 through 4.3, the planned project **may affect,** is **not likely to adversely affect** the following ESA-listed species:

- Chinook salmon (*Oncorhynchus tshawytscha*) (Upper Columbia River spring-run ESU, Snake River spring/summer-run ESU, Snake River fall-run ESU, Upper Willamette River ESU)
- Sockeye salmon (*Oncorhynchus nerka*) (Snake River ESU)
- Steelhead trout (*Oncorhynchus mykiss*) (Upper Willamette River DPS, Middle Columbia River DPS, Upper Columbia River DPS, Snake River Basin DPS)
- Chum salmon (*Oncorhynchus keta*) (Columbia River ESU)
- Eulachon (*Thaleichthys pacificus*) (Southern DPS)
- Green sturgeon (*Acipenser medirostris*)

- Bull trout (*Salvelinus confluentus*)

Based on the information provided in Sections 3.2 and 4.1 through 4.3, the planned project is **likely to adversely affect** the following ESA-listed species:

- Chinook salmon (*Oncorhynchus tshawytscha*) Lower Columbia River ESU
- Steelhead trout (*Oncorhynchus mykiss*) Lower Columbia River DPS
- Coho salmon (*Oncorhynchus kisutch*) Lower Columbia River ESU

4.5 Essential Fish Habitat Analysis

The MSA, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures designed to identify, conserve, and enhance EFH for those species regulated under a federal fishery management plan (FMP). The objective of this EFH assessment is to describe potential adverse effects to the designated EFH for federally managed fisheries species (groundfish, coastal pelagic species, or Pacific salmon species) that may occur in the action area. It also describes conservation measures planned for avoiding, minimizing, or otherwise offsetting potential adverse effects to designated EFH resulting from the planned action.

EFH is broadly defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." This language is interpreted or described in the 1997 Interim Final Rule (62 FR 66551, Section 600.10 Definitions). The term "waters" includes aquatic areas and their associated physical, chemical, and biological properties that are used by fish, and may include historical areas if appropriate. Substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities. "Necessary" has been defined as the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem. "Spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle.

4.5.1 Coastal Pelagic and Groundfish EFH

No coastal pelagic fish species are known to occur in the action area (PFMC, 1998) and coastal pelagic EFH is not affected by the project.

A model developed to identify groundfish EFH characterizes habitat in terms of three variables: depth, latitude, and substrate (both physical and biogenic substrate, where possible) (PFMC, 2005). The EFH identification model provides spatially explicit estimates of Habitat Suitability Probability for 168 groundfish species/life stage combinations, including the adults of all species in the FMP. In general, Pacific coast groundfish EFH is identified as all waters and substrate in the following areas (PFMC, 2005):

- Depths less than or equal to 11,423 feet (3,500 meters [m], or 1,914 fathoms), to mean higher high-water level or the upriver extent of saltwater intrusion, defined as upstream and landward to where ocean-derived salts measure less than 0.5 part per thousand during the period of average annual low flow.

- Seamounts in depths greater than 11,423 feet (3,500 m, or 1,914 fathoms), as mapped in the EFH assessment geographic information system.
- Areas designated as habitats areas of particular concern not already identified by the above criteria.

Habitat areas of particular concern have not been identified for the action area, and no EFH groundfish conservation areas are identified in the action area. Therefore, the action area is not considered affected by the planned project.

4.5.2 Pacific Coast Salmon EFH

Chinook and coho salmon are covered by the MSA. The EFH for Pacific coast salmon are those waters and substrate necessary for salmon production needed to support a long-term sustainable salmon fishery and a healthy ecosystem. To achieve that level of production, EFH must include all streams, lakes, ponds, wetlands, marine and estuarine waters, and other viable salmon-supporting water bodies. The geographic extent of freshwater EFH is specifically defined as all currently viable waters and most of the habitat historically accessible to salmon within specific U.S. Geological Survey hydrologic units, as defined by the Pacific Fishery Management Council (PFMC, 1999). Salmon EFH excludes areas upstream of longstanding, naturally impassible barriers (i.e., natural waterfalls in existence for several hundred years). However, salmon EFH does include aquatic areas above all artificial barriers except the specific impassible barriers (dams) identified by the PFMC (1999).

The proposed action area includes areas designated as EFH for Pacific coast salmon. The effects of this project on Pacific coast salmon EFH include potential effects to salmonids, as described in Sections 4.1 and 4.2. These include temporary noise and temporary changes in water quality. Removal of sediment will temporarily decrease the abundance of benthic infauna, although rapid colonization of sediment is expected. While benthic prey species will be temporarily displaced, populations are expected to fully recover after dredging activities are completed and no long-term loss of biological productivity or prey base for fish is expected.

The project is likely to have minimal adverse effects on EFH for Pacific coast salmon. The minimization measures outlined in Section 4.3 are expected to prevent or minimize adverse impacts, and it is highly unlikely that the project would reduce the total designated EFH to the point at which the population levels for any species evaluated will be significantly adversely affected.

As recommended by NFMS, the project will minimize impacts to EFH by using dredge cycle time to keep suspended sediment concentrations low and using BMPs to minimize the risk of fuel and other fluid leaks from machinery (NMFS, 2016).

LIMITATIONS

The services undertaken in completing this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

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FIGURES

Path: X:\11618.01\Projects\Figure1-1_ProjectLocation.mxd

Print Date: 6/28/2019

Approved By:

Produced By: aguse

Project:

Figure 1-1
Project Location

J.E. McAmis Lower Columbia River Dredging Project
Longview, Washington

Legend

- Propsed Dredge Areas
- Upland Material Storage Facility

0 2.5 5
Miles

Source: Aerial photograph obtained from Esri ArcGIS Online

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Print Date: 6/28/2019

Approved By:

Produced By: aguse

Project:

Figure 2-1
Project Area and Action Area, Reach 1

J.E. McAmis Lower Columbia River Dredging Project
Longview, Washington

Legend

- Columbia River Mile Markers
- Dredge Action Area
- Propsed Dredge Areas

0 1,600 3,200
Feet

Source: Aerial photograph obtained from Esri ArcGIS Online. River mile markers approximated from USGS data.

