

Public Utility District No. 1 of Douglas County Application for Low-Impact Hydro Certification



March 8, 2024

Contents

Introduction.....	3
Facility Information.....	8
Standard Matrices for each Zone of Effect (ZoE)	15
Discussion of each Criterion	16
Ecological Flows.....	16
Water Quality Standards.....	19
<i>National Pollutant Discharge Elimination System</i>	20
<i>Total Dissolved Gas Monitoring</i>	20
<i>Gas Bubble Trauma Monitoring</i>	23
<i>Water Quality and Dam Operations</i>	24
Upstream Fish Passage	27
<i>Description of Adult Passage Facilities (from HCP)</i>	28
<i>Upstream Passage: Salmonid Species</i>	29
<i>Upstream Passage: Pacific Lamprey</i>	31
<i>Upstream Passage: White Sturgeon</i>	32
Downstream Fish Passage	33
<i>Adult Downstream Passage</i>	34
<i>Juvenile Downstream Passage</i>	34
Shoreline and Watershed Protection.....	36
<i>Land Use Policy</i>	36
<i>Off-License Settlement</i>	36
<i>Wildlife and Botanical Management Plan</i>	37
Threatened and Endangered Species	40
<i>Steelhead Trout and Spring Chinook Salmon</i>	40
<i>Bull Trout</i>	40
Cultural and Historic Resources.....	43
Recreational Resources	46
<i>Recreation Facilities Maintenance and Improvements</i>	54
References.....	56
Attestation	58
Contacts Forms.....	59
Appendix A: Additional Maps	70

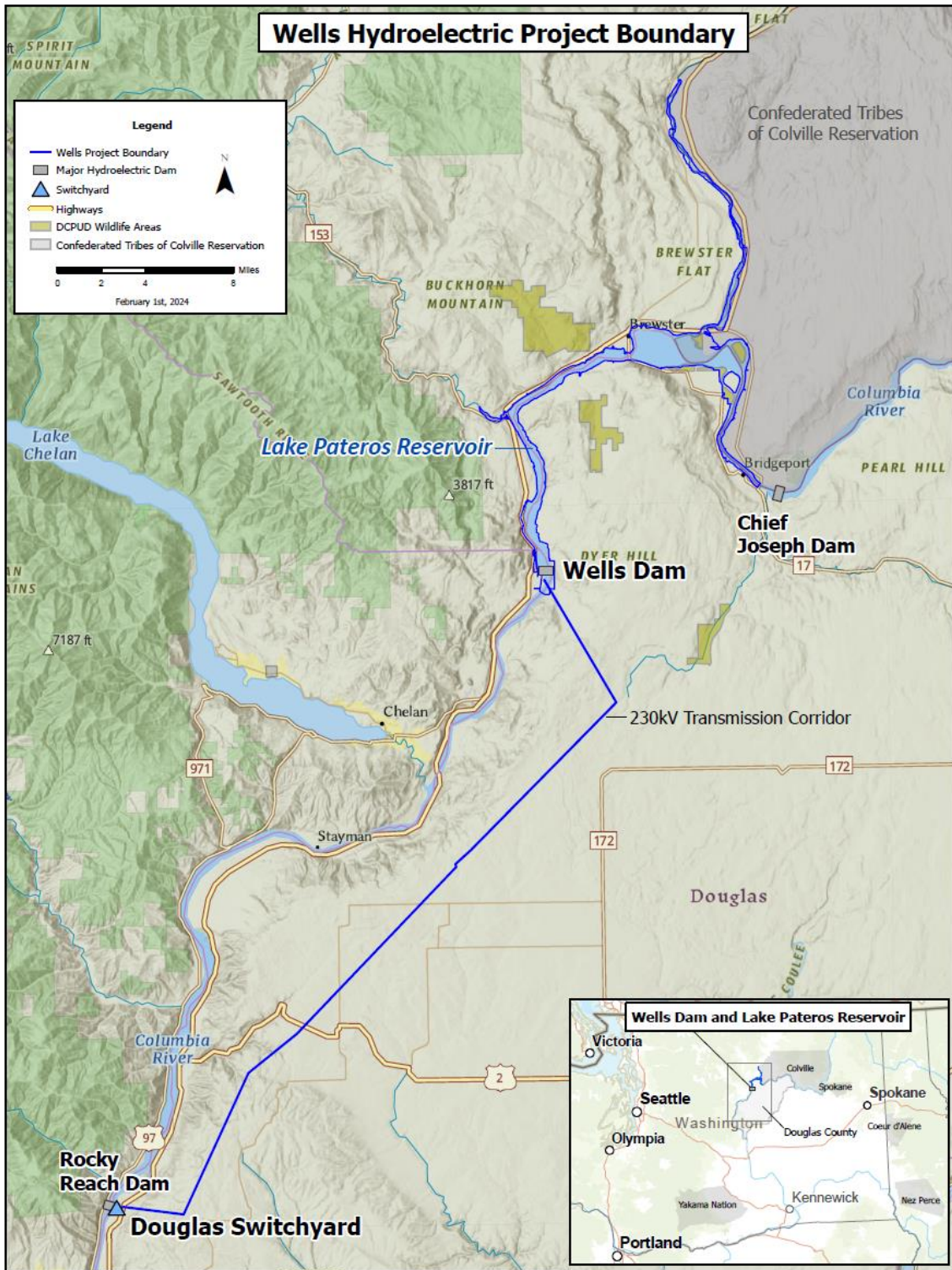
Introduction

Wells Hydroelectric Project (Wells, Wells Project, or the Project) is owned and operated by Public Utility District No. 1 of Douglas County (Douglas PUD). Douglas PUD began operation in 1945 as a locally owned distribution system with its guiding principle to deliver reliable energy at the lowest possible costs. In 1957 construction began on Wells and the first power was generated in 1967. Still today, Douglas PUD is a non-profit publicly owned utility owning Wells, which has become a model for providing clean, efficient, reliable, and renewable hydroelectric power in the northwest.

The Wells Project is located near the city of Pateros, Brewster, and Bridgeport in Chelan, Douglas, and Okanogan Counties, Washington State on the Columbia River at river mile 515.6. The upstream dams are Chief Joseph, operated by United States Army Corps of Engineers (USACE), at river mile 454.1 and Grand Coulee, operated by United States Bureau of Reclamation, at river mile 596.6. The immediate downstream dams are the other Mid-Columbia projects owned and operated by Public Utility District No 1 of Chelan County (Chelan) and Public Utility District No 1 of Grant County (Grant); Rocky Reach Dam (Chelan) at river mile 473.4, Rock Island Dam (Chelan) at river mile 453.4, Wanapum Dam (Grant) at river mile 415.8, and Priest Rapids Dam (Grant) at 397.1. The dams farther downstream are the federal projects, all managed by USACE; McNary Dam at river mile 292, John Day Dam at river mile 215.6, The Dalles Dam at river mile 191.5, and Bonneville Dam at river mile 146.1.



Figure 1. Map of Columbia River with Hydroelectric Projects



DCPUD, Eair, CGIAR, USGS, Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, WA State Parks GIS, Eair, TomTom, Garmin

Figure 2. Wells Project Boundary Location, Zone of Effect 3: Transmission

The Wells Project is a licensed Federal Energy Regulatory Committee (FERC) Project, License No. 2149. The license was reissued on November 4, 2012 and expires on October 27, 2052. The project consists of a dam, reservoir, tailrace, switchyard, transmission line, upstream and downstream fish passage facilities, a fish hatchery, and recreational facilities. Wells Dam is 1,165 feet long, 160 feet high, hydrocombine structure with 10 vertical Kaplan turbines, 11 spillways, upstream and downstream fish passage facilities, and a switch yard. The hydrocombine is a unique design that incorporates the powerhouse, spillways, switchyard, and fish facilities all in one unit instead of separate structures. Six of the generating units have been refurbished and have a nameplate capacity of 89 MW, four are yet to be upgraded and have a nameplate capacity of 77.4. The upgrades are expected to be complete in 2027. Each of the 10 units has a hydraulic discharge range from 13 (minimum load) to 22 kcfs (full hydraulic capacity). Each spillway is 46 feet wide with spill controlled by a 66 foot high gate.

