Biological Assessment of the

City of Brewster Wastewater System Improvements Project

Brewster, Washington

Prepared for

City of Brewster
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1. Introduction

J-U-B ENGINEERS, Inc. (J-U-B) prepared this Biological Assessment (BA) for the City of Brewster (City) Wastewater System Improvements Project (Proposed Project). The proposed action includes federal funding and requires compliance with the Endangered Species Act (ESA). The Department of Housing and Urban Development (HUD) is the lead agency for the Proposed Project.

The purpose of this BA is to provide technical information and review the Proposed Project Action Area (Action Area) in sufficient detail to determine to what extent the Proposed Project may affect: federally threatened or endangered species or species proposed for listing; designated and proposed critical habitat; State Sensitive Species under Conservation Agreements; and Essential Fish Habitat (EFH) as required by the Magnuson-Stevens Fishery Conservation and Management Act (16 USC 1801 et seq.). This BA is prepared in accordance with 50 CFR 402 and legal requirements found in Section 7(a)(2) of the ESA (16 USC 1536(c)).

Pre-consultation coordination for the Proposed Project included a telephone discussion with Sean Gross, Fisheries Biologist at the National Marine Fisheries Services (NMFS) on December 22, 2022, to review the project elements, permitting processes, and documentation requirements, including this BA. A follow up meeting with Steven Hughes, Fisheries Biologist with NMFS, was conducted on June 20, 2023 to discuss the draft BA.

Action Area

The Action Area encompasses approximately 10.0 acres. The Action Area occurs in Brewster, Okanagan County, Washington, adjacent to the Columbia River (Figures 1 and 2). The Proposed Project is adjacent to the section of the river known as Lake Pateros, which sits between Wells Dam and Chief Joseph Dam. The Action Area occurs within Sections 11, 14, and 23, Township 30 North, and Range 24 East. Much of the Action Area is previously developed, including the wastewater treatment plant (WWTP), roadways, and existing pipelines. The staging area is not currently developed, but it is heavily disturbed.

The Proposed Project would not occur in the Columbia River; however, the current WWTP discharge/outfall is within the Columbia River at approximately River Mile 529.8, within U.S. Geological Survey (USGS) 6th Field Hydrologic Unit Code (HUC) 170200050504. Considering water quality related effects from the operation of the WWTP and the discharge of treated effluent through the outfall to the Columbia River, the Action Area also includes the outfall's mixing zone, which is authorized per the National Pollutant Discharge Elimination System (NPDES) permit to be no wider than 40.3 feet and extend no more than 300 feet downstream and no more than 30 feet upstream from the point of discharge (WDOE 2016). The Action Area also includes the portion of the Columbia River that continues approximately 6.2 miles downstream from the outfall to Pateros where the Methow River meets the Columbia River. This limit represents a practical and reasonable downstream boundary for considering water quality effects from the Brewster WWTP discharge due to distance in the river and because the Columbia River does not encounter another significant tributary until the Entiat River, over 35 miles from Brewster.

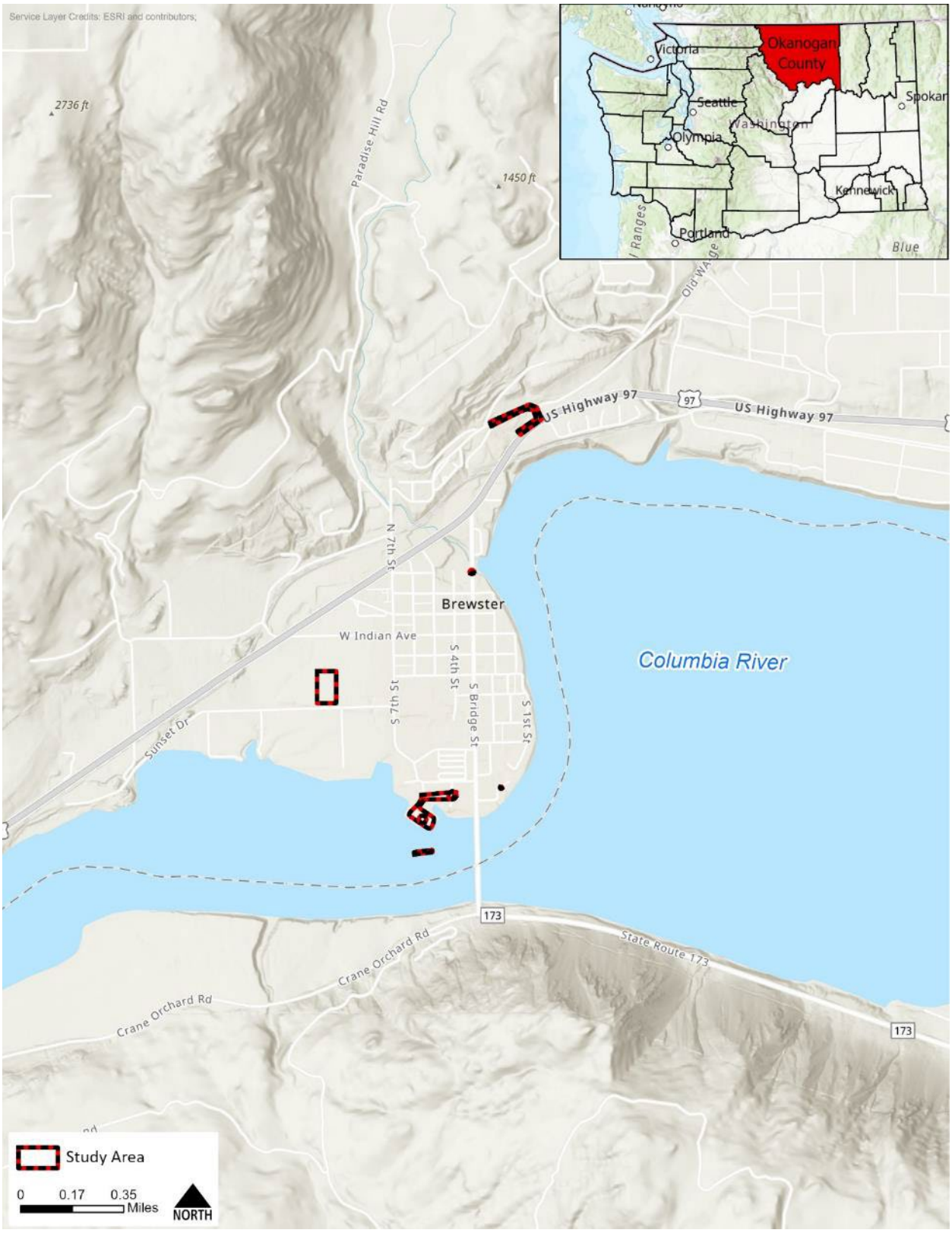

Figure 1: Vicinity Map

Figure 2: Action Area

Proposed Action

The City of Brewster provides treatment of municipal wastewater at the Brewster WWTP. The collection system was originally constructed in the early 1900s. Treated effluent (secondary level) from the WWTP is discharged to the Columbia River through a 12-inch concreate outfall pipe under the regulation of the NPDES permit No. WA002100-8, which was issued, and is administered by, the Washington Department of Ecology (WDOE). The current active NPDES permit was issued by WDOE in 2015 and has been administratively extended since that time. The City submitted a permit renewal application in January 2020. The Proposed Project will not result in a negative change to water quality or make any changes to the volume of effluent discharged, but effluent will continue to be discharged, and water quality may improve.

The purpose of the Proposed Project is to address deficiencies identified in the General Sewer Plan (GSP), which was prepared for the City of Brewster in April of 2020 and amended in October 2020. The GSP and amendment identified deficiencies in the system and recommended improvements to the wastewater treatment plant, rehabilitation or placement of portions collection system, repair or replacement of some manholes, upgrades to the south lift station, and replacement of the south lift station force main. Specific recommendations listed in the GSP at the wastewater treatment plant include general improvements, influent screen replacement, grit removal, anaerobic selector, ultraviolet (UV) disinfection, replacement of the belt filter press feed pumps, and collection system improvements include, mainline pipeline replacement and rehabilitation, manhole replacement, and improvements to the collection system extension and north/south lift stations (J-U-B 2020a, 2020b).

The Proposed Project includes improvements to the WWTP such as, replacing the influent screen, adding a grit removal system, replacing the belt filter press feed pumps, replacing the RAS pumps, replacing the UV disinfection system, rehabilitating the clarifier, and improving the backup disinfection system. The lift station that provides all flow to the WWTP from the collection system would also be updated with new pumps, electrical components, and backup power, and the existing force main would be replaced between the station and the WWTP. Improvements for the collection system include the elimination of two "overflow" lines that go from the existing collection system to Lake Pateros/Columbia River, and the addition of approximately 1,500 linear feet of 8-inch gravity sewer in the northeast part of town, to eliminate a common service line for five to ten buildings. The Proposed Project is anticipated to begin construction in late 2023 or early 2024 and take about 12 months to complete.

2. Best Management Practices and Conservation Measures

Construction Best Management Practices (BMPs) and conservation measures are standard requirements and would be required during the implementation of the Proposed Project. These would include, but are not limited to, soil and erosion control devices, noxious weed prevention and control, and construction timing to minimize or avoid breeding and nesting season for migratory birds. The following BMPs and conservation measures are intended to minimize effects on listed species and their habitats, as well as to protect water quality and minimize disturbance to soils and vegetation.

1. All work shall be completed within the designated Proposed Project footprint and during established working hours.
2. No work will be conducted within the OHWM of the Columbia River.