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Washington

Proposed Dredge Area

Dredge Action Area

Skamokawa

28

29

30

31

32

33

34

35

36

Welch Island

Aldrich Point

Tenasillahe Island

Oregon

Figure 2-2
Project Area and Action Area, Reach 2

J.E. McAmis Lower Columbia River Dredging Project
Longview, Washington

Legend

- Columbia River Mile Markers
- Dredge Action Area
- Proposed Dredge Area

0 1,400 2,800

Feet

Source: Aerial photograph obtained from Esri ArcGIS Online. River mile markers obtained from USGS.

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Print Date: 6/28/2019

Approved By:

Produced By: aguse

Project:

Path: X:\1618.01\Projects\Figure2-3_Reach3.mxd

Print Date: 6/28/2019

Approved By:

Produced By: aguse

Project:

Figure 2-3
Project Area and Action Area, Reach 3

J.E. McAmis Lower Columbia River Dredging Project
Longview, Washington

Legend

- Columbia River Mile Markers
- Dredge Action
- Proposed Dredge Area
- J.E. McAmis Upland Material Storage Facility (UMSF)

0 2,250 4,500
Feet

Source: Aerial photograph obtained from Esri ArcGIS Online. River mile markers obtained from USGS.

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Figure 2-4
Project Area and Action Area, Reach 4

J.E. McAmis Lower Columbia River Dredging Project
Longview, Washington

Legend

- Columbia River Mile Markers
- Dredge Action Area
- Proposed Dredge Area

0 1,700 3,400
Feet

Source: Aerial photograph obtained from Esri ArcGIS Online. River mile markers obtained from USGS.

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APPENDIX A
PROJECT AREA PHOTOGRAPHS

PHOTOGRAPHS

Project Name: JE McAmis Lower Columbia River Dredging
Project Number: 1618.01.02
Location: Longview, WA

Photo No. 1.

Description
View of Upland Material Storage Facility (UMSF) facing south

Photo No. 2.

Description
View of UMSF from Dike Road, facing east

PHOTOGRAPHS

Project Name: JE McAmis Lower Columbia River Dredging
Project Number: 1618.01.02
Location: Longview, WA

Photo No. 3.

Description
View of UMSF, facing southwest

Photo No. 4.

Description
View of UMSF, facing northwest

APPENDIX B

INFORMATION FOR PLANNING AND CONSERVATION OUTPUT

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Clatsop County, Oregon

Local office

Oregon Fish And Wildlife Office

(503) 231-6179
(503) 231-6195

2600 Southeast 98th Avenue, Suite 100
Portland, OR 97266-1398

https://www.fws.gov/oregonfwo/articles.cfm?id=149489416

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS

Fisher Pekania pennanti — Proposed Threatened
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/3651

Red Tree Vole Arborimus longicaudus — Candidate
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/8830

Birds

NAME	STATUS
Marbled Murrelet Brachyramphus marmoratus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/4467	Threatened
Northern Spotted Owl Strix occidentalis caurina There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/1123	Threatened
Streaked Horned Lark Eremophila alpestris strigata There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/7268	Threatened
Western Snowy Plover Charadrius nivosus nivosus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8035	Threatened

Fishes

NAME	STATUS
Bull Trout Salvelinus confluentus There is **final** critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/8212	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE

Bull Trout Salvelinus confluentus Final
https://ecos.fws.gov/ecp/species/8212#crithab

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN

THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle *Haliaeetus leucocephalus* — Breeds Jan 1 to Sep 30

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1626

Bonaparte's Gull *Chroicocephalus philadelphia* — Breeds elsewhere

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Brown Pelican *Pelecanus occidentalis* — Breeds Jan 15 to Sep 30

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/6034

Common Loon *gavia immer* — Breeds Apr 15 to Oct 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/4464

Common Tern *Sterna hirundo* — Breeds May 10 to Sep 10

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/4963

Double-crested Cormorant *phalacrocorax auritus* — Breeds Apr 20 to Aug 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/3478

Great Blue Heron Ardea herodias fannini — Breeds Mar 15 to Aug 15
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Herring Gull Larus argentatus — Breeds Apr 20 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Lesser Yellowlegs Tringa flavipes — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9679

Long-billed Curlew Numenius americanus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/5511

Marbled Godwit Limosa fedoa — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9481

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Red Phalarope Phalaropus fulicarius — Breeds elsewhere
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Red-breasted Merganser Mergus serrator — Breeds elsewhere
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Red-necked Phalarope Phalaropus lobatus — Breeds elsewhere
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Red-throated Loon Gavia stellata — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Ring-billed Gull Larus delawarensis — Breeds elsewhere
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Rufous Hummingbird selasphorus rufus — Breeds Apr 15 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8002

Semipalmated Sandpiper Calidris pusilla — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Short-billed Dowitcher Limnodromus griseus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9480

Surf Scoter Melanitta perspicillata — Breeds elsewhere
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Whimbrel Numenius phaeopus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9483

White-winged Scoter Melanitta fusca — Breeds elsewhere
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Willet Tringa semipalmata — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