The fish passage facilities include two upstream fish ladders and a downstream juvenile bypass system. One fish ladder is located at each end of the hydrocombine, and each ladder includes a pump system for providing attraction flows to the ladder entrance, a counting station, a fish trap and sorting facility, and Passive Integrated Transponder (PIT) tag detection equipment. The downstream juvenile bypass system consists of fabricated steel barriers that are seasonally inserted into spillway bay numbers 2, 4, 6, 8, and 10. The steel barriers are 72 feet high and block all but a 72-foot-high by 16-foot-wide vertical slot through each spillway entrance; they are designed to collapse when the spillway gates are opened more than six feet. The project also includes the Wells Hatchery, located on the downstream side of the west abutment of the Wells Dam.

A 401 Water Quality Certification was issued by the Washington Department of Ecology on February 27, 2012 (Order No. 8981). A copy of the 401 Certification can be found at:

<https://douglaspu.org/environmental-stewardship/for-regulatory-agencies/wells-project-license/>.

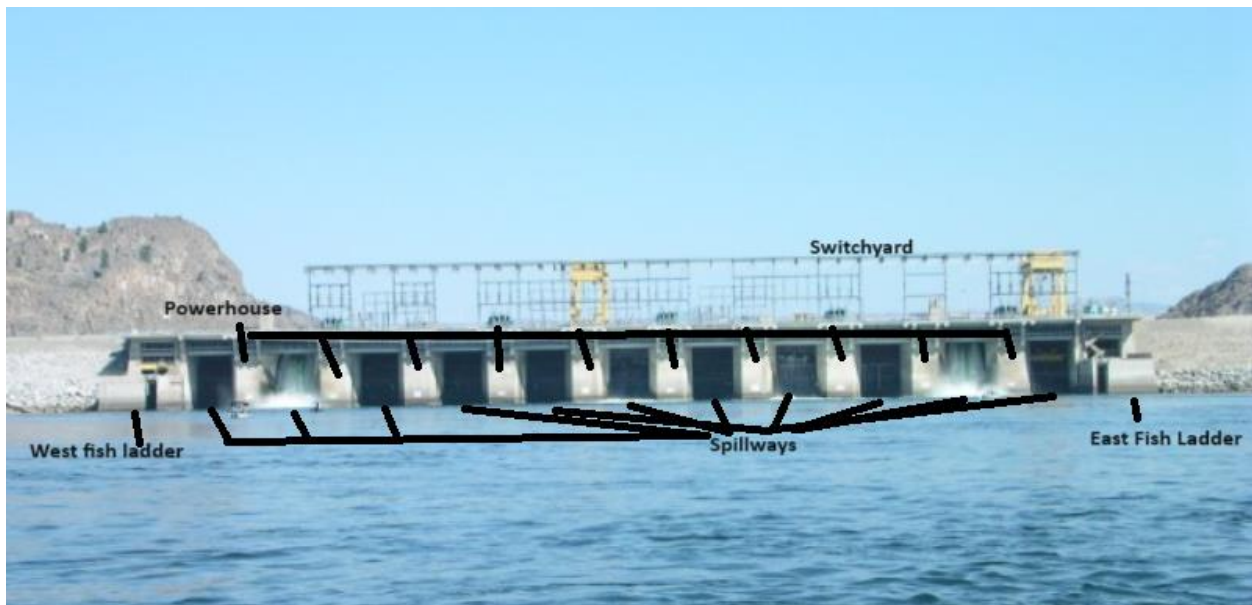


Figure 3. Wells Hydroelectric Dam has a unique hydrocombine design with the powerhouse, spillways, switchyard, and fish facilities all in one unit.

The FERC project boundary (Figure 2) includes 8.60 acres of U.S. Bureau of Land Management land, 6.55 acres of U.S. Army Corps of Engineers land, and privately owned land with a permit program. Douglas PUD's Land Use Policy ensures that non-Project uses of Wells Project Lands are consistent with the FERC license for the Project including the use of Project lands as habitat for HCP Plan Species. Where consistent with Project purposes, Douglas PUD may issue land use permits to adjacent upland property owners for nonexclusive uses of Project lands, including docks, landscaping and existing agriculture uses. Currently the Land Use Policy only allows new boat docks within the cities of Pateros, Brewster and Bridgeport. Any ground disturbing activities will require cultural resources review and may require cultural resources survey and mitigation at the applicant's expense prior to consideration for approval.

The three Zones of Effect (ZoE) are Zone 1, The Impoundment; Zone 2, The Downstream Reach; and Zone 3, The Transmission. The Impoundment ZoE is upstream from Wells Dam to the base of Chief Joseph Dam, including 1.5 miles up the Methow River and 15.5 miles up the Okanogan River. The Downstream Reach ZoE is from Wells Dam downstream 12.4 river miles to the confluence of the Chelan River. This downstream reach extends past the FERC defined tailrace of 1,000 from Wells Dam which includes the downstream impact zone for most environmental compliance activities. ZoE 1 and ZoE 2 can be seen in Figure 4. The Transmission ZoE is from Wells Dam 41 miles south to Douglas Switchyard, seen in the Project Boundary in Figure 2.



DCPUD, Esri, NASA, NGA, USGS, WA State Parks GIS, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS

Figure 4. Zone of Effect 1: Impoundment (blue) and Zone of Effect 2: Downstream Reach (teal)

Facility Information

<i>Item</i>	<i>Information Requested</i>	<i>Response (include references to further details)</i>
Name of the Facility	Facility name	Well Hydroelectric Project
Reason for applying for LIHI Certification	1. To participate in state RPS program 2. To participate in voluntary REC market (e.g., Green-e) 3. To satisfy a direct energy buyer's purchasing requirement 4. To satisfy the facility's own corporate sustainability goals 5. For the facility's corporate marketing purposes 6. Other (describe)	(select and describe only applicable reasons) 1. <input checked="" type="checkbox"/> State Program: Oregon 2. <input checked="" type="checkbox"/> 3. <input checked="" type="checkbox"/> 4. <input type="checkbox"/> 5. <input type="checkbox"/> 6. <input type="checkbox"/> describe:
	If applicable, amount of annual generation (MWh and % of total generation) for which RECs are currently received or are expected to be received upon LIHI Certification	% of total MWh generated: <u>100%</u>
Location	River name (USGS proper name)	Columbia River
	Watershed name	1702005, Chief Joseph
	Nearest towns, counties, and state to dam	Towns: Pateros and Brewster; Counties: Douglas, Okanogan, and Chelan; State: WA
	River mile of dam above mouth	515.6
	Geographic latitude and longitude of dam	Lat: 47.9474 Long: 119.8656
Facility Owner	Application contact names	Cait O'Reilly
	Facility owner company and authorized owner representative name. For recertifications: If ownership has changed since last certification, provide the effective date of the change.	Shane Bickford, Public Utility District No. 1 of Douglas County
	FERC licensee company name (if different from owner)	same
Regulatory Status	FERC Project Number (e.g., P-xxxxx), issuance and expiration dates, or date of exemption	P-2149, issue date: 11/09/2012, expiration date: 10/31/2052