3. When feasible, construction equipment and vehicles will be fueled offsite. If offsite fueling is impractical, fueling shall occur in designated fueling areas.
4. To prevent the transportation of invasive species, all equipment will be pressure washed to remove plant parts, soil, and other materials that may carry invasive and noxious weed seeds prior to arriving at the Proposed Project site.
    a. The Contractor shall provide the Engineer with the opportunity to inspect the equipment prior to unloading at the construction site. If upon inspection, dirt, debris, and seeds are visible, the equipment shall be immediately removed and rewashed. The equipment shall then be re-inspected at the site to ensure that it is clean.
5. Adequate response equipment (i.e., spill kits and cleanup materials) shall be maintained and present onsite at all times to avoid chemical contamination in the event of a spill. All spills will be cleaned up immediately.
    a. When not in use, construction equipment shall be stored away from concentrated flows of stormwater, drainage courses, and inlets.
        i. Equipment shall be parked over plastic sheeting, or an equivalent, wherever possible. Plastic shall not be considered a substitute for drip pans or absorbent pads. Fluids, such as hydraulic oil, shall be restricted from contact with soil and surface runoff with the placement of plywood or other covering under the equipment.
        ii. The Contractor shall follow proper storage, handling, use, and disposal of petroleum products and other hazardous materials.
6. Areas of ground disturbance where existing vegetation occurs and is removed will be rehabilitated. This includes the spreading/grading of stockpiled materials, and the seeding, and/or planting with native seed mixes or plants that are appropriate to the region.
7. Borrow areas will be located greater than 150 feet from waters within or near the Action Area.
8. Temporary Erosion and Sediment Controls (TESCs), such as silt fences, fiber wattles, or other erosion control mechanisms will be placed adjacent to or below disturbance areas. Erosion control materials will be certified weed free in order to prevent the spread of noxious weeds. Sediment control devices will be maintained throughout construction activities that could result in erosion or sedimentation, as determined by the site foreman/engineer. When the risk of erosion has passed, the devices will be removed, and soils will be disposed of in an upland location outside of the floodplain or transported off-site.
9. Construction activities will not occur during extreme wet weather conditions, if practicable. If heavy precipitation is predicted to occur within 24 hours, appropriate measures will be taken to cover up any stockpiles and check that BMPs are in good condition.
10. During extreme weather events, temporary sediment traps, filter fabric fences, inlet protectors, vegetative filters and buffers, or settling basins will be used to retain runoff water long enough for sediment particles to settle out.
11. If required, an EPA Construction General Permit shall be obtained for the Proposed Project, and a Stormwater Pollution Prevention Plan (SWPPP) shall be developed and implemented.
12. All associated permit conditions shall be met during construction operations.

BMPs Associated with the Preservation and Retention of Existing Vegetation:

1. Protected areas near work zones where vegetation is to be retained and protected will be clearly marked, flagged, or fenced.
2. Undisturbed areas will be maximized within Proposed Project boundaries wherever possible to retain vegetation for erosion control purposes.
3. Native site vegetation and plant communities, including milkweed if found, will be protected when practicable.

3. Methodology

An Official Species List was generated on October 6, 2022 and updated on July 25, 2023, from the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) system to identify species of concern that could potentially occur in or near the Action Area (USFWS 2023a; IPaC Report, Appendix B). A desktop analysis of the Action Area was conducted using maps and data in ArcGIS (AGOL 2022). This analysis evaluated aerial imagery with habitat information, elevation data, species range, landscape topography, the National Wetlands Inventory (NWI; USFWS 2023b), and the National Hydrography Dataset (NHD; USGS 2022). Various sources (e.g., species recovery plan, research papers) from agencies and field experts were also used to analyze species and their habitats in respect to the Action Area.

This BA was developed using species lists and other information from NMFS and USFWS web sites, Washington Department of Fish and Wildlife (WDFW) and other fish distribution information, and reviews of literature including Recovery Plans, Status Reviews, and previous Biological Opinions (BOs) from NMFS and USFWS.

On August 10, 2022, J-U-B Biologists Tyler Schade and Lexie Conley conducted a biological survey to identify special-status species, if present (i.e., federally listed species and state sensitive species), and to identify and characterize potential habitat for special-status species, if present.

4. Existing Environmental Conditions

Land Use

Land use in the Action Area is mostly developed land, including the WWTP, roadway, residential properties, and hospital property (Appendix B: Photo Inventory). Agricultural land and residential property occur north of Hospital Way, with disturbed, weedy land occurring adjacent to the southern part of that area. South of Hospital Way is hospital property, parking lots, and Highway 97. The WWTP occurs on land that juts out into the Columbia River, which surrounds the WWTP on the south, east, and west sides; riparian vegetation occurs along the banks of the river along the north facing portion of the WWTP. Ansel Avenue W is a dirt road that runs east-west and connects with the entrance road into the WWTP; a narrow riparian vegetation strip occurs along the south portion of the road, which is adjacent to the Columbia River. Topography in the Action Area is lowest on the south side at the WWTP site at 787 feet above mean sea level (AMSL) and highest along Hospital Way, reaching a max of 933 feet AMSL.

Climate

Climatic data was obtained from the nearest Western Regional Climate Center (WRCC) Cooperative Observer Program ID: 454100, located at Chief Joseph Dam, Washington station, approximately 14 miles southeast of the Action Area. On average, temperatures at this station range from an average minimum

of 20.3 degrees Fahrenheit (°F) in January to an average maximum of 89.3°F in July (WRCC 2022). The average annual precipitation is 10.25 inches, with most precipitation occurring between November and February (WRCC 2022). The average annual snowfall is 25.0 inches and occurs primarily from November to March (WRCC 2022).

Soil and Vegetation

Four soil types occur in the Action Area: Pogue gravely fine sandy loam (49.8% of the Action Area), Ewall loamy fine sand (14.2% of the Action Area), Cashmere fine sandy loam (16.9% of Action Area), and Pogue fine sandy loam (19.0% of the Action Area) (USDA-NRCS 2022). All soil types in the Action Area have a hydric soil rating of zero.

Vegetation in the Action Area primarily consisted of Siberian elm (*Ulmus pumila*), white goosefoot (*Chenopodium album*), English walnut (*Juglans regia*), reed canarygrass (*Phalaris arundinacea*), summer cypress (*Bassia scoparia*), rubber rabbitbrush (*Ericameria nauseaosa*), London rocket (*Sisymbrium irio*), diffuse knapweed (*Centaurea diffusa*), mullein (*Verbascum thapsus*), Dalmatian toadflax (*Linaria dalmatica*), milkweed (*Asclepias* sp.), purple loosestrife (*Lythrum salicaria*), cheatgrass (*Bromus tectorum*), and Russian thistle (*Salsola tragus*).

Flood Hazard

The WWTP and overflow replacement location on State Highway 173/N Bridge Street, just north of Jay Ave E, occur within a flood hazard area (no specific designation is available as it has not yet been updated; WDOE 2022). Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) from 1977 indicate that the WWTP occurs in flood zone A (100-year flood zone; or 1% annual chance of flood) and that the overflow replacement location occurs in flood zone B (500-year flood zone or 0.2% annual chance of flood; FEMA 2022).

Columbia River Setting

The Brewster WWTP outfall discharges to the Columbia River at RM 529.8, within Lake Pateros, which is formed by Chief Joseph Dam approximately 15 miles upstream (RM 545). The nearest downstream dam is Wells Dam approximately 14 miles from the Action Area (RM 515.6). The Columbia River's northern shoreline where the WWTP occurs and where the outfall enters the river is designated a High Intensity use area by the City of Brewster's Shoreline Master Plan (Section 17.46 BMC). City-operated Columbia Cover Park, located immediately downstream of the outfall, includes a boat launch. The park has relatively large expanses of shoreline manicured for recreation and river access. The southern shore of the Columbia River in the vicinity of the Action Area is characterized by a narrow riparian corridor, which is bordered by active agricultural land or undeveloped sagebrush. Land use is predominantly agricultural and rural residential in this area.

Wastewater Treatment and Outfall Discharge

The Brewster WWTP performs several water quality treatment processes as part of three core functions: primary treatment, secondary treatment, and effluent disinfection. Primary treatment removes solids from the waste streams through physical processes using screens. Secondary treatment involves the use of biological processes to capture small and dissolved organic materials and nutrients using an oxidation ditch, and secondary clarification. After wastewater has been treated by physical and biological processes, it is disinfected through UV radiation prior to discharge through the outfall to the Columbia River. A

chlorine contact chamber for secondary treatment is available for emergency use only in the case of UV treatment failure. The Columbia River is approximately 1,450 feet (0.27 miles) wide where the WWTP occurs; the 12-inch concrete outfall is approximately 500 feet from the shore. The City's existing WWTP outfall extends approximately 500 feet into the river. The existing outfall was originally constructed in the 1960's. The remainder of the outfall pipe is buried below the surface sediments of the riverbed. The average daily flow rate for the outfall is 0.168 million gallons per day (mgd) (WODE 2020).

The service area for the City's WWTP is within Brewster city limits. Based on information presented in the City's 2020 NPDES renewal application, the population in Brewster was 2,460 in 2020, and the average annal flow rate was approximately 0.155 mgd, with a maximum daily flow rate of 0.265 mgd, below the design flow rate of 0.418 mgd (WDOE 2020). There are no other municipal wastewater discharges to the Columbia River in the Action Area vicinity.