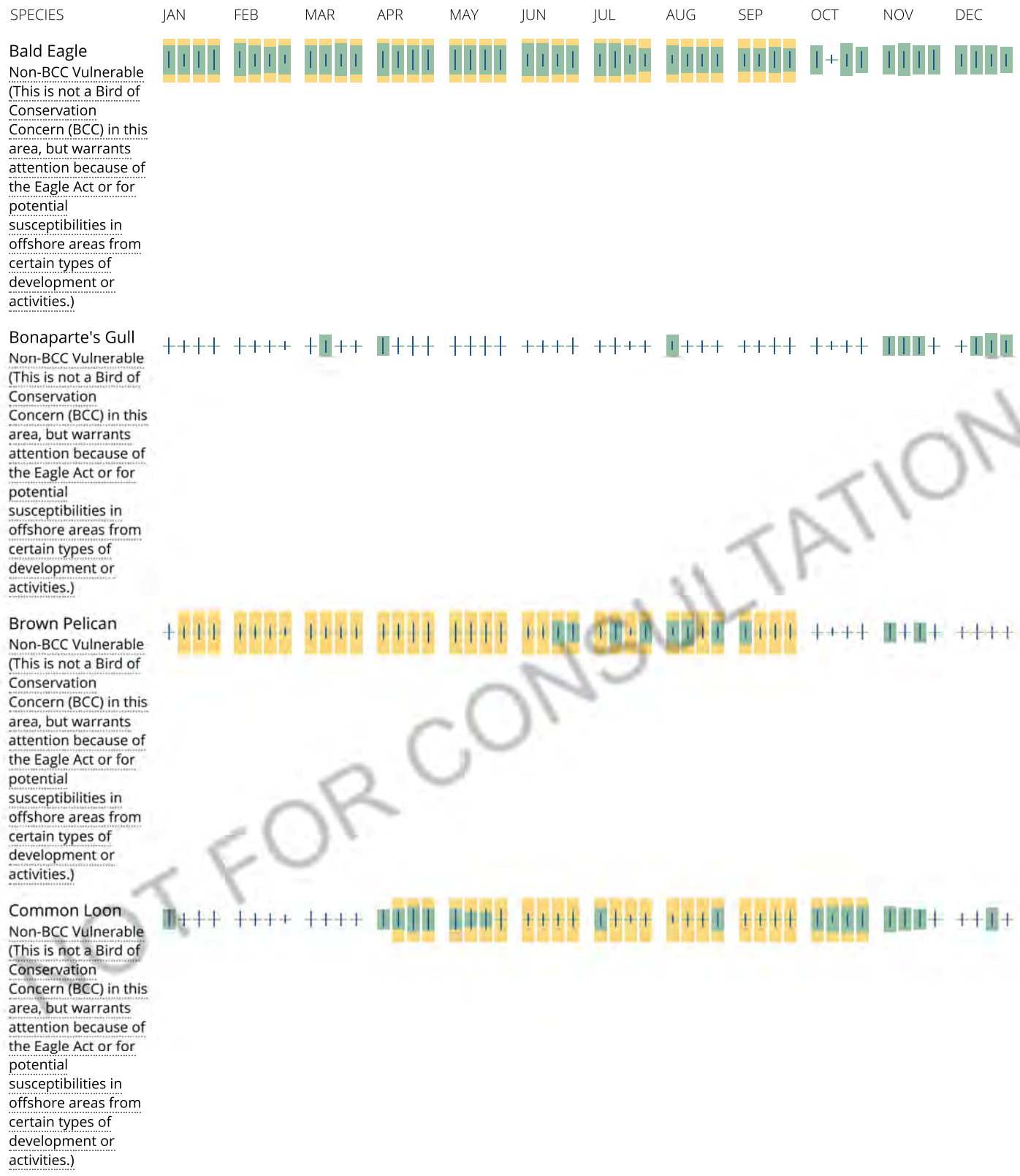
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

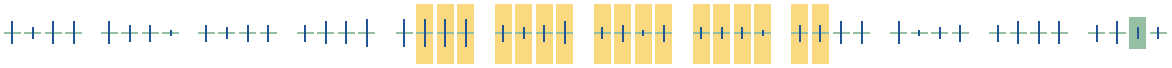
No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

■ probability of presence ■ breeding season | survey effort – no data



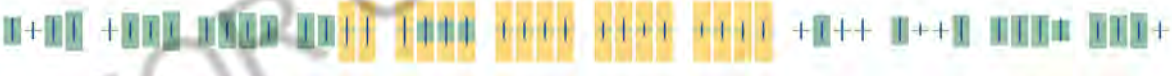
Common Tern
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



Double-crested Cormorant
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Great Blue Heron
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Herring Gull
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



Lesser Yellowlegs
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Long-billed Curlew
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Marbled Godwit
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Olive-sided Flycatcher
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

SPECIES JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

Red Phalarope
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

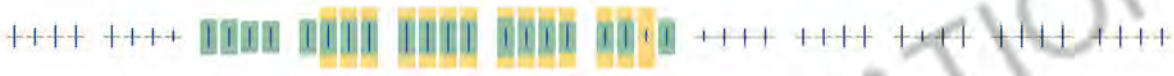
Red-breasted Merganser
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Red-necked Phalarope
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

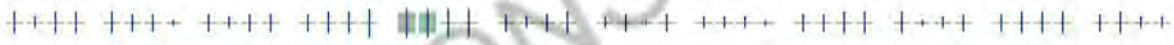
Red-throated Loon
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Ring-billed Gull
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

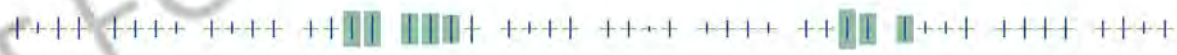
Rufous Hummingbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Semipalmated Sandpiper
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