<i>Item</i>	<i>Information Requested</i>	<i>Response (include references to further details)</i>
	FERC license type (major, minor, exemption) or special classification (e.g., "qualified conduit", "non-jurisdictional")	major
	Water Quality Certificate identifier, issuance date, and issuing agency name. Include information on amendments.	401 Water Quality Certificate issued by Washington Department of Ecology on February 27, 2012 (Order No. 8981)
	Hyperlinks to key electronic records on FERC e-Library website or other publicly accessible data repositories	https://douglaspu.d.org/environmental-stewardship/for-regulatory-agencies/wells-project-license/ (or provide a separate list)
Powerhouse	Date of initial operation (past or future for pre-operational applications)	09/01/1967
	Total installed capacity (MW) For recertifications: Indicate if installed capacity has changed since last certification	843.6 MW
	Average annual generation (MWh) and period of record used For recertifications: Indicate if average annual generation has changed since last certification	4,262,714 MWh (1991 – 2022)
	<u>Mode of operation</u> (run-of-river, peaking, pulsing, seasonal storage, diversion, etc.) For recertifications: Indicate if mode of operation has changed since last certification	Modified Run-of-river
	Number, type, and size of turbine/generators, including maximum and minimum hydraulic capacity and maximum and minimum output of each turbine and generator unit	10 Units; Vertical Kaplan Turbines, 77.4 – 89 MW; 120,000 hp, Hydraulic capacity = 13- 22,000 CFS; Operating Power Output capacity = 0-94 MW
	Trashrack clear spacing (inches) for each trashrack	Each unit has 15 trashracks, each with about 232ft ² clear spacing for water passage at their entrance
	Approach water velocity (ft/s) at each intake if known	estimated to be 4.3 ft/s on average at full unit output

<i>Item</i>	<i>Information Requested</i>	<i>Response (include references to further details)</i>
	<p>Dates and types of major equipment upgrades</p> <p>For recertifications: Indicate only those since last certification</p>	<p>Turbine Runner Replacements in all 10 units were completed from 10/1984-11/1990.</p> <p>Turbine Runner Refurbishment and Generator Upgrade Project: 2007-ongoing: Project includes refurbishment of all hydropower components including turbine, headcovers, wicket gates, turbine and generator shafts, thrust and guide bearings, generator rotor spider and poles. It also includes a generator stator rewind, discharge ring refurbishment, trash rack refurbishment, and hydraulic efficiency improvements to the flow conditioning stay vanes. Dates of refurbished units returning to service:</p> <ul style="list-style-type: none"> U7: 1/2015 U4: 7/2017 U2: 5/2019 U3: 9/2020 U10: 1/2022 U5: 5/2023 U6: Ongoing U8: TBD U9: TBD U1: TBD <p>Other major projects not specifically related to the turbine or generator include a transformer replacement, gantry crane upgrades and rehabilitation, air blast circuit breaker replacement, governor digitalization, plant fire protection upgrades, plant oil water separator system, plant cooling water upgrades, plant air compressor upgrades. More details can be provided if relevant.</p>

<i>Item</i>	<i>Information Requested</i>	<i>Response (include references to further details)</i>
	Dates, purpose, and type of any recent operational changes For recertifications: Indicate only those since last certification	There have been no significant operational or hydraulic changes for the turbine units at Wells
	Plans, authorization, and regulatory activities for any facility upgrades or license or exemption amendments	FERC issued an order approving the generator nameplate capacity changes (upgrades) associated with the generator rewind project. Order issued January 13, 2023.
<i>Dam or Diversion</i>	Date of original dam or diversion construction and description and dates of subsequent dam or diversion structure modifications	1967
	Dam or diversion structure length, height including separately the height of any flashboards, inflatable dams, etc. and describe seasonal operation of flashboards and the like	1,165 feet long, 160 feet high
	Spillway maximum hydraulic capacity	11 Spillways, max spill = 98,000 CFS per spillway, 1,078,000 CFS total capability through spillways only. The powerhouse can pass an additional 150,000 CFS.
	Length and type of each penstock and water conveyance structure between the impoundment and powerhouse	Not Applicable, Wells Dam does not have a generator unit penstock or a separation between the reservoir and the powerhouse
	Designated facility purposes (e.g., power, navigation, flood control, water supply, etc.)	power
<i>Conduit Facilities Only</i>	Date of conduit construction and primary purpose of conduit	n/a
	Source water	n/a
	Receiving water and location of discharge	n/a
<i>Impoundment and Watershed</i>	Authorized maximum and minimum impoundment water surface elevations For recertifications: Indicate if these values have changed since last certification	Maximum Forebay – 781 ft Minimum Forebay – 771 ft

<i>Item</i>	<i>Information Requested</i>	<i>Response (include references to further details)</i>
	Normal operating elevations and normal fluctuation range For recertifications: Indicate if these values have changed since last certification	Since July 2021: average – 779.25 ft, standard deviation – 1.14 ft
	Gross storage volume and surface area at full pool For recertifications: Indicate if these values have changed since last certification	331,200 acre-feet
	Usable storage volume and surface area For recertifications: Indicate if these values have changed since last certification	97,985 acre-feet
	Describe requirements related to impoundment inflow and outflow, elevation restrictions (e.g., fluctuation limits, seasonality) up/down ramping and refill rate restrictions.	Approved operating elevation 771-781
	Upstream dams by name, ownership (including if owned by an affiliate of the applicant’s company) and river mile. If FERC licensed or exempt, please provide FERC Project number of these dams. Indicate which upstream dams have downstream fish passage.	Chief Joseph – United States Army Corps of Engineers (USACE) Seattle District, FERC exempt, river mile 454.1 Grand Coulee – United States Bureau of Reclamation, FERC exempt, river mile 596.6
	Downstream dams by name, ownership (including if owned by an affiliate of the applicant’s company), river mile and FERC number if FERC licensed or exempt. Indicate which downstream dams have upstream fish passage	Rocky Reach – Public Utility District No 1 of Chelan County, FERC Project No 2145, river mile 473.7 Rock Island – Public Utility District No 1 of Chelan County, FERC Project No 943, river mile 453.4 Wanapum – Public Utility District No 1 of Grant County, FERC Project No 2114, river mile 415.8 Priest Rapids – Public Utility No 1 of Grant County, FERC Project No 2114, river mile 397.1 McNeary – USACE Walla Walla District, FERC exempt, river mile 292 John Day – USACE Portland District, FERC exempt, river mile 215.6

<i>Item</i>	<i>Information Requested</i>	<i>Response (include references to further details)</i>
		The Dalles – USACE Portland District, FERC exempt, river mile 191.5
		Bonneville Dam – USACE Portland District, FERC exempt, river mile 146.1
	Operating agreements with upstream or downstream facilities that affect water availability and facility operation	Hanford Reach Fall Chinook Protection Program Agreement
	Area of land (acres) and area of water (acres) inside FERC project boundary or under facility control. Indicate locations and acres of flowage rights versus fee-owned property.	At maximum forebay water area is 9,740 acres, land area inside project boundary is about 2,664 acres
Hydrologic Setting	Average annual flow at the dam, and period of record used	110.7 kcfs (1969-2023)
	Average monthly flows and period of record used	January – 109.1 kcfs February 108.5 kcfs March 105.1 kcfs April – 115.9 kcfs May – 153.2 kcfs June – 163.4 kcfs July – 132.0 kcfs August 105.7 kcfs September – 73.4 kcfs October – 73.6 kcfs November – 88.4 kcfs December – 100.9 kcfs (1969 – 2023)
	Location and name of closest stream gaging stations above and below the facility	Above: Methow River, Okanogan River, Chief Joseph Dam Tailrace, Below: Wells Dam Tail Race
	Watershed area at the dam (in square miles). Identify if this value is prorated from gage locations and provide the basis for proration calculation.	86,100 sq miles, not pro-rated from a gage
	Other facility specific hydrologic information (e.g., average hydrograph)	n/a
Designated Zones of Effect	Numbers and names of each zone of effect (e.g., “Zone 1: Impoundment”)	Zone 1: Impoundment Zone 2: Downstream Reach Zone 3: Transmission