Water Quality Conditions

The Columbia River is a 303(d) impaired waterbody. Within the Action Area, the Columbia River is Category 5 listed for 4,4'-DDD, 4,4'-DDE, polychlorinated biphenyls (PCBs), and methyl mercury; Category 4a listings also occur in this portion of the river for temperature and total dissolved gas. Temperature is addressed in the *Columbia and Lower Snake River Temperature Total Maximum Daily Load* (TMDL) (EPA 2021) and Total Dissolved Gas is addressed in the *TMDL for Total Dissolved Gas in the Mid-Columbia River and Lake Roosevelt Submittal Report* (WDOE, EPA 2004). According to the Temperature TMDL document, river temperatures at the outfall for the Brewster WWTP measured 26°C; however, the NPDES renewal application indicated that winter temperatures are 18°C maximum and 13°C average, and summer temperatures are 24°C maximum and 22°C average (NPDES 2020). Under WAC 173-201-200, the 17.5°C daily maximum temperature standard applies to the Columbia River in the Action Area and is intended to be protective of salmonid spawning, rearing, and migration uses (designated aquatic life use). The primary sources of Total Dissolved Gas problems on the Columbia River are the hydroelectric dams, and this TMDL does not impact municipal wastewater discharges.

The City's NPDES permit includes effluent parameters for discharges from the outfall for biochemical oxygen demand 5-day (BOD_5), total suspended solids (TSS), and pH (Table 1). The City is also required by the NPDES permit to monitor influent for BOD_5, TSS, and pH, and effluent for BOD_5, fecal coliform, pH, temperature, ammonia, chlorine, dissolved oxygen (D.O.), nitrate/nitrite, Kjeldahl nitrogen, oil and grease, phosphorus, total dissolved solids (TDS), and hardness ($CaCo_3$) (Table 2).

Table 1. Outfall Design Removal Rates and Discharge

Parameter	Average Monthly	Average Weekly
BOD_5	30 mg/L, 153 lbs/day 85% removal of influent BOD	45 mg/L, 229 lbs/day
TSS	30 mg/L, 153 lbs/day 85% removal of influent TSS	45 mg/L, 229 lbs/day
pH	Daily Minimum is equal to or greater than 6.5 and the Daily Maximum is less than or equal to 8.5	
Fecal coliform bacteria	100 colony forming units/100 mL	200 colony forming units/100 mL
Total Residual Chlorine	0.5 mg/L	0.75 mg/L

*Table 2. Effluent Parameters for Pollutants at Outfall 1 at City of Brewster WWTP**

Pollutant	Max. Daily Discharge		Average Daily Discharge	
	Value	Units	Value	Units
BOD 5	16	MG/L	5.8	MG/L
Fecal coliform	52	MPN	20	MPN
Design flow rate	0.275	MGD	0.168	MGD
pH (min)	7.1	S.U.	NA	S.U.
pH (max)	7.9	S.U.	NA	S.U.
Temp. (winter)	18	°C	13	°C
Temp. (summer)	24	°C	22	°C
TSS	12	MG/L	4.5	MG/L
Ammonia (as N)	0.23	MG/L	0.09	MG/L
Chlorine	0	NA	0	NA
D.O.	8.2	MG/L	8.2	MG/L
Nitrate/Nitrite	39.7	MG/L	37.9	MG/L
Kjeldahl nitrogen	2.5	MG/L	2.2	MG/L
Oil/grease	1.4	MG/L	1.4	MG/L
Phosphorus	4.09	MG/L	3.7	MG/L
TDS	542	MG/L	533	MG/L
Hardness (as $CaCO_3$)	232	MG/L	221	MG/L

*Per 2020 renewal application

5. Status of Species and Habitat

Agency Coordination and Species of Concern

Six ESA-listed species were identified by the IPaC Report (Dated: July 25, 2023) as potentially occurring in the Action Area (see Table 3; Appendix B). The NMFS requested that Upper Columbia River (UCR) spring-run Chinook salmon (*Oncorhynchus tshawytscha*) also be analyzed in the BA.

Table 3: Summary of Protected Species with the Potential to Occur in the Action Area

Common Name	Scientific Name	ESA Status	Critical Habitat in Action Area?
Gray wolf	*Canis lupus*	Endangered	No
Canada lynx	*Lynx canadensis*	Threatened	No

Common Name	Scientific Name	ESA Status	Critical Habitat in Action Area?
North American wolverine	*Gulo gulo luscus*	Proposed Threatened	NA
Yellow-billed cuckoo	*Coccyzus americanus*	Threatened	No
Bull trout	*Salvelinus confluentus*	Threatened	Yes
Upper Columbia River steelhead	*Oncorhynchus mykiss*	Threatened	Yes
Upper Columbia River Chinook salmon	*Oncorhynchus tshawytscha*	NA	Yes*
Monarch butterfly	*Danaus plexippus*	Candidate	NA

* EFH for Chinook salmon occurs in the Action Area; NMFS considers EFH to be critical habitat

National Oceanic and Atmospheric Administration (NOAA) Fisheries identifies EFH for Pacific salmon as occurring in the Action Area (NOAA 2023). NMFS critical habitat for UCR steelhead (*Oncorhynchus mykiss*) occurs in the Action Area (NOAA 2023) and USFWS critical habitat for bull trout occurs in the Action Area (USFWS 2023c). NMFS critical habitat, in the form of EFH, for UCR Chinook salmon occurs in the Action Area.

Species Descriptions

The following sections briefly discuss gray wolf, Canada lynx, North American wolverine, yellow-billed cuckoo, bull trout, UCR steelhead, UCR spring-run Chinook salmon, and monarch butterfly.

Gray Wolf

The gray wolf is a habitat generalist and will establish territories where a sufficient food source is present and human conflict is absent or minimal. The species prefers relatively remote areas with few roads. Generally, the gray wolf inhabits a variety of habitats, typically containing a mix of forested and open areas with a variety of topographic features. Historically, the gray wolf occupied habitats such as grasslands, sagebrush steppe, and coniferous, mixed, and alpine forests. The gray wolf has an extensive home territory, ranging from 25 square miles to 1,000 square miles (ODFW 2019a). The species also has specific habitat requirements for denning, rearing young, and foraging. Wolves generally mate between mid to late February, and the pups are born two months later (WDFW 2022). Dens are usually located in underground burrows, but wolves may also use abandoned beaver lodges, hollow trees, or rock caves (WDFW 2022). Rendezvous sites, used for resting and gathering, are meadow complexes that have adjacent hillside timber with nearby surface water. Both dens and rendezvous sites are often characterized by occurring near forested cover and far from human disturbance (Trapp 2004). Wolves seem to prefer areas with low human populations, low potential for human interactions, high prey densities, extensive public lands, few roads, and few or no livestock, and secluded denning and rendezvous sites (USFWS 1987; Witmer et al. 1998). Wolves prey primarily on large ungulates such as elk and deer, but alternate prey typically consists of smaller mammals and birds, such as beaver, ground squirrels, rabbits, and grouse (ODFW 2019a).

Canada Lynx

The Canada lynx is normally found in moist boreal forests (predominantly conifer trees) with cold, snowy winters and a high density of snowshoe hare (*Lepus americanus*)—its primary prey (USFWS 2023d). The lynx may also occur, usually during travel and foraging, in a matrix of other habitats, including hardwoods, dry forests, and non-forest habitat. In the western U.S., most lynx occurrences generally are found in

Rocky Mountain conifer forests between 4,900 and 6,500 feet in elevation (USFS 2014). Canada lynx prefers moist Douglas-fir, grand fir, western larch, and aspen (*Populus tremuloides*) forests (USFS 2014). Areas with dry forest types, such as ponderosa pine, Douglas-fir (dry), or lodgepole pine do not provide lynx habitat (Squires et al. 2010).

North American Wolverine

Without preference to specific vegetation or geological aspects, the North American wolverine selects areas that are cold with deep persistent snow, including alpine areas, boreal and mountain forests (USFWS 2023e). Deep, persistent, and reliable spring snow cover from mid-April to mid-May is the best overall predictor of wolverine occurrence in the contiguous U.S. (Aubry et al. 2007; Copeland et al. 2010). A study of wolverines the western U.S. found that their mean elevation range was from 7,200 feet to 8,530 feet (Copeland et al. 2007). Occupied wolverine habitat is generally disconnected from roads and infrastructure and in large wilderness areas (IDFG 2014). Wolverines are opportunistic feeders that primarily scavenge carrion, but also prey on small animals, birds, insects, fruits, and berries.

The breeding season occurs from late spring to early fall. Persistent, stable snow greater than five feet is a requirement for natal denning; this deep snow cover provides security and warmth for kits (USFWS 2023e). Litters consisting of one to five offspring are born between mid-February and March, and young are full grown by nine months of age (IDFG 2014).

Yellow-billed Cuckoo

Yellow-billed cuckoos are medium-sized birds about 12 inches in length with grayish-brown plumage, white underparts, large reddish-brown wing patches, a long brown tail with white spots, and a mostly yellow, curved bill. The breeding range of the species once extended from southern British Columbia throughout much of the western U.S. (west of Rocky Mountains) and northwestern Mexico (Wiles and Kalasz 2017). The cuckoo nests in low to mid-elevation deciduous habitats with clearings and dense shrubby vegetation, typically near rivers, streams, and wetlands (Wiles and Kalasz 2017). In the western U.S., cuckoos are strongly associated with large patches of riparian habitat that typically include cottonwoods (*Populus* spp.), willows (*Salix* sp.), ash (*Fraxinus* sp.), walnut (*Juglans* sp.), mesquite (*Prosopis* sp.), and tamarisk (*Tamarix* spp.) (Wiles and Kalasz 2017). Riparian patches smaller than 15 hectares and less than 100 meters wide are generally found to be unsuitable nesting habitat, and riparian patches between 20–40 hectares in size and 100–200 meters wide are marginal habitat for cuckoos (Wiles and Kalasz 2017).