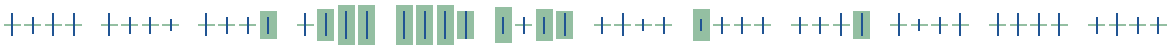


Short-billed Dowitcher
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

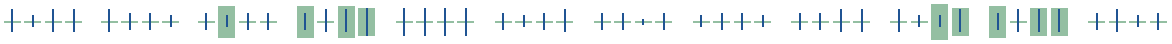


Surf Scoter
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Whimbrel
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



White-winged Scoter
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



Willet
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

ESTUARINE AND MARINE DEEPWATER

E1UBL

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Oregon and Washington

Local offices

Oregon Fish And Wildlife Office

(503) 231-6179
(503) 231-6195

2600 Southeast 98th Avenue, Suite 100
Portland, OR 97266-1398

https://www.fws.gov/oregonfwo/articles.cfm?id=149489416

Washington Fish And Wildlife Office

(360) 753-9440
(360) 753-9405

510 Desmond Drive Se, Suite 102
Lacey, WA 98503-1263

http://www.fws.gov/wafwo/

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS

Columbian White-tailed Deer Odocoileus virginianus leucurus No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/154	Threatened

Birds

NAME	STATUS
Marbled Murrelet Brachyramphus marmoratus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/4467	Threatened
Streaked Horned Lark Eremophila alpestris strigata There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/7268	Threatened
Yellow-billed Cuckoo Coccyzus americanus There is **proposed** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/3911	Threatened

Fishes

NAME	STATUS
Bull Trout Salvelinus confluentus There is **final** critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/8212	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE
Bull Trout Salvelinus confluentus https://ecos.fws.gov/ecp/species/8212#crithab	Final

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES

THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Sep 30
Bonaparte's Gull Chroicocephalus philadelphia This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds elsewhere
Brown Pelican Pelecanus occidentalis This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/6034	Breeds Jan 15 to Sep 30
Common Loon gavia immer This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/4464	Breeds Apr 15 to Oct 31
Common Tern Sterna hirundo This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/4963	Breeds May 10 to Sep 10
Double-crested Cormorant phalacrocorax auritus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/3478	Breeds Apr 20 to Aug 31
Great Blue Heron Ardea herodias fannini This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 15 to Aug 15

Herring Gull Larus argentatus — Breeds Apr 20 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Lesser Yellowlegs Tringa flavipes — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9679

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Red Phalarope Phalaropus fulicarius — Breeds elsewhere
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Red-throated Loon Gavia stellata — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Ring-billed Gull Larus delawarensis — Breeds elsewhere
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Rufous Hummingbird selasphorus rufus — Breeds Apr 15 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8002

Short-billed Dowitcher Limnodromus griseus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9480

Surf Scoter Melanitta perspicillata — Breeds elsewhere
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Western Screech-owl Megascops kennicottii kennicottii This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 1 to Jun 30
Whimbrel Numenius phaeopus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9483	Breeds elsewhere
White-winged Scoter Melanitta fusca This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds elsewhere

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence ( )

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season ( )

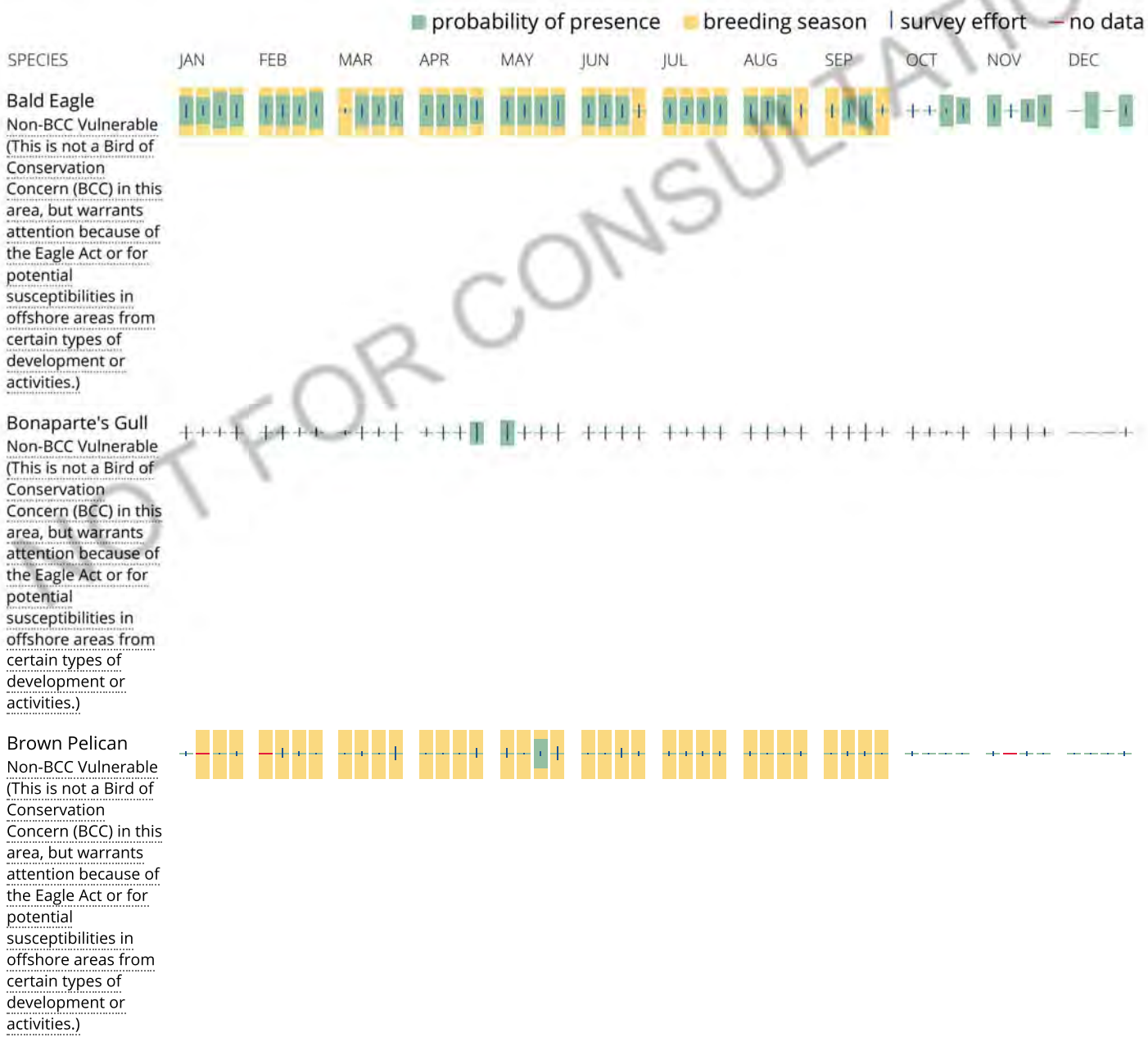
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