<i>Item</i>	<i>Information Requested</i>	<i>Response (include references to further details)</i>
	River mile of upstream and downstream limits of each zone of effect (e.g., “Zone 1 Impoundment: RM 6.3- 5.1”)	Zone 1 Impoundment: RM 545.1 – 515.5 Zone 2 Downstream Reach: RM 515.5 – 503.3 Zone 3 Transmission: RM 515.5 – near 473.7 but not located on river
<i>Pre-Operational Facilities Only</i>		
<i>Expected operational date</i>	Date generation is expected to begin	n/a
<i>Dam, diversion structure or conduit modification</i>	Description of modifications made to a pre-existing conduit, dam or diversion structure needed to accommodate facility generation. This includes installation of flashboards or raising the flashboard height. Date the modification is expected to be completed	n/a
<i>Change in water flow regime</i>	Description of any change in impoundment levels, water flows or operations required for new generation	n/a

Standard Matrices for each Zone of Effect (ZoE)

Zone:		1: Impoundment	2: Downstream Reach	3. Transmission
River Mile at upper and lower extent of Zone:		Upper bound: river mile 545.5, Lower bound river mile: 515.5	Upper bound river mile: 515.5, lower bound river mile: 503.5	Upper bound: River mile 515.5, lower bound: near river mile 473.7 but not on the river
Criterion		Standard Selected (type in one numbered standard and PLUS if applicable)		
A	Ecological Flows	1	1	1
B	Water Quality	2	2	1
C	Upstream Fish Passage	1	2	1
D	Downstream Fish Passage	2	1	1
E	Shoreline and Watershed Protection	2	2	2
F	Threatened and Endangered Species	3	3	3
G	Cultural and Historic Resources	2	2	2
H	Recreational Resources	2	2	1

Discussion of each Criterion

Ecological Flows

Both the Impoundment and Downstream Reach Zones of Effect meet the A-2 Standard for Ecological Flows. The Transmission Zone of Effect has no impact on the ecological flows.

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
A	2	<p><u>Agency Recommendation (see Appendix A for definition):</u></p> <ul style="list-style-type: none"> Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement. Explain how the recommendation relates to formal agency management goals and objectives for fish and wildlife. Explain how the recommendation provides fish and wildlife protection, mitigation, and enhancement (including instream flows, ramping, and peaking rate conditions, and seasonal and episodic instream flow variations).

The Transmission Zone meets standard A-1, not applicable to ecological flows.

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
A	1	<p><u>Not Applicable / De Minimis Effect:</u></p> <ul style="list-style-type: none"> Confirm the location of the powerhouse relative to any dam/diversion structures and demonstrate that there are no bypassed reaches in the designated Zone of Effect. For run-of-river facilities, provide details on operations and describe how flows, water levels, and operations are monitored to ensure such an operational mode is maintained. In a conduit facility, identify the source waters, location of discharge points, and receiving waters for the conduit system within which the hydropower facility is located. This standard cannot be used for conduits that discharge to a natural waterbody. For impoundment zones, explain water management (e.g., fluctuations, ramping, refill rates, restrictions) and how those requirements support fish and wildlife habitat within the ZoE.

There are four streamflow gages within the Wells Dam project area that are all managed, calibrated, and maintained by the United States Geological Survey (USGS) with additional funding provided by Douglas PUD, the US Army Corps of Engineers, the Confederated Tribes of the Colville Reservation, and Washington State Department of Ecology. The locations are shown in Figure 5. To obtain the measurement of stream flow entering the project forebay, Douglas PUD combines the stream measurements from the Methow River, the Okanogan River, and the Columbia River at Bridgeport, WA. To measure the outflow, USGS maintains a stream gage in the tailrace of Wells Dam.

These stream gage measurements are fed into the Energy Accounting System (EAS; additional information on EAS found in Figure 9 and the Water Quality section) and are used by dam operators and power suppliers to make sure that the dam is operating within its modified run-of-river parameters and meeting any discharge and water quality metrics.

There were no deviations in the ecological flow standards that have occurred in the past 10 years as Wells Dam is a modified run-of-river facility.



Figure 5. Stream gage locations used to monitor streamflow within the Wells Dam Project area.

Douglas PUD is a signatory party to the Hanford Reach Fall Chinook Protection Program Agreement (HRFCPPA) signed in 2004. The HRFCPPA serves as the vehicle through which PUD No. 2 of Grant County (Grant PUD) protects and enhances fall Chinook salmon in the Hanford Reach of the Columbia River, downstream of their Priest Rapids Hydroelectric Project. The HRFCPPA defines operational constraints and other measures whereby Grant PUD manages flow below the Priest Rapids Project during critical periods of the life-cycle of fall Chinook salmon. Douglas PUD, as one of the “Utility Parties” to the HRFCPPA, commits to certain flow measures to support Grant PUD’s operations that protect fall Chinook in the Hanford Reach portion of the Columbia River.

The Wells Project is considered a modified run-of-river project (per the definition in the LIHI Handbook), with daily inflow approximately equal to daily outflow, although not necessarily on an hourly basis. The design of the Wells Project is unique in that the generating units, spillways, switchyard, and fish passage facilities were combined into a single structure referred to as the hydrocombine. This design also means that there is no bypass reach. There is some variation in water surface level of the reservoir (the Project is authorized to operate with a reservoir elevation between 771 and 781 feet msl) but has very little daily variation. Since late 2019, the reservoir level has changed less than 1.0 foot daily more than 87% of the time and less than 2.0 feet daily more than 97% of the time (Figure 6).

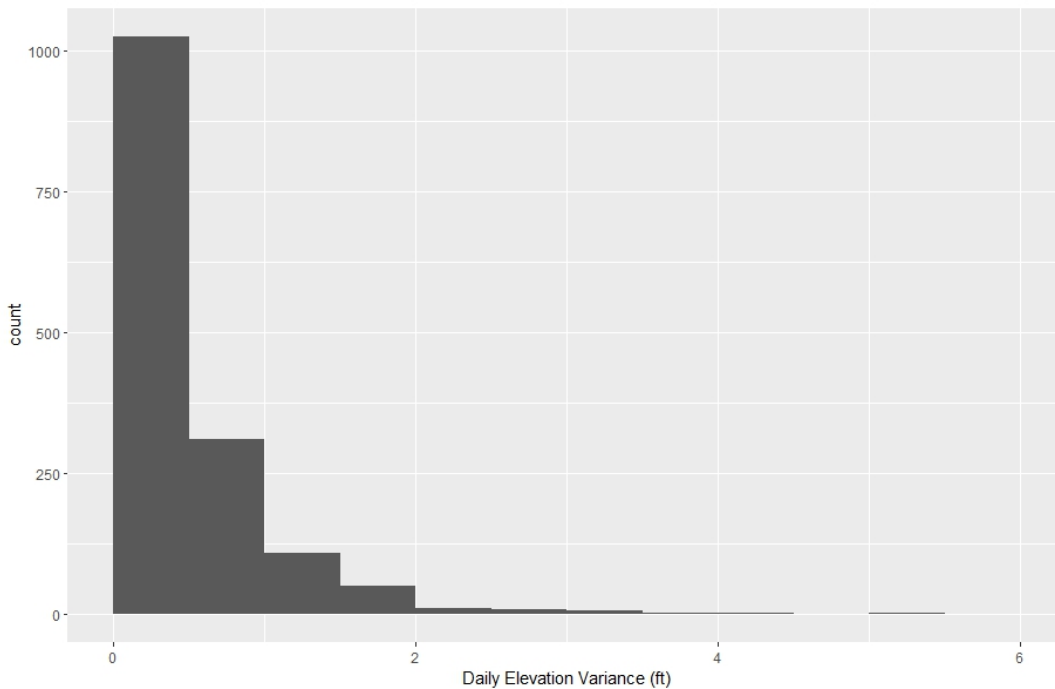


Figure 6. Count of daily variance of forebay/reservoir level measurement from September 2019 to November 2023.