Yellow-billed cuckoo migrates annually between North America, where they breed, and South America where they overwinter. Cuckoos generally begin to arrive in mid to late May in the western territories and depart for wintering grounds in late September to early October (Wiles and Kalasz 2017). The species typically nests between June and early August and prefers willows, cottonwoods, and other shrubs as nesting substrate. It typically eats large insects, such as caterpillars, grasshoppers, beetles, and crickets.

Critical habitat has been designated in the western and southwestern United States for the yellow-billed cuckoo but does not include any areas in Washington. Therefore, the Action Area is located outside of the designated critical habitat for yellow-billed cuckoo.

Bull Trout

Bull trout is a species of char that is a member of the *Salmonidae* family. The species has both resident and migratory life histories where resident forms complete their entire life cycle in tributary streams (or nearby), and migratory forms spawn in tributary streams, rear, and then migrate to a lake, river, or ocean (USFWS 2015b). Bull trout require cold, clean, complex, and connected habitat with sufficient cover, channel form and stability, and spawning and rearing substrate, which is generally made up of loose, clean gravel and cobble substrate (USFWS 2015b). In general, bull trout tend to use relatively deep pools with abundant cover and higher velocity flows during the day, and at night use near-shore areas with shallower depths, less cover, and slower water velocities (USFWS 2015b). Spawning areas are frequently associated with cold-water springs, groundwater infiltration, and the coldest streams in a given watershed, with optimal water temperatures for rearing ranging between 44° and 46°F, and optimal temperatures for egg incubation ranging between 35° and 39°F (USFWS 2015). Bull trout eggs require a long incubation period (100-145 days), hatching in late winter or early spring, and emerging from the substrate as fry between April and May (USFWS 2015).

In Washington, bull trout were historically found in major tributaries to the Columbia River on the eastside of the Cascades, major tributaries on the westside of the Cascades flowing into Puget Sound, and major tributaries to the Olympic Mountains flowing into Hood Canal, Strait of Juan de Fuca, and the Pacific Ocean (64 FR 58910). Occasionally, anadromous bull trout occur in small streams flowing into saltwater in search of food and overwintering habitat (USFWS 2023f).

The Action Area is within the Mid-Columbia Recovery Unit (Northeastern Washington) identified in USWFS's Final Bull Trout Recovery Plan (USFWS 2015a). The Columbia River in the Action Area is identified in the Recovery Plan as unoccupied and needing research. Washington Department of Fish and Wildlife (WDFW) identifies "migration only" habitat use of the Columbia River in the Action Area for bull trout (StreamNet 2019; WDFW 2018). Any bull trout occurring within the Action Area would likely originate from the local populations within the major tributaries closest to the Action Area, which include the Methow River. The Methow River confluence with the Columbia is located approximately 6.2 miles downstream.

Bull trout use of the Action Area is expected to be limited to adults and sub-adults and on a season basis (personal communication, email, with Jeff Krupka, USFWS, April 7, 2023). Juvenile bull trout are not expected to occur in the Action Area.

Upper Columbia River Steelhead

PIT (passive integrated transponder) tag observations occur in the lower Methow River at Pateros and shows observations of juvenile steelhead from July through October, primarily in September and October (CBR DART 2023). All PIT tag observations along the Columbia River in the vicinity of the Action Area are from hatcheries (Cassimer Bar, Colville Tribes Resident Fish Hatchery, Chief Joseph Hatchery Juvenile Release Pond, and Chief Joseph Hatchery). In conversation with WDFW, it was indicated that steelhead presence in the Action Area includes smolt, sub-adult, and adult. Steelhead return in July and spawn in the month of May.

The following description is taken, verbatim, from NMFS' *Status of the Species Upper Columbia Steelhead February 2023* (NMFS 2023a).

The UCR steelhead distinct population segment (DPS) was listed as endangered on August 18, 1997 (62 FR 43937), and their status was downlisted to threatened on January 5, 2006 (71 FR 834). On August 16, 2022, in the agency's 5-year review for UCR steelhead, NMFS concluded that the species should remain listed as threatened (NMFS 2022). The UCR steelhead DPS includes all naturally-spawned populations of steelhead in streams in the Columbia River Basin upstream from the Yakima River, Washington, to the United States– Canada border (62 FR 43937). Five artificial propagation programs are also considered part of the DPS: the Wenatchee River Program; Wells Complex Hatchery Program (in the Methow River); Winthrop National Fish Hatchery Program; Ringold Hatchery Program; and the Okanogan River Program (85 FR 81822).

Factors contributing to the decline of UCR steelhead included the intensive commercial fisheries in the lower Columbia River that began in the latter half of the 1800s, continued into the 1900s, and nearly eliminated many salmon and steelhead stocks. With time, the construction of dams and diversions, some without passage, blocked or impeded salmon and steelhead migrations. Early hatcheries, operated to mitigate the impacts of dams on fish passage and spawning and rearing habitat, employed practices such as transferring fish among basins without regard to their origin. While these practices increased the abundance of stocks, they also decreased the diversity and productivity of populations they intended to supplement. Concurrent with these activities, human population growth within the basin was increasing and land uses were adversely affecting UCR steelhead spawning and rearing habitat. In addition, non-native species were introduced by both public and private interests that directly or indirectly affected salmon and steelhead (UCSRB 2007).

Conservation partners have implemented many tributary habitat restoration projects across the DPS, improving habitat conditions for steelhead spawning, rearing, and migration in many reaches. However, widespread areas of degraded habitat persist across the basin, with simplified stream channels, disconnected floodplains, impaired instream flow, loss of cold water refugia, and other limiting factors (NMFS 2022). An emerging risk is climate change and the consequent threat to the juvenile rearing stage vulnerable to low stream flow and high stream changes. Other threats described in the paragraph above as well as pinniped predation continue.

The life-history pattern of steelhead in the UCR DPS is complex. Adults return to the Columbia River in the late summer and early fall. Unlike some species of salmon, most steelhead do not move upstream quickly to tributary spawning streams. A portion of the returning run overwinters in the mainstem Columbia River reservoirs, passing into tributaries to spawn in April and May of the following year. Spawning occurs in the late spring of the year following entry into the Columbia River. Juvenile steelhead generally spend 1 to 3 years rearing in freshwater before migrating to the ocean but have been documented spending as many as 7 years in freshwater before migrating. Most adult steelhead return to the Upper Columbia after 1 or 2 years at sea.

This DPS is comprised of a single major population group (MPG) – the North Cascades MPG. The MPG includes four populations of UCR steelhead: the Wenatchee, Entiat, Methow, and Okanogan. Spatial structure is rated at low risk for the Wenatchee and Methow populations, moderate risk for the Entiat population, and high risk for the Okanogan population (Ford 2022). All populations have a high diversity risk rating, largely driven by high levels of hatchery spawners within natural spawning areas and lack of genetic diversity. The integrated spatial structure/diversity risk rating for all populations is characterized as high.

The 2015-2019 five-year geometric mean estimates of natural origin spawner abundance have declined dramatically (ranging from 28 to 63 percent reductions), erasing gains observed over the past two decades for all four populations (Ford 2022). These recent declines are persistent and large enough to result in small, but negative, 15year trends in abundance for all four populations. Annual brood-year recruits per spawner estimates have been well below replacement in recent years for all four populations. All populations are consistently exhibiting natural production rates well below replacement, and natural production has also declined consistently, resulting in an increasing fraction of hatchery fish on the spawning grounds each year. For these reasons, the integrated abundance/productivity metric for all populations remains at high risk.

The ICTRT (2007) recommended that three populations meet viability criteria, two of which meet high viability criteria for the DPS to be viable; the rationale behind this recommendation is because of the relatively low number of extant populations remaining in the DPS. The final recovery plan (UCSRB 2007) adopted by NMFS established a recovery goal of securing long-term persistence of viable populations of naturally produced steelhead distributed across their native range. The UCSRB identified five recovery criteria that address the viable salmonid population (VSP) metrics of abundance, productivity, spatial structure, and diversity. For recovery, the UCSRB recommended that all steelhead populations within the DPS, except the functionally extirpated Crab Creek population, meet abundance/productivity criteria that represent a 5 percent extinction risk over a 100-year period. In addition, the UCSRB recommended that naturally produced steelhead utilize four of the five major spawning areas in the Wenatchee subbasin, two major spawning areas within the Entiat subbasin, three major spawning areas in the Methow subbasin, and two of the major and minor spawning areas in the Okanogan subbasin. NMFS adopted the UCSRB recommendations as the recovery scenario. To achieve these criteria, significant improvements in all four VSP parameters is needed.

Many restoration and protection actions have been implemented in freshwater tributary habitat since 2015, but those actions do not change overall trends in habitat quality, quantity, and function. Habitat conditions throughout the range of the UCR steelhead DPS continue to limit recovery of the species, particularly with regard to water quality, water quantity, riparian condition, and floodplain function. The greatest opportunities to advance recovery of the species over the next five years include: (1) prioritizing actions that improve habitat resilience to climate change; (2) reconnecting stream channels with floodplains; (3) implementing restoration actions at watershed scales; and (4) reducing pinniped predation on adults returning to the lower Columbia River (NMFS 2022).

Crozier et al. (2019) concluded that UCR steelhead have a high risk of overall climate vulnerability based on their high risk for biological sensitivity, high risk for climate exposure, and moderate capacity to adapt. Adult UCR steelhead are vulnerable to high stream temperatures during freshwater migration and spawning. However, the impact of climate change specifically on marine survival is uncertain. Risk during early life history is low because of the high elevation and relatively stable flows that influence the egg stage. However, the risk is high for the juvenile freshwater rearing stage because of the year-around reliance on freshwater habitat and sensitivity to changes in summer flows and stream temperatures. UCR steelhead may have some latitude to shift timing of adult migrations to avoid peak late summer temperatures (Robards and Quinn 2002), but the consequences of such timing shifts are not known. In each river population, individuals occupying the mid-to-lower reaches are subject to annual high stream temperatures and summer water deficits, and there are limited opportunities to shift juvenile rearing patterns. Anadromous *O. mykiss* may have some opportunities to expand summer rearing and

overwintering to habitat areas upstream, but the amount of suitable habitat is limited compared to the potential loss of habitat in downstream reaches.