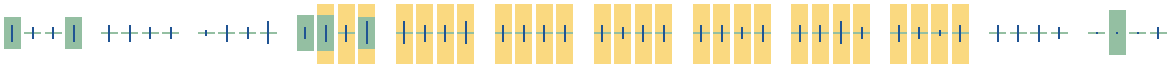
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

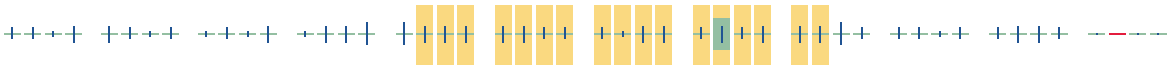
Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Common Loon
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

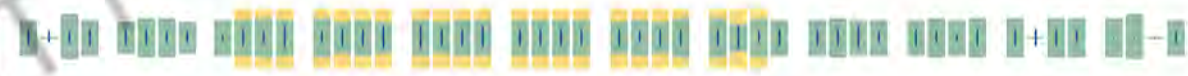


Common Tern
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

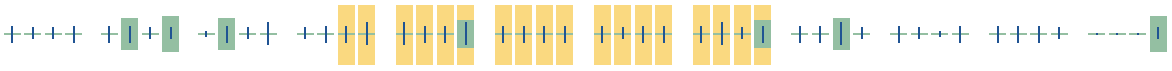


Double-crested Cormorant
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Great Blue Heron
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Herring Gull
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

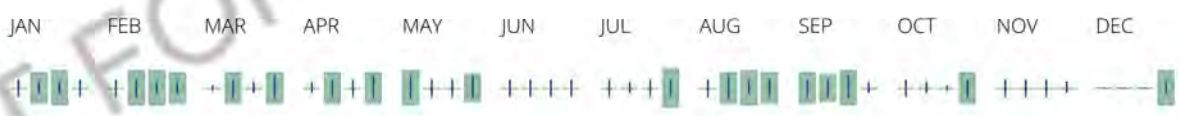


Lesser Yellowlegs
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Olive-sided Flycatcher
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Red Phalarope
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Red-throated Loon
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Ring-billed Gull
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Rufous Hummingbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Short-billed Dowitcher
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Surf Scoter
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Western Screech-owl
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

Whimbrel
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

White-winged Scoter
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

ESTUARINE AND MARINE DEEPWATER

- E1UBL

ESTUARINE AND MARINE WETLAND

- E2USN
- E2USP

RIVERINE

- R4SBC
- R1UBV
- R5UBH

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters.

Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Oregon and Washington

Local offices

Oregon Fish And Wildlife Office

(503) 231-6179
(503) 231-6195

2600 Southeast 98th Avenue, Suite 100
Portland, OR 97266-1398

https://www.fws.gov/oregonfwo/articles.cfm?id=149489416

Washington Fish And Wildlife Office

(360) 753-9440
(360) 753-9405

510 Desmond Drive Se, Suite 102
Lacey, WA 98503-1263

http://www.fws.gov/wafwo/

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS

Columbian White-tailed Deer Odocoileus virginianus leucurus — Threatened
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/154

North American Wolverine Gulo gulo luscus — Proposed Threatened
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/5123

Red Tree Vole Arborimus longicaudus — Candidate
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/8830

Birds

NAME	STATUS
Marbled Murrelet Brachyramphus marmoratus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/4467	Threatened
Northern Spotted Owl Strix occidentalis caurina There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/1123	Threatened
Streaked Horned Lark Eremophila alpestris strigata There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/7268	Threatened
Yellow-billed Cuckoo Coccyzus americanus There is **proposed** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/3911	Threatened

Fishes

NAME	STATUS
Bull Trout Salvelinus confluentus There is **final** critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/8212	Threatened

Flowering Plants

NAME	STATUS

Bradshaw's Desert-parsley Lomatium bradshawii No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5743	Endangered
Golden Paintbrush Castilleja levisecta No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7706	Threatened
Kincaid's Lupine Lupinus sulphureus ssp. kincaidii There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/3747	Threatened
Nelson's Checker-mallow Sidalcea nelsoniana No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7340	Threatened
Willamette Daisy Erigeron decumbens There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/6270	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE
Bull Trout Salvelinus confluentus https://ecos.fws.gov/ecp/species/8212#crithab	Final

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Sep 30

California Thrasher Toxostoma redivivum This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Jul 31
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Great Blue Heron Ardea herodias fannini This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 15 to Aug 15
Lesser Yellowlegs Tringa flavipes This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Olive-sided Flycatcher Contopus cooperi This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3914	Breeds May 20 to Aug 31
Red-throated Loon Gavia stellata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Rufous Hummingbird selasphorus rufus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds Apr 15 to Jul 15
Semipalmated Sandpiper Calidris pusilla This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season ( )
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