Water Quality Standards

Both the Impoundment and Downstream Reach Zones of Effect meet the B-2 Standard for Water Quality.

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
B	2	<p><u>Agency Recommendation:</u></p> <ul style="list-style-type: none"> • Provide a copy of the most recent Water Quality Certificate and any subsequent amendments, including the date(s) of issuance. If more than 10 years old, provide documentation that the certification terms and conditions remain valid and in effect for the facility (e.g., a letter or email from the agency). • Identify any other agency recommendations related to water quality and explain their scientific or technical basis. • Describe all compliance activities related to water quality and any agency recommendations for the facility, including on-going monitoring, and how those are integrated into facility operations.

The Transmission Zone meets standard B-1, is not applicable to water quality standards.

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
B	1	<p><u>Not Applicable / De Minimis Effect:</u></p> <ul style="list-style-type: none"> • Explain the rationale for why the facility does not alter water quality characteristics below, around, and above the facility.

The water quality standards for surface waters of the state of Washington and associated use designations for fresh waters are defined in [Chapter 173-201A WAC](#). The Columbia River within the Wells Dam project area is designated as salmonid spawning, rearing, and migration and primary contact recreation. It is also designated as domestic, industrial, agriculture, and stock water supply uses. Other uses include wildlife habitat, harvesting, commerce and navigation, boating and aesthetics. The impounded areas of the Methow and Okanogan rivers are designated as spawning/rearing.

Status of Washington waters is available at: <https://apps.ecology.wa.gov/waterqualityatlas/wqa/startpage>

Wells Dam is a ‘run of the river’ project that has a minimal effect on water temperatures. Water temperature monitoring completed by the USGS in the Wells Dam Forebay has shown that given the run of river nature of the reservoir it does not thermally stratify during the summer months (Anchor QEA 2023). Portions of the Columbia River within the Project Boundary are classified as impaired for temperature under Section 303(d) of the Clean Water Act. On May 18, 2020, the Environmental Protection Agency (EPA) established the Columbia and Lower Snake Rivers Temperature Total Maximum Daily Load (TMDL) as required by Section 303(d) of the Clean Water Act and its implementing regulations. The Washington Department of Ecology is currently working through the implementation of this TMDL. While the Columbia River can exceed 17.5°C during the summer (the state water quality standard), EPA’s TMDL showed that the presence of the Wells Project had a reach impact of 0.1°C in June, no impact on temperature in July and August, and cooled the Columbia River by 0.2 and 0.5°C respectively. Moreover, modeling conducted prior to the relicensing of the Wells Project in 2012 showed that the presence of Wells Dam did not increase water temperature in the Columbia River above water quality criteria (Chapter 173-201A WAC; West Consultants Inc. 2008).

There is also a TMDL for total dissolved gas (TDG) for the mainstem Columbia River, from the Canadian border to the Snake River confluence (Ecology 2004a). Additional information on TDG standards and monitoring are included below.

The inundated portion of the Okanogan River, within the project area, is listed as impaired for 4,4'-DDE, 4,4'-DDD, PCBs, and methyl mercury. These contaminants originate from upstream sources that are outside the project. Wells Dam does not add or contribute to any of these compounds. The outfalls at Wells Dam are tested annually for heavy metals (including mercury) and PCBs, as part of the Wells Dam waste discharge permit (NPDES No. WA0991031) and values are within permit standards. A TMDL was issued for the Okanogan River for DDT and PCBs in 2004 (Ecology 2004b).

A 401 Water Quality Certification was issued by the Washington Department of Ecology on February 27, 2012 (Order No. 8981). A copy of the 401 Certification can be found at:

<https://douglaspud.org/environmental-stewardship/for-regulatory-agencies/wells-project-license/>.

Douglas PUD's Water Quality Management Plan (Douglas PUD 2008) is part of the Aquatic Settlement Agreement and has five objectives to help protect and improve water quality in the project area. Every year, a Water Quality Management Plan Annual Report is approved by the Aquatic Settlement Work Group, an inter-agency group of stakeholders including the Washington Department of Ecology (DOE). DOE oversees compliance with WA state water quality standards including those within the Wells Project.

National Pollutant Discharge Elimination System

In addition to the 401 certification, Wells Dam and Hatchery have been issued National Pollutant Discharge Elimination System (NPDES), or Clean Water Act Section 402 Permits from Washington Department of Ecology. The Wells Dam NPDES permit outlines monitoring requirements that are meant to ensure that Wells Dam and Hatchery is not discharging wastewater contaminated with oil and grease products, is within acceptable pH units, and is not exceeding TMDL imposed point source heat load allocations. Wastewater is tested at a variety of locations monthly and additional tests for PCBs and heavy metals are conducted annually. The permit was issued on May 1, 2022, and will be renewed after five years. The Wells Hatchery Section 402 permit is a statewide general NPDES permit that was renewed in 2020. The permit requires various monthly, quarterly, and annual monitoring and reporting for total suspended and settleable solids and chemical use and temperature reporting.

Total Dissolved Gas Monitoring

Douglas PUD continuously monitors TDG at four locations within or adjacent to the Project area: downstream of Chief Joseph Dam, upper-middle reservoir at Washburn Island, in the Wells Dam forebay, and in the Wells Dam tailrace. The data is available at Douglas PUD's website (<https://douglaspud.org/environmental-stewardship/for-regulatory-agencies/environment-and-water-quality/total-dissolved-gas-and-temperature-monitoring/>) and on the Army Corps of Engineers database for TDG for all Columbia River hydroelectric projects (https://pweb.crohms.org/ftppub/water_quality/tdg/).