Upper Columbia River Spring-run Chinook Salmon

The following description is taken, verbatim, from NMFS' *Status of the Species Upper Columbia Spring-run Chinook Salmon February 2023* (NMFS 2023b).

The UCR spring-run Chinook salmon evolutionarily significant unit (ESU) was listed as an endangered species on March 24, 1999 (64 FR 14308). On August 16, 2022, in the agency's 5-year review for UCR spring-run Chinook salmon, NMFS concluded that the species should remain listed as endangered (NMFS 2022).

The ESU includes all naturally-spawned spring-run populations of Chinook salmon in all river reaches accessible to Chinook salmon in Columbia River tributaries upstream of Rock Island Dam and downstream of Chief Joseph Dam, excluding the Okanogan River subbasin (64 FR 14208). The Okanogan population is considered extinct; however, NOAA designated a "nonessential experimental population" of spring-run Chinook salmon in the Okanogan River subbasin under section 10(j) of the ESA in 2014 (79 FR 20802). The spring-run Chinook salmon that are designated as part of an experimental population are not included as part of the ESU. Seven artificial propagation programs are included in this ESU: The Twisp River Program, Chief Joseph spring Chinook Hatchery Program (Okanogan release), Methow Program, Winthrop National Fish Hatchery Program, Chiwawa River Program, White River Program, and the Nason Creek Program (85 FR 81822).

Factors contributing to the decline of UCR spring-run Chinook salmon included the intensive commercial fisheries in the lower Columbia River. These fisheries began in the latter half of the 1800s, continued into the 1900s, and nearly eliminated many salmon and steelhead stocks. With time, the construction of dams and diversions, some without passage, blocked or impeded salmon and steelhead migrations. Early hatcheries, operated to mitigate the impacts of dams on fish passage and spawning and rearing habitat, employed practices such as transferring fish among basins without regard to their origin. While these practices increased the abundance of stocks, they also decreased the diversity and productivity of populations they intended to supplement. Concurrent with these activities, human population growth within the basin was increasing and land uses were adversely affecting salmon spawning and rearing habitat. In addition, non-native species were introduced by both public and private interests that directly or indirectly affected salmon (UCSRB 2007).

Conservation partners have implemented many tributary habitat restoration projects across the ESU, improving habitat conditions for salmon spawning, rearing, and migration in many reaches. However, widespread areas of degraded habitat persist across the basin, with simplified stream channels, disconnected floodplains, impaired instream flow, loss of cold water refugia, and other limiting factors (NMFS 2022). An emerging risk is climate change and the consequent threat to the juvenile rearing stage vulnerable to low stream flow and high stream changes. Other threats described in the paragraph above as well as pinniped predation continue.

Adult UCR spring-run Chinook salmon begin returning from the ocean in April and May, with the run into the Columbia River peaking in mid-May. They enter the upper Columbia River tributaries from April through July. After migration, they hold in freshwater tributaries until spawning occurs in the late summer, peaking in mid-to-late August. Juvenile spring Chinook salmon spend a year in freshwater before migrating

to saltwater in the spring of their second year of life. Most UCR spring-run Chinook salmon return as adults after 2 or 3 years in the ocean. Some precocious males, or jacks, return after one winter at sea. A few other males mature sexually in freshwater without migrating to the sea. The run, however, is dominated by 4 and 5-year-old fish that have spent 2 and 3 years at sea, respectively. Fecundity ranges from 4,200 to 5,900 eggs, depending on the age and size of the female (UCSRB 2007).

There is a single major population group (MPG), the North Cascades MPG, in this ESU. It is composed of three populations including the Wenatchee, Entiat, and Methow. The spatial structure risk is low for the Methow and Wenatchee River populations. It is moderate for the Entiat population due to the loss of production in the lower section which increases effective distance to other populations (Ford 2022). Large-scale supplementation efforts in the Methow and Wenatchee Rivers are ongoing, intended to counter short-term demographic risks given current survival levels. Supplementation in the Entiat ceased in 2007. All three populations are rated high risk for diversity, driven primarily by the high proportions of hatchery-origin spawners in natural spawning areas and lack of genetic diversity among natural-origin spawners (Ford 2022).

All three populations in the UCR spring-run Chinook salmon ESU remain at high overall risk for the integrated abundance and productivity metric (NMFS 2022). Productivity remains well below thresholds established in the recovery plan for each population (Ford 2022). Natural origin abundance has decreased over the levels reported in the 2016 5-year review for all populations in this ESU, in many cases sharply. The abundance data for the entire ESU show a downward trend over the last 5 years, with the 2015-2019 5-year abundance levels for all three populations declining by an average of 48 percent. Longer-term (15-year) trends are also negative for all populations, although the 95 percent confidence intervals include 0 (Ford 2022). Between 2010 and 2021, there have been substantial year-to-year variations in wild adult escapement at Rock Island Dam ranging from a low of 704 in 2019 to a high of 3,256 in 2015 (Ford 2022). Relatively low ocean survival in recent years was a major factor in recent abundance patterns.

Although the consistent and recent sharp decline of population abundances is concerning, each population remains well above the abundance levels of when they were listed. All three populations remain at high risk.

New information available since the last 5-year review indicates that many restoration and protection actions have been implemented in freshwater tributary habitat, but those actions do not change overall trends in habitat quality, quantity, and function at this time (NMFS 2022). We remain concerned with habitat conditions throughout the range of the UCR steelhead DPS and UCR spring-run Chinook salmon ESU, particularly with regard to water quality, water quantity, riparian condition, and floodplain function.

The Interior Columbia Basin Technical Recovery Team (ICTRT; 2007) recommended that three populations meet viability criteria, two of which must meet high viability criteria for the ESU to be viable. The final Upper Columbia Salmon Recovery Board (UCSRB) 2007 recovery plan adopted by NMFS established a recovery goal of securing long-term persistence of viable populations of naturally produced spring Chinook salmon distributed across their native range. The UCSRB identified five recovery criteria that address the viable salmonid population (VSP) metrics of abundance, productivity, spatial structure, and diversity. For recovery, the UCSRB recommended that all spring-run Chinook salmon populations within the ESU meet abundance/productivity criteria that represent a five percent extinction risk over a 100-year period. In addition, the UCSRB recommended that naturally produced spring Chinook utilize four of the five major spawning areas in the Wenatchee subbasin, one major spawning area within the Entiat

subbasin, and within the Twisp, Chewuch, and Upper Methow major spawning areas in the Methow subbasin. NMFS adopted the UCSRB recommendations as the recovery scenario.

Many restoration and protection actions have been implemented in freshwater tributary habitat since 2015, but those actions do not change overall trends in habitat quality, quantity, and function. Habitat conditions throughout the range of the UCR spring-run Chinook salmon ESU continue to limit recovery of the species, particularly with regard to water quality, water quantity, riparian condition, and floodplain function. The greatest opportunities to advance recovery of the species over the next five years include; (1) prioritizing actions that improve habitat resilience to climate change; (2) reconnecting stream channels with floodplains; (3) implementing restoration actions at watershed scales; and (4) reducing pinniped predation on adults returning to the lower Columbia River (NMFS 2022).

Crozier et al. (2019) concluded that UCR spring-run Chinook salmon have a high risk of overall climate vulnerability based on their high risk for biological sensitivity, high risk for climate exposure, and moderate capacity to adapt. However, the impact of climate change specifically on marine survival is uncertain. The estuary stage sensitivity is low because of their rapid migration from fresh water to the early marine stage (Crozier et al. 2019). Risk during early life history is low because of the high elevation and relatively stable flows that influence the egg stage in spring time. The juvenile freshwater rearing stage is high risk because of the year-around reliance on freshwater habitat and sensitivity to changes in summer flows and stream temperatures. UCR Chinook salmon may have sufficient adaptive capacity to shorten the juvenile freshwater residence period, but the consequences of such a shift for population viability are unknown, and adult spring-run Chinook salmon are also unlikely to shift migration timing substantially.

Monarch Butterfly

The monarch butterfly is a candidate species that is under consideration for official listing under the ESA. Adult monarch butterflies are large, highly visible insects with bright orange wings surrounded by a black border with black veins. The black border on the upper side of its wings is lined with a double row of white spots. The bright coloring of the monarch is aposematic and serves as a warning to predators that eating them can be toxic (USFWS 2020b). In many regions, monarchs breed year-round. Milkweed (*Asclepias* spp.) is an obligate plant species in the monarch butterfly's lifecycle. Breeding monarchs lay their eggs in milkweed plants and larvae emerge between two to five days later. After larvae have emerged, they will feed on milkweed as they develop into a chrysalis. Nectar and milkweed resources for monarch butterflies are often associated with riparian corridors. Monarchs in western North America migrate long distances to their overwintering site and can live up to nine months (USFWS 2023g). In Washington, monarchs migrate to California. Roosting trees can also be important along migration routes.

Native site vegetation and plant communities, including milkweed if identified, would be protected wherever practicable.