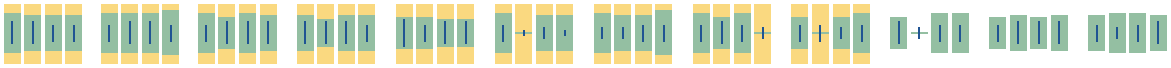
No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

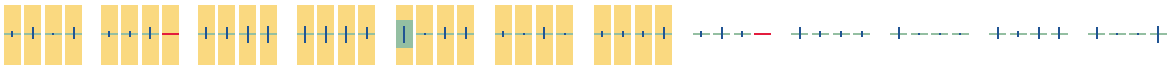
probability of presence breeding season survey effort no data

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

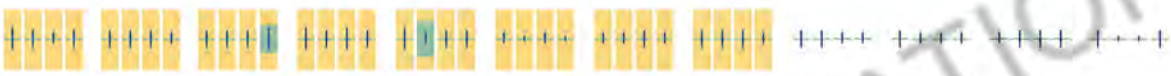
Bald Eagle
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



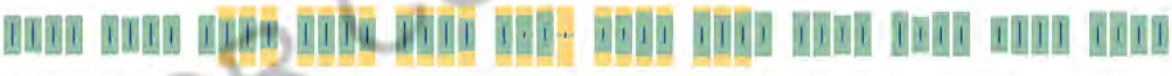
California Thrasher
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



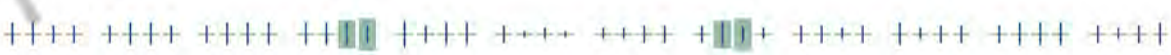
Golden Eagle
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)



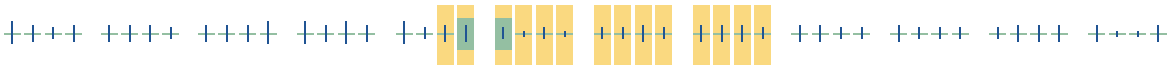
Great Blue Heron
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

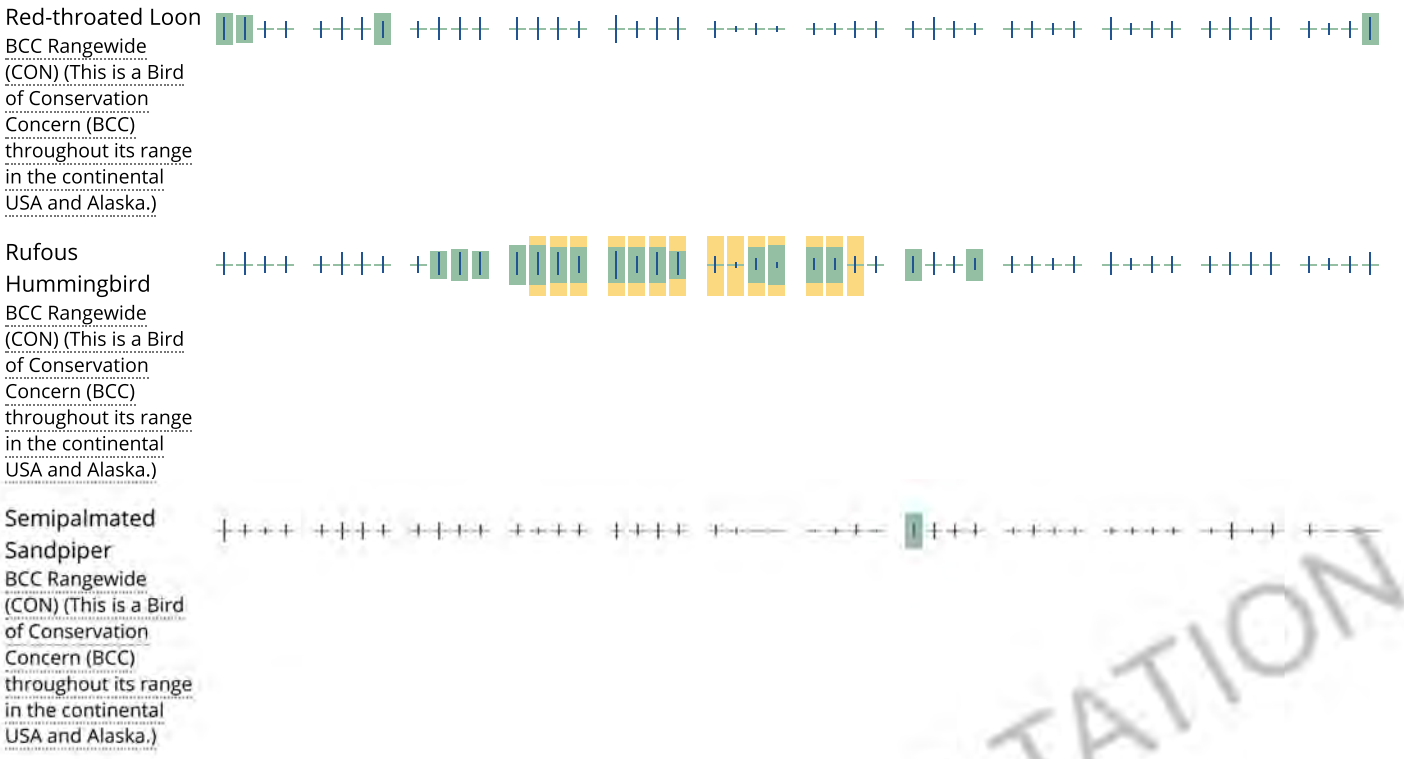


Lesser Yellowlegs
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Olive-sided Flycatcher
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

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How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
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Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

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What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look

carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

R1UBV

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Oregon and Washington

Local offices

Oregon Fish And Wildlife Office

(503) 231-6179
(503) 231-6195

2600 Southeast 98th Avenue, Suite 100
Portland, OR 97266-1398

https://www.fws.gov/oregonfwo/articles.cfm?id=149489416

Washington Fish And Wildlife Office

(360) 753-9440
(360) 753-9405

510 Desmond Drive Se, Suite 102
Lacey, WA 98503-1263

http://www.fws.gov/wafwo/

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS

Columbian White-tailed Deer Odocoileus virginianus leucurus — Threatened
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/154

Gray Wolf Canis lupus — Proposed Endangered
No critical habitat has been designated for this species.