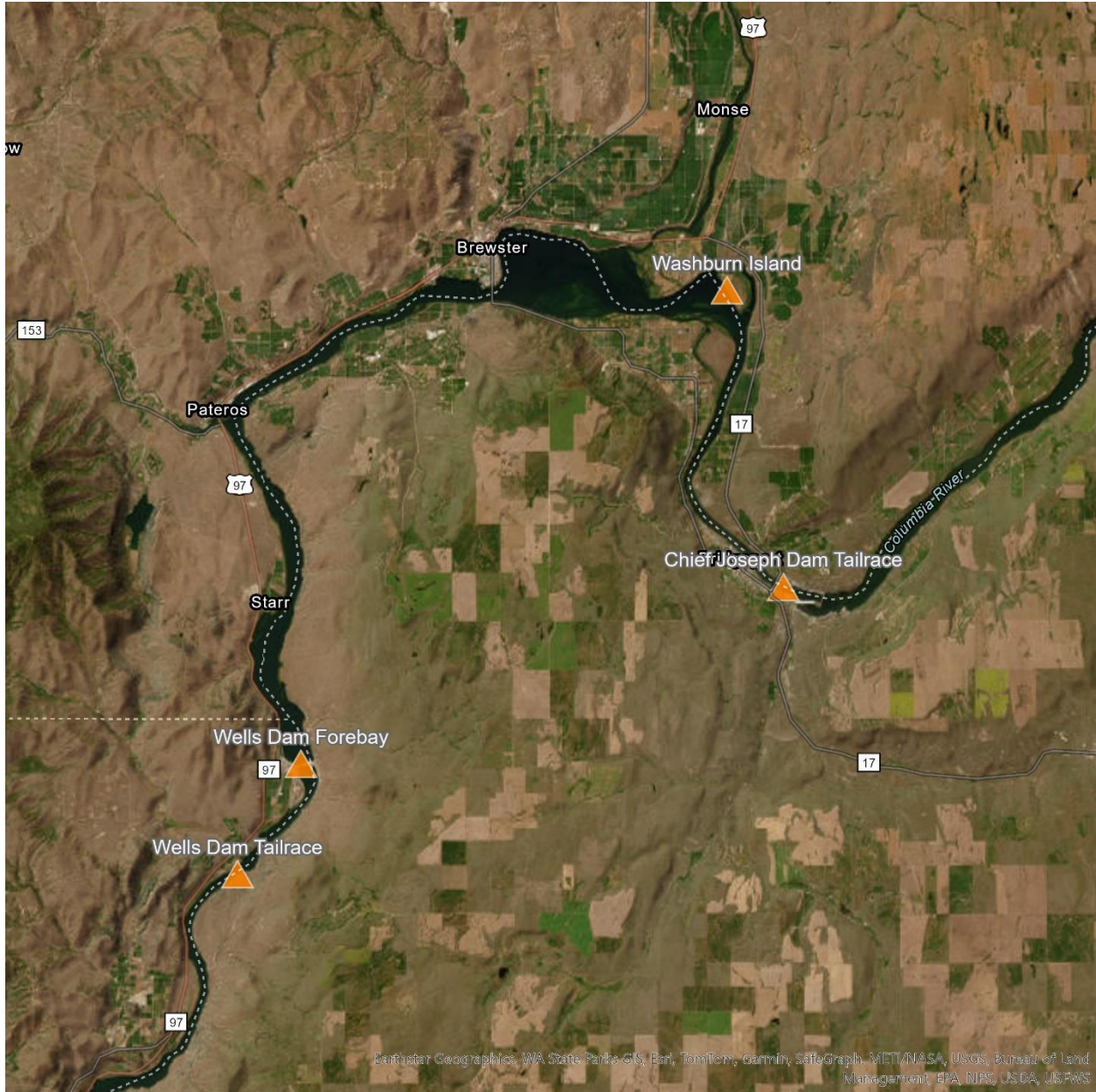


Figure 7: TDG monitoring locations

The water quality standards for TDG depend on the location and the time of year; during the downstream migration period for juvenile salmon, the TDG standards are higher so that hydroelectric projects are not penalized for spilling water to facilitate fish passage through spillways or bypass systems. The Washington state regulations changed in 2020 and, since the rule change, Douglas PUD’s TDG compliance rates have been very high (usually over 95%), except in 2022, when sustained high flows made it difficult to keep TDG levels low (Table 1).

Table 1. Summary of TDG compliance rates for Wells Dam. Data is from January 1, 2020, to August 31, 2023.

	2020	2021	2022	2023
Wells Tailrace: 110% (non-fish passage season)				
Sample periods out of compliance	12	8	15	0
Total sample periods	5088	5088	5088	2160
DCPUD compliance rate	99.8	99.8	99.7	100.0
Wells Tailrace: 125% Mean 12 Highest Hourly/day (April-June)				
Sample periods out of compliance	5	0	1	0
Total sample periods	91	91	91	91
DCPUD compliance rate	94.5	100.0	98.9	100.0
Wells Tailrace 126%: Two Consecutive Hourly Values (April-June)				
Sample periods out of compliance	20	0	3	2
Total sample periods	2093	2093	2093	2093
DCPUD compliance rate	99.0	100.0	99.9	99.9
Wells Tailrace: 125% two hour mean (July and August)				
Sample periods out of compliance	0	0	3	0
Total sample periods	61	62	62	62
DCPUD compliance rate	100.0	100.0	95.2	100.0
Wells Tailrace: Mean 12 highest hourly readings over 120% (July and August)				
Sample periods out of compliance	3	0	15	0
Total sample periods	62	62	62	62
DCPUD compliance rate	95.2	100.0	75.8	100.0
Rocky Reach Forebay: Mean 12 highest hourly readings over 115% (July and August)				
Sample periods out of compliance	10	1	28	0
Total sample periods	62	62	62	62
DCPUD compliance rate	83.9	98.4	54.8	100.0

One difficulty with managing TDG values at Wells Dam is that the water entering the project area from Chief Joseph Dam is frequently above the EPA and Tribal waters TDG standard of 110%. In fact, in the months of June and July between 2013 and 2023, the water entering the Wells forebay was measured at over the 110% TDG standard more than half the time (Figure 8). When the water entering the Wells forebay is already above 110%, it is extremely difficult to meet the 115% standard at Rocky Reach Dam forebay because operation of the Wells Dam Juvenile Bypass will modestly increase Wells Dam tailrace TDG and, with the configuration of the Rocky Reach Reservoir, there is limited to no opportunity for TDG to degas before reaching Rocky Reach Dam.

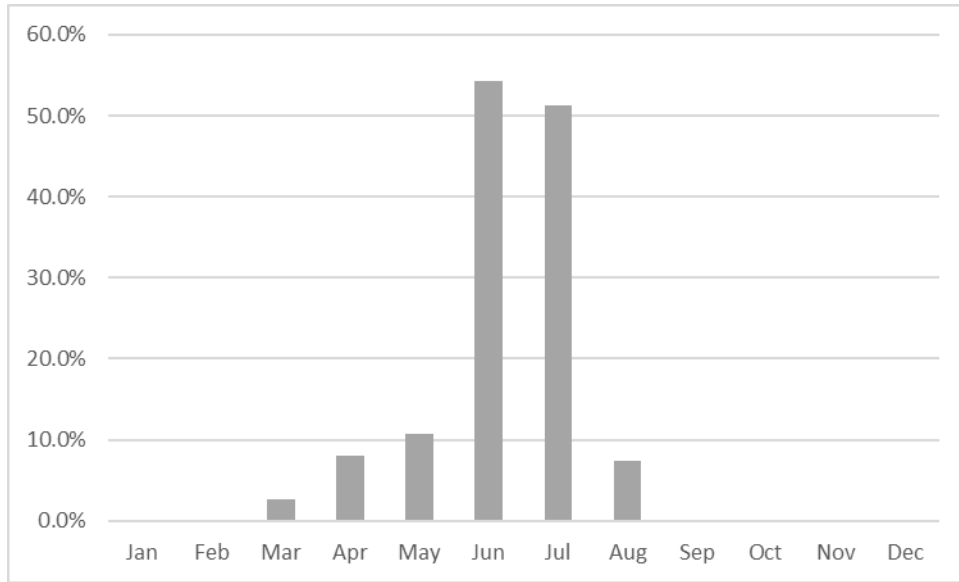


Figure 8. Percentage of Wells forebay TDG readings over 110%, by month, from 2013 - 2023. During June and July, the Wells Project was receiving water from upstream that was out of compliance (>110%) over half the time.

Gas Bubble Trauma Monitoring

Part of the water quality certification and WQAP is the monitoring of fish for gas bubble trauma (GBT).