Critical Habitat

Critical habitat for bull trout was designated in 2010 (75 FR 63898) and includes the Columbia River in the Action Area. Critical habitat physical biological features (PBFs) for bull trout (50 CFR 17) include the following:

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 that establish and maintain these aquatic environments, with features such as large wood, side channels, pools, undercut banks, and unembedded substrates, to provide a variety of depths, gradients, velocities, and structure.
5. Water temperatures ranging from 36 to 59 °F (2 to 15 °C), with adequate thermal refugia available for temperatures at the upper end of this range. Specific temperatures within this range will vary depending on bull trout life history stage and form; geography; elevation; diurnal and seasonal variation; shade, such as that provided by riparian habitat; streamflow; and local groundwater influence.
6. In spawning and rearing areas, substrate 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. A minimal amount of fine sediment, generally ranging in size from silt to coarse sand, embedded in larger substrates, is characteristic of these conditions. The size and amounts of fine sediment suitable for bull trout will likely vary from system to system. (This PBF not present in Columbia River part of Action Area.)
7. A natural hydrograph, including peak, high, low, and base flows within historic and seasonal ranges or, if flows are controlled, they minimize departures from a natural hydrograph.
8. Sufficient water quality and quantity such that normal reproduction, growth, and survival are not inhibited.
9. Sufficiently low levels of occurrence of nonnative predatory (e.g., lake trout, walleye, northern pike, smallmouth bass), interbreeding (e.g., brook trout), or competing (e.g., brown trout) species that, if present, are adequately temporarily and spatially isolated from bull trout.

Habitat characteristics in the Action Area of the Columbia River include features and bull trout uses most consistent with the following PBF: (2) Migratory Habitats and (3) abundant food base.

Critical habitat for UCR steelhead was designated in 2005 (70 FR 52629) and includes the Columbia River in the Action Area. Critical habitat PBFs for steelhead (70 FR 52630) include the following:

1. Freshwater spawning sites with water quantity and quality conditions and substrate supporting spawning, incubation, and larval development.
2. Freshwater rearing sites with: (i) water quantity and floodplain connectivity to form and maintain physical habitat conditions and support juvenile growth and mobility; (ii) water quality and forage supporting juvenile development; (iii) natural cover such as shade, submerged and overhanging large wood, log jams and beaver dams, aquatic vegetation, large rocks and boulders, side channels, and undercut banks.
3. Freshwater migration corridors free of obstruction and excessive predation 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.

4. Estuarine areas free of obstruction and excessive predation with: (i) water quality, water quantity, and salinity conditions supporting juvenile and adult physiological transitions between freshwater and saltwater; (ii) natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, side channels; and (iii) juvenile and adult forage, including aquatic invertebrates and fishes, supporting growth and maturation.
5. Nearshore marine areas free of obstruction and excessive predation with: (i) water quality and quantity conditions and forage, including aquatic invertebrates and fishes, supporting growth and maturation; and (ii) natural cover such as submerged and overhanging large wood, aquatic vegetation, large rocks and boulders, and side channels.
6. Offshore marine areas with water quality conditions and forage, including aquatic invertebrates and fishes, supporting growth and maturation.

Habitat characteristics in the Action Area of the Columbia River include features and steelhead uses consistent with the following PBF: (3) Freshwater migration corridors. Though WDFW identifies the area as rearing habitat for steelhead, the Freshwater Rearing PBF is limited in the Action Area by low habitat complexity. Some shoreline rearing use may occur downstream of the WWTP location.

EFH for Chinook salmon is described in 50 CFR 660.412, and includes the following:

> Chinook salmon EFH includes all water bodies currently or historically occupied by PFMC-managed Chinook salmon in Washington, Oregon, Idaho, and California as identified in Table 1 of this subpart. Chinook salmon EFH also includes the estuarine and marine areas extending from the extreme high tide line in nearshore and tidal submerged environments within state territorial waters out to the full extent of the exclusive economic zone (EEZ) (200 nautical miles) offshore of Washington, Oregon, and California north of Point Conception; and the marine areas of Alaska that are designated as Chinook salmon EFH by the North Pacific Fishery Management Council (NPFMC), for stocks that are also managed by the PFMC.

The Action Area includes areas of the Columbia River for Chinook salmon that match Table 1 in Subpart H of Part 660. As such, critical habitat (i.e., EFH) for Chinook salmon occurs in the Action Area.

6. Effects of Action

Effect analyses were developed for gray wolf, Canada lynx, North American wolverine, yellow-billed cuckoo, bull trout, UCR steelhead, and UCR spring-run Chinook salmon. Analyses are determined with the assumption that all Proposed Project BMPs will be implemented and adhered to throughout the duration of the Proposed Project. Effects analyses for ESA species are detailed in the following sections.

Species Excluded from Further Evaluation

The monarch butterfly is a candidate species, and as such no formal consultation is necessary under the ESA and none is requested for the species in this analysis. Therefore, no effects analysis and determination are presented for the monarch butterfly in this BA.

No Effect Determinations

Gray Wolf

The Action Area is predominantly located in disturbed land and urban environment; it occurs in and near roadways and agricultural development. One area occurs in undeveloped land, but this area is situated between two roadways. Land use and human presence is inconducive to gray wolf habitat. Given the lack of habitat in the Action Area, it is anticipated that the Proposed Project would have no effect on gray wolf, nor its habitat.

Canada Lynx

The Canada lynx occurs primarily at elevations much higher than the Action Area, which reaches only 933 feet AMSL. Although the Action Area receives snow and is situated in a remote city, the low elevation and proximity to roadways, urban development, and agricultural land are unsuitable for Canada lynx. No potential habitat (foraging or denning) for the species occurs in the Action Area. Given the lack of habitat, low elevation, and the proximity of the Proposed Project to occur near roadways and the WWTP, it is expected that the Proposed Project would have no effect on the Canada lynx, nor its habitat.

North American Wolverine

The North American wolverine occurs primarily at elevations much higher than the Action Area. Although the Action Area receives snow and is situated in a remote city, the low elevation and proximity to roadways, urban development, and agricultural land are unsuitable for North American wolverine. No potential habitat (foraging or denning) for the species occurs in the Action Area. Given the lack of habitat, low elevation, and the proximity of the Proposed Project to occur near roadways and the WWTP, it is expected that that the Proposed Project would have no effect on the North American wolverine, nor its habitat.

Yellow-billed Cuckoo

Limited riparian habitat occurs within the Action Area. A narrow riparian corridor of poor quality habitat, consisting of small shrubs and a few trees, occurs along the banks of the Columbia River along the north facing portion of the WWTP and wraps around along the south portion of Ansel Avenue W, which is adjacent to the Columbia River. This riparian area is approximately 1,600 feet long, varies in width between 5-50 feet, and encompasses less than one acre before terminating at the Highway 173 bridge.

The nearest area with abundant riparian vegetation potentially suitable for yellow-billed cuckoo is 3.0 miles east of the Action Area at Cassimer Bar on the Columbia River. Because riparian habitat near the Action Area is relatively narrow and occupies a small area, it is not suitable for yellow-billed cuckoo breeding and nesting habitat. The Proposed Project will have no effect to yellow-billed cuckoo, nor its habitat.

Effect Determinations (Bull Trout, Steelhead, and Chinook Salmon)

Critical habitat includes PBFs, habitat components essential for the primary biological needs of foraging, reproducing, rearing of young, dispersal, genetic exchange, or sheltering (50 CFR 17). Although no changes to effluent are part of the Proposed Project, water quality is the PBF that is currently and will continue to be affected by the effluent discharge from the City's WWTP through an outfall to the Columbia River. Bull trout, UCR steelhead, and UCR spring-run Chinook salmon will also continue to be affected by the effluent

discharge from the WWTP's outfall. It should be noted that the removal of the two overflows represents a minor beneficial impact to water quality and habitat within the Columbia River. Although these overflows are not known to have been used, elimination of the overflows would reduce the potential for additional flow/impacts to the river.

While the existing/future discharges of treated effluent from Brewster's WWTP must comply with NPDES permit requirements, including meeting water quality standards, the treatment processes are not 100% effective at removing contaminants. Regulated and un-regulated pollutants typically present in municipal wastewater discharges have been shown to have adverse effects on fish and water quality conditions in their habitats. NMFS has summarized the effects of contaminants typically found in municipal wastewater discharges in several recent Biological Opinions, including for treatment plant and outfall projects in Vader and Vancouver, Washington, and Brookings, Oregon (NMFS 2020a, 2020b, and 2020c). These Biological Opinions have included considerations of emerging contaminants of concern, including pharmaceuticals and personal care products (PPCPs). Relevant sections from those documents are incorporated into the following discussions of effects on critical habitat and species, where appropriate.

Short-Term Reduced Water Quality

No work will be conducted below the banks of the Columbia River. However, upland construction activities will occur adjacent to the river, which presents the potential for releases of hazardous materials, such as fuel, motor oil, and hydraulic fluid. These products can kill or injure fish if released directly to a stream. The potential for releases of pollutants to the Columbia River will be minimized and managed through BMPs, including equipment access/staging restrictions and requirements for the contractor to monitor and maintain equipment and be ready to respond to any product releases. Spill response materials including floating containment booms will be required to be available on-site at all times during construction. Vegetated areas temporarily disturbed by construction will be rehabilitated (i.e., revegetated) post construction. Native plants suitable to the site will be used.

Stormwater: The WWTP site improvements will include addition of new impervious surface in the form of a new grit chamber and classifier building in the WWTP area. Stormwater generated from this new impervious surface will be managed at the site, collected in the wastewater treatment system, and discharged from the WWTP through the Columbia River outfall. Water quality and quantity impacts from the small amount of added impervious surfaces, which are in low traffic areas with low potential for pollutant generation, will be insignificant for Columbia River water quality and hydrology and fish uses because it will be treated and makes up a small amount.