Birds

NAME	STATUS
Northern Spotted Owl Strix occidentalis caurina There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/1123	Threatened
Streaked Horned Lark Eremophila alpestris strigata There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/7268	Threatened
Yellow-billed Cuckoo Coccyzus americanus There is **proposed** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/3911	Threatened

Fishes

NAME	STATUS
Bull Trout Salvelinus confluentus There is **final** critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/8212	Threatened

Flowering Plants

NAME	STATUS
Bradshaw's Desert-parsley Lomatium bradshawii No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5743	Endangered
Golden Paintbrush Castilleja levisecta No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7706	Threatened

Kincaid's Lupine Lupinus sulphureus ssp. kincaidii There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/3747	Threatened
Nelson's Checker-mallow Sidalcea nelsoniana No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7340	Threatened
Water Howellia Howellia aquatilis No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7090	Threatened
Willamette Daisy Erigeron decumbens There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/6270	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

This location overlaps the critical habitat for the following species:

NAME	TYPE
Bull Trout Salvelinus confluentus https://ecos.fws.gov/ecp/species/8212#crithab	Final

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php

- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Sep 30
California Thrasher Toxostoma redivivum This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Jul 31

Clark's Grebe Aechmophorus clarkii — Breeds Jan 1 to Dec 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Golden Eagle Aquila chrysaetos — Breeds Jan 1 to Aug 31
This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.
https://ecos.fws.gov/ecp/species/1680

Great Blue Heron Ardea herodias fannini — Breeds Mar 15 to Aug 15
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Lesser Yellowlegs Tringa flavipes — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9679

Marbled Godwit Limosa fedoa — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9481

Olive-sided Flycatcher Contopus cooperi — Breeds May 20 to Aug 31
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3914

Red-throated Loon Gavia stellata — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Rufous Hummingbird selasphorus rufus — Breeds Apr 15 to Jul 15
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/8002

Semipalmated Sandpiper Calidris pusilla — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Short-billed Dowitcher Limnodromus griseus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9480

Western Screech-owl Megascops kennicottii kennicottii — Breeds Mar 1 to Jun 30
This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

Whimbrel Numenius phaeopus — Breeds elsewhere
This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/9483

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

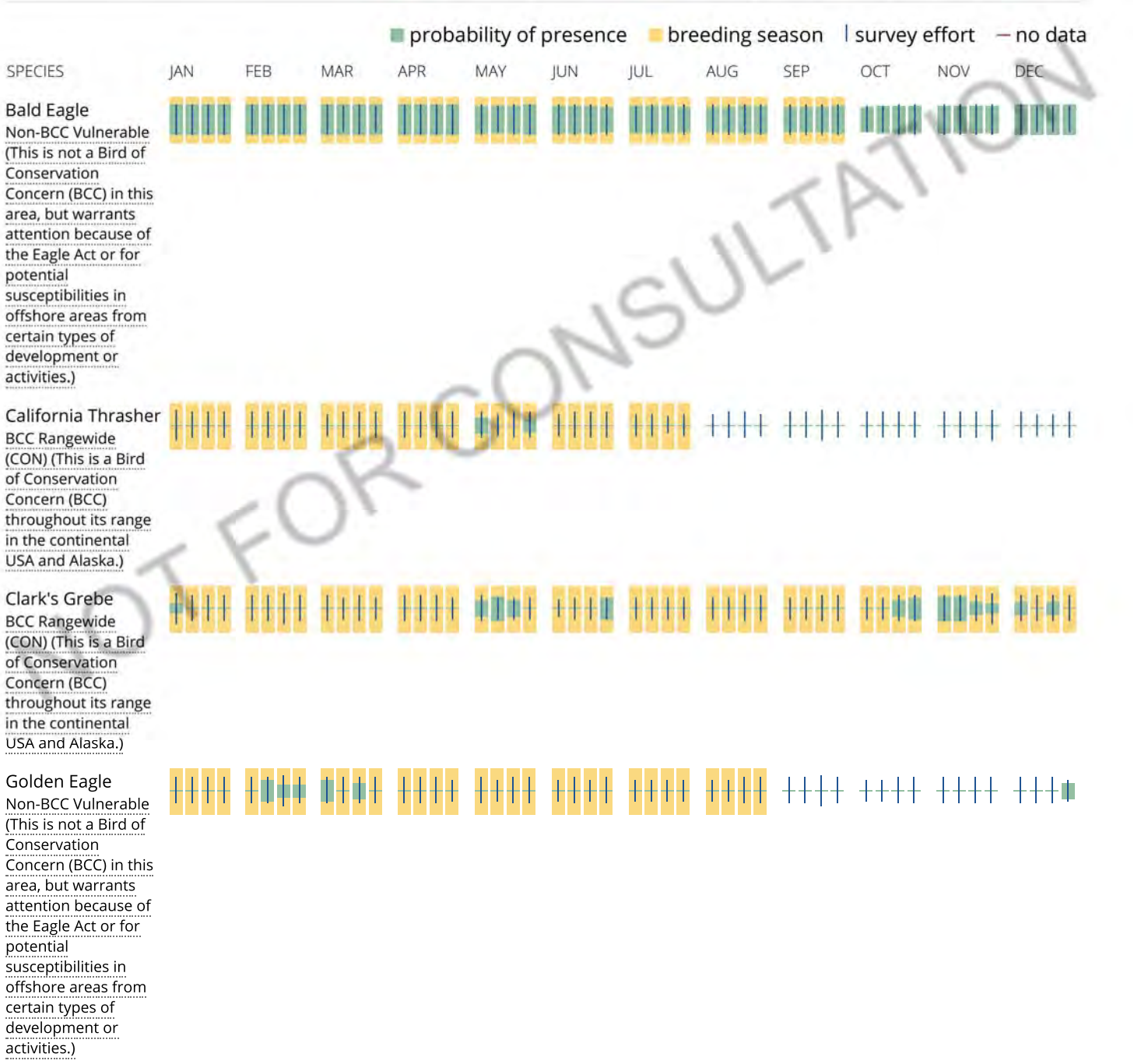
Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