From the early 2000s to 2019, Douglas PUD has monitored smolts at the Rocky Reach Juvenile Bypass Sample Site (JBS) and Wells Dam adult fish ladders when TDG values in the Wells tailrace are above 125%. Pursuant to WAC 173-201A-200 (TDG criteria rule change), operators applying for modification to TDG standards to protect downstream migrating salmon in April-June and July-August and are required to provide a biological monitoring plan for both migrating salmonids and resident fishes (Ecology 2019). Beginning in 2021, Douglas PUD has evaluated a minimum of 50 salmonids collected from the Rocky Reach JBS each week from April to June. Additionally, in instances that TDG values in the Wells tailrace exceeded the 125% WQS in the April-June or July-August period, additional sampling for GBT at the Rocky Reach JBS facility occurred on the subsequent business day to the exceedance. However, if no GBT was observed after two sampling instances within a calendar week, additional monitoring was postponed until the next calendar week, regardless of TDG concentration. Furthermore, if flood flows above 7Q-10 occur within a week during the April-June or July-August period, GBT sampling only occurred once per week. Target species for juvenile salmonid GBT sampling consisted of Coho, Sockeye, yearling and subyearling Chinook, and steelhead. Starting in 2020, resident fish were also collected from the Wells tailrace via boat electrofishing to monitor potential GBT in resident fish during the spill season. All monitoring for GBT followed the examination techniques described in 2019 Gas Bubble Trauma Monitoring Protocol (FPC 2019) and focused on examining the eyes, unpaired fins, and caudal fin of all fishes. Ranks of GBT expression from 0-4 were used per Fish Passage Center protocols. A rank of 0 indicated no GBT present; rank 1 indicated 1-5% of fin or eye covered with bubble; rank 2: 6-25%; rank 3: 26-50%; and rank 4: >50% bubble coverage (FPC 2019).

Out of the 8826 fish sampled for GBT from 2013 to 2023, over 97% did not exhibit any signs of GBT (Table 2). Of the 241 fish that exhibited signs of GBT, most exhibited very minor bubbles (rank 1: >5%). Since 2020, only six fish out of 6,890 fish sampled (0.09%) had any expression of GBT and all those fish ranked 1 trauma (Table 3).

Per the requirements of WAC 173-201A-200(1)(f)(ii), Douglas PUD will continue the current protocol for GBT monitoring until at least 2025. Douglas PUD will work with DOE to determine if the current monitoring protocol should continue or if changes to the GBT monitoring strategy might be necessary.

Table 2. Level of gas bubble trauma observed in sampled fish from 2013 to 2023.

GBT Rank	Number of Fish	Percent of Fish
0 (no GBT)	8585	97.3
1 (1 – 5 % bubble coverage)	141	1.6
2 (6 – 25% bubble coverage)	68	0.8
3 (26 – 50% bubble coverage)	32	0.4
4 (>50% bubble coverage)	0	0.0
Total	8,826	

Table 3. Summary of GBT sampling data from 2020 – 2023.

Species	2020		2021		2022		2023	
	# Sampled	# GBT Present	# Sampled	# GBT Present	# Sampled	# GBT Present	# Sampled	# GBT Present
Coho	5	0	10	0	40	0	16	0
Sockeye	6	0	94	0	160	0	55	0
Chinook (subyearling)	51	1	103	0	269	0	221	0
Chinook (yearling)	0	0	1,630	0	221	0	209	0
Steelhead	0	0	76	0	42	0	49	0
Non-Salmonid	0	0	138	0	1,038	2	956	0
All Species (Tailrace)	126	3	1,375	0	0	0	0	0
Total	188	4	3,426	0	1,770	2	1,506	0
Percent with GBT (total)	2.10%		0%		0.10%		0%	

Water Quality and Dam Operations

Douglas PUD has developed a series of software tools known as the Energy Accounting System or EAS (screenshot provided in Figure 9). The EAS was developed in 2016, released in 2017 and has been used daily by Douglas PUD staff working in Project Operations, Power Marketing, System Operations, and Natural Resources since 2018. The EAS pairs environmental data with project operations to better document and archive river operational dynamics, forebay elevation constraints, and system-wide energy

demand. The tool blends various business functions and brings more awareness of TDG production to a broad spectrum of departments within Douglas PUD including those departments responsible for operations, maintenance, energy planning and power sales.

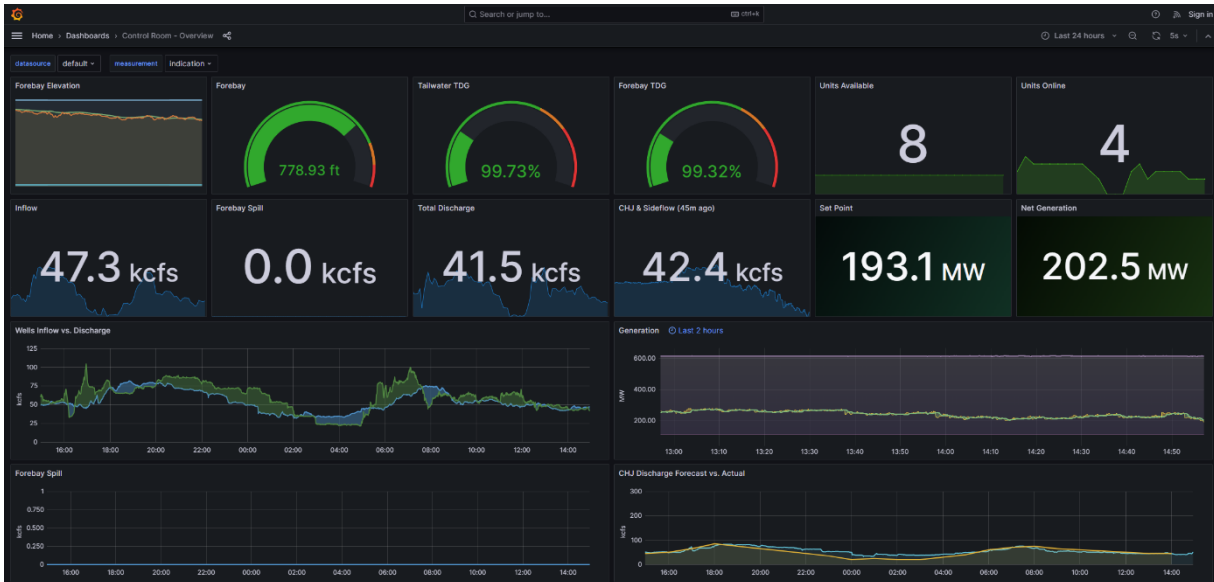


Figure 9. Example output of the Wells Project EAS.

Functionally, on a forecast and daily basis, Douglas PUD staff evaluates the expected hydro conditions at the Wells Project, including the expected inflow of water to the project, and determines the action necessary to ensure TDG compliance prior to the operating day. In the event conditions change from forecast, Douglas PUD's system operators can market power, increase generation, sell the energy and reduce any unplanned spill past unloaded turbine units. In real-time, Douglas PUD's system operators have tools to both track the incoming volume of water into the Wells Project, the volume of discharge from upstream projects and the reported TDG both entering the Wells Project and at the Wells tailrace. This active and hands-on management of the system is one way that Douglas PUD works to reduce TDG.

Additionally, Douglas PUD's Natural Resources staff worked with researchers at Columbia Basin Research to develop a user-friendly web application to help predict TDG based on environmental variables including river discharge, incoming TDG levels, and spill fraction to help system operators set spill limits and provide general guidance to staff involved in all areas of Douglas PUD's business with a nexus to project operations (e.g. power marketing). This model, developed by W. Nicholas Beer, uses all TDG data collected at the Wells Project to help with predicting TDG in the Wells tailrace and is constantly being updated with current data. The model is publicly available at:

https://www.cbr.washington.edu/shiny/DAM_CONDITIONS/ (screenshot provided as Figure 10).