Long-term Habitat Exposure to Reduced Water Quality

The NPDES permit for the Brewster WWTP establishes effluent limits for BOD (5-day), TSS, and pH. Compliance with effluent limits is determined through monitoring and regularly documented through submittals of discharge monitoring reports to WDOE. The NPDES permit does not have effluent limits for nutrients, metals, or other toxics, though some are present at low but detectable levels in effluent as shown in the NPDES permit renewal application (WDOE 2020).

Municipal effluent typically contains many unregulated chemical contaminants derived from products that are disposed of via municipal sewer systems. As described in recent NMFS Biological Opinions (NMFS 2020a, 2020b, 2020c), municipal effluents have been identified as sources of endocrine disrupting chemicals (EDCs), pharmaceuticals and personal care products (PPCPs; products used by individuals for

personal, health, or cosmetic reasons), persistent, bioaccumulative and toxic chemicals (PBTs), metals including dissolved copper, and other compounds of anthropogenic origin in surface waters of the United States, and Europe (Valder et al, 2014; Gerbersdorf et al, 2015; Lazorchak et al, 2014; Luo et al, 2014). PPCPs are an emerging environmental and human health issue and have been identified as constituents discharged into receiving waterbodies in a recent survey of effluent from five municipal wastewater treatment plants (Lubliner et al. 2010). As reported by NMFS (2020a), PPCPs are present at low concentrations in surface water, groundwater, soils, sediments, marine waters, and drinking water often in the part per trillion range. PPCPs enter the environment as they pass-through the human body or when unwanted PPCPs are disposed of down the drain and have been found virtually everywhere domestic wastewater is discharged. Other significant sources include livestock, aquaculture, pets, and agriculture. PPCPs have not been monitored in the Brewster WWTP effluent.

In addition to PPCPs, municipal effluents frequently contain fragrances or musks, which are ubiquitous ingredients in perfumes, lotions and cosmetics. No current regulatory requirements for testing these emerging chemicals are in place, and no water quality standards or other recognized benchmarks are available; however, research has shown them to be frequently detected in rivers, lakes and streams, and various effects concentrations have been identified in the scientific literature (NMFS 2020a, 2020b).

While there is not monitoring data from the Brewster WWTP effluent on these emerging contaminants of concern, reviews of similar treatment methods found in Lubliner et al (2010) for municipal wastewater indicate the removal of metals, PBTs, PPCPs, EDCs and other contaminants discussed above is significant at the Brewster WWTP based on similar treatment processes and proportional treatment to the population (NMFS 2020a). The study (Lubliner et al 2010) evaluated efficacy of biological nutrient removal in reducing the loading and concentration of PPCPs conducted in 2010 that included the Puyallup WWTP and surrogate data from similar size WWTPs in the Puget Sound region (NMFS 2020a). The EPA used this study to predict PPCP concentrations discharged from the facility, as these chemicals are not monitored. Lubliner (2010) also revealed that the hormones and phthalates were removed to nearly undetectable levels from the Puyallup WWTP effluent (NMFS 2020a). Reproductive hormones including 17a-estradiol, ethinyl estradiol, and estradiol were all removed at 85 to 95 percent of their influent concentrations, which resulted in effluent concentrations less than 2 parts per trillion (NMFS 2020a)

Despite the reductions of pollutant loads from treatment processes, and the reduction in concentrations due to dilution in the Columbia River, the current and future discharge of municipal wastewater effluent will continue to have negative effects on water quality in the Columbia River and will, therefore, continue to have negative effects on bull trout, UCR steelhead critical habitat, and UCR spring-run Chinook salmon critical habitat. The effects of water quality degradation from the discharge will be highest in the mixing zone, but low-level effects may persist outside of the mixing zone.

Exposure and Response to Long-Term Water Quality Effects

Listed bull trout, UCR steelhead, and UCR spring-run Chinook salmon will potentially be exposed to effluent contaminants from the Brewster WWTP discharge. Exposure potential is expected for both juvenile (steelhead) and adult life stages (steelhead, Chinook salmon, and bull trout). Because the river in the Action Area is primarily a migratory corridor, and the outfall is located approximately 500 feet offshore in relatively deep water (45 feet below the water surface), exposure to individuals is expected to occur for brief periods (generally minutes to hours) for both outmigrating juveniles and upstream-migrating adults (particularly within the relatively small mixing zone, where contaminant concentrations would be

highest). Outside of the mixing zone, contaminant concentrations are expected to be lower due to dilution. Low-level contaminants from the effluent are expected to be indistinguishable from other sources within six miles downstream of the discharge, where the Methow River meets the Columbia River.

As described in previous NMFS Biological Opinions (NMFS 2020a, 2020c), there is evidence that fish inhabiting waters that receive effluent from municipal WWTPs are exposed to chemicals that affect reproductive endocrine function. Male fish downstream of some WWTP outfalls produce vitellogenin (egg yolk precursor protein) mRNA (messenger ribonucleic acid, which carries information from DNA in the nucleus to the ribosome sites of protein synthesis in the cell), and protein associated with oocyte (an immature ovum or egg cell) maturation in females, and early-stage eggs in their testes (Jobling et al. 1998).

This feminization has been linked to the presence of estrogenic substances such as natural estrogen, 17 beta-estradiol (E2) and synthetic estrogen, 17 alpha-ethenylestradiol (EE2) (NMFS 2020a, 2020b, 2020c). These substances are usually found in the aquatic environment at low parts per trillion concentrations, typically less than 5 nanograms (ng)/L (Zhou et al. 2007). Synthetic estrogen is used in birth control pills (EE2) and is one of the more potent estrogens and has been linked to the feminization of male fishes in rivers receiving municipal wastewater (Thorpe et al. 2003). Laboratory studies have shown decreased reproductive success of fish exposed to less than 1-5 ng/L of EE2 (Parrott & Blunt 2005).

Kidd et al., (2007) showed that chronic exposure of fathead minnows (*Pimephales promelas*) to low concentration (5-6 ng/L) of EE2 led to feminization of males through the production of vitellogenin mRNA and protein, impacts on gonadal development as evidenced by intersex in males and altered oogenesis (egg cell production) in females (NMFS 2020a, 2020b, 2020c). This exposure ultimately caused a near extinction of this fish species from the lake where they were being studied. This outcome demonstrated that the concentrations of estrogens and their mimics observed in freshwaters can impact the sustainability of wild fish populations (NMFS 2020a, 2020b, 2020c).

In studies conducted by Kidd et al. (2007) and Parrott and Blunt (2005), fish were exposed to either greater concentrations of EE2 or longer exposure periods than what would be expected for a juvenile salmonid to be exposed to. Parrot and Blunt (2005) observed an increase in the ovipositor index (a female secondary sex characteristic) as the most sensitive early response 60 dph (days post hatch) when fish were exposed to EE2 concentrations greater than or equal to 3.5 ng/L in a laboratory setting (NMFS 2020a, 2020b). However, no significant changes were seen in fish exposed for up to day 30. Kidd et al., (2007) observed elevated vitellogenin seven weeks after the first estrogen additions to the experimental lake began in 2001.

NMFS reviews of the data collected by Lubliner et al., (2010) revealed that the hormones and phthalates were removed to nearly undetectable levels from the Puyallup WWTP effluent. Reproductive hormones including 17 alpha-estradiol, ethinyl estradiol, and estradiol were all removed at 85 to 95 percent of their influent concentrations, resulting in concentrations of less than 2 parts per trillion (2 ng/L). The removal efficiency of these hormones is significant as these compounds are highly biologically active at low concentrations, as discussed above, and often responsible for much of the endocrine activity in fish exposed to municipal effluents (NMFS 2020a).

Cleuvers (2004) demonstrated that some pharmaceuticals, including NSAIDs diclofenac, ibuprofen, naproxen and acetylsalicylic acid, follow the concept of “concentration addition,” meaning that these substances applied at less than their individual “no observable effect levels” (NOECs), can contribute to a

toxic mixture (NMFS 2020a, 2020b). Of the NSAIDs investigated by Cleuvers (2004), naproxen and ibuprofen were detected in WWTP effluent, and their combined predicted surface water concentration was 9.2 ng/L. This concentration is well below levels shown to cause effect even when combined with other NSAIDs (NMFS 2020a, 2020b).

*Table 4. Concentrations (mg/L-1) of the tested drugs at their effective concentrations (EC) applied in the mixture in the acute Daphnia survival test in comparison to the individual NOECs of the single compounds**

Substance	$EC_5/4$ (mgL^{-1})	$EC_{10}/4$	$EC_{20}/4$	$EC_{50}/4$	$EC_{80}/4$	NOEC
Diclofenac	2.5	3.8	6.4	17.0	45.3	45
Ibuprofen	14.6	16.5	19.1	25.3	33.5	75
Naproxen	6.6	9.9	16.2	41.6	106.7	32
ASA (Salicylate, aspirin)	9.5	11.5	14.4	22.0	33.8	75

*For assessing mixture toxicity, a quarter of the calculated effect concentrations (EC5/4, EC10/4, EC20/4, EC50/4, and EC80/4) of each substane was used. (Source: Cleuvers 2004) (NMFS 2020b)

While bull trout, UCR steelhead trout, and UCR spring-run Chinook salmon will be temporarily exposed to PPCP's in Brewster's WWTP effluent, the PPCP concentrations are expected to be below those known to cause severe endocrine related effects and other effects from PPCPs discussed above. However, the chronic exposure to these contaminants, combined with other potential contaminants in the river, is expected to result in reduced reproductive fitness and potentially contribute to overall reduced fitness. It should be noted that bull trout are likely seasonal in the area (personal communication, e-mail, with Jeff Krupka at USFWS) and, as such, would have less exposure than steelhead and Chinook salmon.