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Lesser Yellowlegs
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

Marbled Godwit
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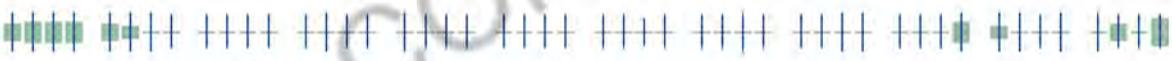

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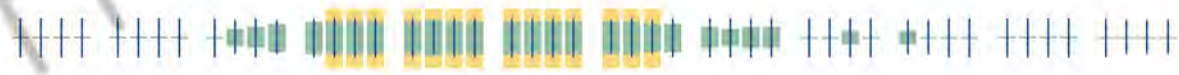

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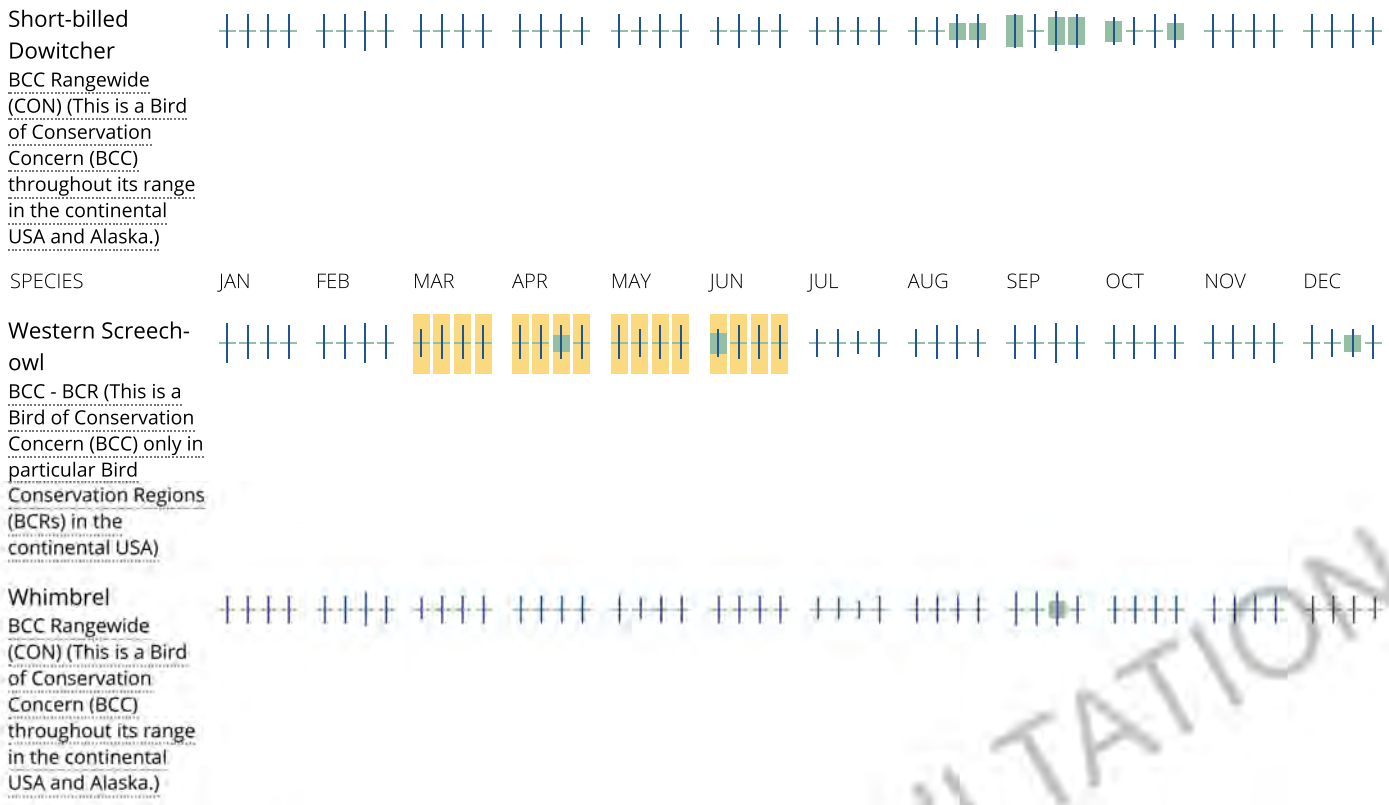

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Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the *nanotag studies* or contact *Caleb Spiegel* or *Pam* Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look

carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

- R1UBV
- R1USQ
- R1RS2Qr

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.