It should be reiterated here that removal of the two overflows provides a small beneficial impact by reducing the potential for additional flow/impacts to the Columbia River. Furthermore, replacing the WWTP facility components to be more effective, and adding a new grit removal system has the potential to improve water quality of effluent that is discharged into the river, though the potential improvement cannot be quantified. This reduction in pollutants to the river would improve water quality and habitat for bull trout, UCR steelhead, and UCR spring-run Chinook salmon. Overall, the Proposed Project may affect, and is likely to adversely affect (MALAA) UCR steelhead and may affect, but not likely to adversely affect (MANLAA) bull trout. Because UCR spring-run Chinook salmon is not a listed species, no effect determination is made for the species.

Migratory Bird Treaty Act & Bald and Golden Eagle Protection Act

The USFWS Official Species List (IPaC) did not include any birds that would be covered under the protected under the Migratory Bird Treaty Act (MBTA) and/or Bald and Golden Eagle Protection Act (BGEPA). No raptor or migratory bird nests (active or inactive) were observed during field surveys; however, songbirds were observed flying in and near the Action Area. Migratory birds could potentially occur in the general vicinity of the Action Area, particularly along undeveloped areas, in ornamental trees on residential properties, and in the patches of riparian habitat along Swamp Creek. Limited nesting habitat for bald or golden eagle occurs in the Action Area; however, bald eagles are known to occur in the area along the river. To mitigate potential impacts to nesting birds, the Proposed Project would be timed, if feasible, to avoid the active breeding season for migratory birds (typically April 1–August 31) and bald and golden eagles (January 1-August 31). If construction cannot be scheduled outside of the breeding season, then surveys for active nests would be completed prior to the commencement of construction. If a nest is

identified in the Action Area, a WDFW biologist and/or USFWS would be contacted immediately to determine the appropriate course of action.

Critical Habitat

Critical habitat includes PBFs, habitat components essential for the primary biological needs of foraging, reproducing, rearing of young, dispersal, genetic exchange, or sheltering (50 CFR 17). Although no changes to effluent are part of the Proposed Project, water quality is the PBF that is currently and will continue to be affected by the effluent discharge from the City's WWTP through an outfall to the Columbia River.

Critical habitat for bull trout, UCR steelhead, and UCR spring-run Chinook salmon occur in the Action Area within the Columbia River. The effect determinations analysis for bull trout, UCR steelhead, and UCR spring-run Chinook salmon above cover most of the analysis and minimization measures for an impact analysis of critical habitat. BMPs and conservation measures discussed above propose to avoid, minimize, or otherwise offset potential adverse effects on designated critical habitat that could result from the Proposed Project. The effects of the Proposed Project on critical habitat are similar to those described in the ESA portion of this document for bull trout, UCR steelhead, and UCR spring-run Chinook salmon. Critical habitat in the Action Area would not be reduced and no new negative impacts would occur. However, because the WWTP will continue to discharge a relatively small volume through the outfall that is in the Columbia River and the Proposed Project would have a small, beneficial impact on water quality, the Proposed Project may affect, is likely to adversely affect (MALAA) critical habitat for bull trout, UCR steelhead, and UCR spring-run Chinook salmon.

Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), requires federal agencies to consult with NOAA Fisheries on activities that may adversely affect EFH. EFH is defined in the MSA as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.

The Action Area occurs within EFH for Pacific salmonids. The effect determinations analysis for steelhead and bull trout above cover most of the analysis and minimization measures for an impact analysis of EFH. BMPs and conservation measures discussed above propose to avoid, minimize, or otherwise offset potential adverse effects on designated EFH that could result from the Proposed Project. The effects of the Proposed Project on Pacific salmon EFH are similar to those described in the ESA portion of this document. Because the WWTP will continue to discharge through the outfall that is in the Columbia River, the Proposed Project would adversely affect EFH.

Table 5. EFH Determination

Species	Is EFH present in Action Area?	Would Project adversely affect EFH?	Reasoning
Chinook salmon (*Oncorhynchus tshawytscha*)	Yes	Yes	EFH for Chinook salmon and coho salmon occur in the Action Area, which is used as a migration corridor by the species. No impacts are expected to occur to EFH from project construction. However, the
Coho salmon (*Oncorhynchus kisutch*)	Yes	Yes	

			continued discharge of effluent to the Columbia River through the WWTP's outfall and the Proposed Project's small, beneficial impact on water quality would constitute a continued adverse effect to EFH.

7. Determination of Effects

After considering the available scientific information regarding the biological requirements and the status of ESA-listed species considered in this BA, the environmental baseline for the Action Area, and the potential effects of the Proposed Project within the Action Area, the effect determination for gray wolf, Canada lynx, North American wolverine, and yellow-billed cuckoo is **No Effect.** The Proposed Project would provide a small beneficial impact by reducing the potential for additional flow/impacts to the Columbia River through the elimination of two overflows. This reduction in pollutants to the river would improve water quality and habitat for bull trout, UCR steelhead, and UCR spring-run Chinook salmon. However, because the Proposed Project would continue to discharge effluent to the Columbia River, thus affecting the water quality of the Columbia River, which also provides critical habitat for bull trout and steelhead, it is recommended that the Proposed Project **May Affect, is Likely to Adversely Affect** steelhead and **May Affect, Not Likely To Adversely Affect** bull trout. The Proposed Project **May Affect, Likely to Adversely Affect** bull trout, steelhead, and Chinook salmon critical habitat because though there will be no modifications or loss of acreage to critical habitat will occur, the habitat's water quality may be affected from the continued relatively small volume of effluent discharge. Likewise, the Proposed Project may adversely affect EFH due to the continued effluent discharge.

Table 6: Federally-listed Species Effects Determination Summary

Common Name	Scientific Name	ESA Status	Effect Determination	Rational if Not Carried Forward for Analysis
Gray wolf	*Canis lupus*	Endangered	No Effect	---
Canada lynx	*Lynx canadensis*	Threatened	No Effect	---
North American wolverine	*Gulo gulo luscus*	Proposed Threatened	No Effect	---
Yellow-billed cuckoo	*Coccyzus americanus*	Threatened	No Effect	---
Bull trout	*Salvelinus confluentus*	Threatened	MANLAA	---
Bull trout critical habitat	*Salvelinus confluentus*	---	MALAA	---

Common Name	Scientific Name	ESA Status	Effect Determination	Rational if Not Carried Forward for Analysis
Upper Columbia River steelhead	*Oncorhynchus mykiss*	Threatened	MALAA	---
Steelhead critical habitat	*Oncorhynchus mykiss*	---	MALAA	---
Upper Columbia River spring-run Chinook salmon	*Oncorhynchus tshawytscha*	---	---	Because UCR spring-run Chinook salmon is not a listed species, no effect determination is made for the species.
Upper Columbia River spring-run Chinook salmon critical habitat	*Oncorhynchus tshawytscha*	---	MALAA	---
Monarch butterfly	*Danaus plexippus*	Candidate	---	Eliminated. Because the monarch butterfly is a candidate species, an effects determination is not provided, and consultation is not requested.
Essential Fish Habitat (EFH)	---	---	Adverse effect	---

It should be noted that the final authority regarding species effect determinations rests with the appropriate regulatory authority.

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Appendix A: USFWS IPaC Official Species List

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington Fish And Wildlife Office
510 Desmond Drive Se, Suite 102
Lacey, WA 98503-1263
Phone: (360) 753-9440 Fax: (360) 753-9405

In Reply Refer To: July 25, 2023
Project Code: 2023-0001972
Project Name: City of Brewster Wastewater System Improvements Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Washington Fish And Wildlife Office
510 Desmond Drive Se, Suite 102
Lacey, WA 98503-1263
(360) 753-9440

PROJECT SUMMARY

Project Code: 2023-0001972
Project Name: City of Brewster Wastewater System Improvements Project
Project Type: Wastewater Facility - Maintenance / Modification
Project Description: The Proposed City of Brewster Wastewater System Improvements Project (Proposed Project) would include improvements to the City of Brewster's (City) wastewater treatment plant (WWTP) and collection system.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@48.089529799999994,-119.7852016030462,14z

Counties: Okanogan County, Washington

ENDANGERED SPECIES ACT SPECIES

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. 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.

MAMMALS

NAME	STATUS
Canada Lynx *Lynx canadensis* Population: Wherever Found in Contiguous U.S. There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3652	Threatened
Gray Wolf *Canis lupus* Population: U.S.A.: All of AL, AR, CA, CO, CT, DE, FL, GA, IA, IN, IL, KS, KY, LA, MA, MD, ME, MI, MO, MS, NC, ND, NE, NH, NJ, NV, NY, OH, OK, PA, RI, SC, SD, TN, TX, VA, VT, WI, and WV; and portions of AZ, NM, OR, UT, and WA. Mexico. There is **final** critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/4488	Endangered
North American Wolverine *Gulo gulo luscus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5123	Proposed Threatened

BIRDS

NAME	STATUS
Yellow-billed Cuckoo *Coccyzus americanus* Population: Western U.S. DPS There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3911	Threatened

FISHES

NAME	STATUS
Bull Trout *Salvelinus confluentus* Population: U.S.A., conterminous, lower 48 states There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8212	Threatened

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

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LEAD AGENCY CONTACT INFORMATION

Lead Agency: Department of Housing and Urban Development

Appendix B: Representative Photographs

Photograph 1: Southeast view of WWTP

Photograph 2: Northwest view of WWTP showing communications tower

Photograph 3: Northeast view of entrance road to WWTP

Photograph 4: Ansel Avenue W, road leading to WWTP entrance road

Photograph 5: North view along Bridge Street over Swamp Creek

Photograph 6: East view of Hospital Way