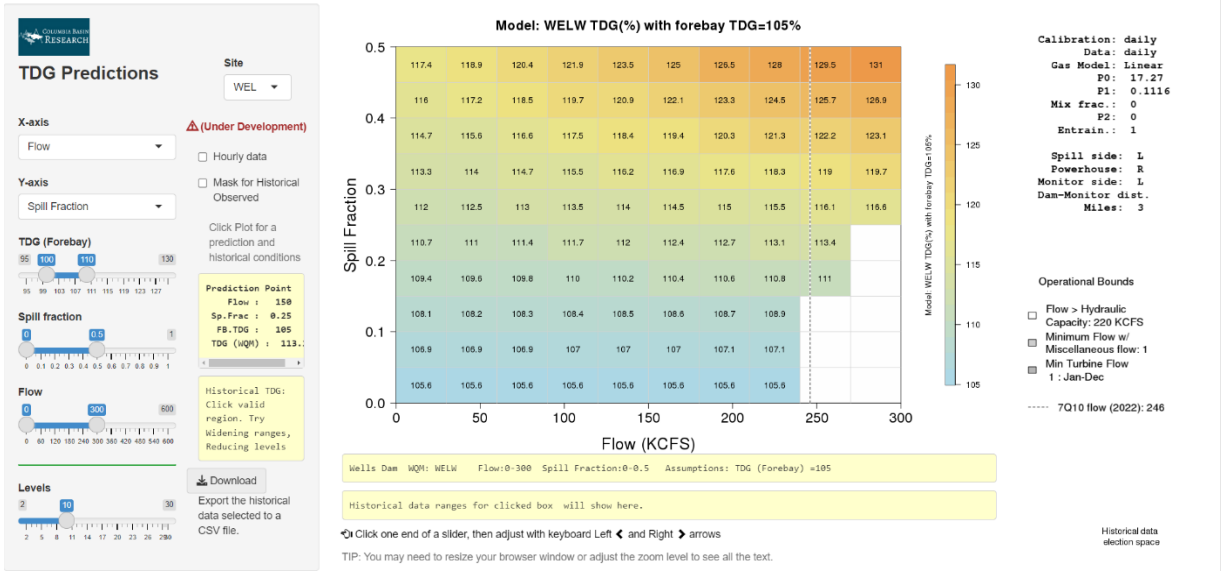


Figure 10. Model results of Wells Dam predicted TDG under various incoming TDG profiles, Spill Fraction (percent of discharge being spilled), and total flow. Thousands of data points have contributed to this tool.

Upstream Fish Passage

The Downstream Reach Zone of Effect meets the C-2 Standard for Upstream Fish Passage.

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
C	2	<p><u>Agency Recommendation:</u></p> <ul style="list-style-type: none"> • Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). • Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is or is not part of a Settlement Agreement. • Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented. • Provide evidence that required passage facilities are being operated and maintained as mandated (e.g., meets seasonal operational requirements, coordination with agencies, effectiveness relative to performance targets).

Both the Impoundment Zone and the Transmission Zone meet the C-1 Standard for Upstream Fish Passage. There are no additional passage barriers above Wells Dam that impede upstream fish passage.

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
C	1	<p><u>Not Applicable / De Minimis Effect:</u></p> <ul style="list-style-type: none"> • Explain why the facility does not impose a barrier to upstream fish passage in the designated ZoE. Typically, impoundment zones will qualify for this standard since once above a dam and in an impoundment, there is no additional facility barrier to further upstream movement. • Document available fish distribution data and the lack of migratory fish species in the ZoE. • If migratory fish species have been extirpated from the area, explain why the facility is not or was not the cause of the extirpation.

Wells Project is located in the Columbia River Basin and is home to numerous migratory fish species including anadromous salmonid and lamprey species. Species include:

- Upper Columbia River steelhead trout (*Oncorhynchus mykiss*)
- Upper Columbia River Chinook salmon (spring and summer runs; *O. tshawytscha*)
- Sockeye salmon (*O. nerka*)
- Coho salmon (*O. kisutch*)
- Bull trout (*Salvelinus confluentus*)
- Pacific lamprey (*Entosphenus tridentatus*)
- White sturgeon (*Acipenser transmontanus*)

Fish passage (juvenile and adult passage) operations for anadromous salmonids is continually reviewed, adjusted, and approved by an inter-agency group through the District's Anadromous Fish Agreement and Habitat Conservation Plan (HCP; Douglas PUD 2002) and, as such, all zones qualify for Standard C-2. The HCP Coordinating Committee is an inter-agency group included representatives from the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), the Washington Department of Fish and Wildlife (WDFW), the Confederated Tribes of the Colville Reservation (CTCR), the Confederated Tribes and Bands of the Yakama Indian Nation (YN). These signatory parties oversee all aspects of implementation associated with the Wells HCP including adult fish passage issues.

Description of Adult Passage Facilities (from HCP)

Wells Dam was constructed with two fish ladders. Since 1967, an average of 50,000 adult salmon and steelhead have ascended Wells Dam on their way to spawning grounds above the Dam. Over the last decade, thanks the Fish and Water Management Tool that Douglas PUD is funding, Sockeye returns have averaged more than 160,000 per year. The two fish ladders at Wells Dam are conventional staircase type fish ladders with 73 pools. The ladders are located at the east and west ends of the Dam. The lower 56 pools discharge a constant 48 cfs of water. At each pool, the water drops approximately one foot until this water reaches the tailwater level in the collection gallery. Supplemental water can be added at each inundated pool at the upper end of the collection gallery. The upper pools in the adult fishway, pools 73-56, discharge water from one pool to another through fishway weirs. Each weir in the upper portion of the adult fishways contains two orifice openings. These orifices are located one foot from the base of the weir. This design provides a sanctuary pool between each of the upper fishway weirs. From pool 56 downstream to the collection gallery, each fishway weir is designed to operate with 48 cfs of water. The water passes from one weir to the next via a seven-foot-wide overflow section between pools and through two 18 inch by 15 inch submerged orifices.

To accommodate 10 feet of reservoir drawdown, the drop between the upper 17 pools varies from one foot at full reservoir to six inches during a 10-foot reservoir drawdown. The flow through the upper 17 ladder pools consequently varies from 44 cfs at full reservoir to about 31 cfs at maximum reservoir drawdown. To increase the flow to the 48 cfs required in the lower ladder pools, supplementary water is introduced into Pool No. 56 through a pipeline from the reservoir.

Pool No. 64 of both fishway ladders contains facilities for counting fish. The main features of the counting facility include a counting room, an observation window into the fish ladder, a telescoping gate to guide the fish closer to the observation window, a light panel and a bypass gate to control the flow and velocity past the observation window. Video records of fish passage are collected 24-hours per day starting on May 1 and continue through November 15. The video is then reviewed and counts of fish by species by ladder are made available on a daily basis through coordination with the Army Corps of Engineers adult fish counting program.

At Pool No. 40, each of the two fish ladders have provisions for sorting and trapping various species of fish. The west ladder sorting facility allows for selected fish to travel through a flume to a holding pond at the Wells Hatchery. The east ladder sorting facility allows for fish to travel to a holding container where they are anesthetized, netted and placed in transportation containers to be moved across the Dam to appropriate hatchery facilities. The fisheries agencies and tribes currently develop species-specific broodstock collection protocols at the beginning of each season. Brood stock presently collected at Wells Dam includes spring and summer chinook and summer steelhead. Brood stock collection protocols are developed by the Washington Department of Fish and Wildlife and are annually submitted to the Wells

Coordinating Committee and NMFS Hydro Program for annual approval prior to trapping at the Dam. In addition to brood stock collection, the adult fish traps are occasionally used to collect information from coded wire tag (CWT) tagged steelhead, collect sockeye scales for stock identification and age analysis and collect adult bull trout, chinook, sockeye and steelhead for radio-tagging.

The 2000-2002 Wells Biological Opinion (Section 10.1.4, page 45) requires that the operation of the Wells ladder traps for the collection of broodstock or other fisheries assessment be limited to a maximum of 16-hours per day for three days per week or as approved by NMFS Hydro Program, Portland, Oregon. The Wells Biological Opinion (Section 10.1.4, page 45) requires that adult trapping facilities be manned whenever the trap is in operation and that the collection of adults from the fishway traps be discontinued whenever river water temperature exceed 69 F°.

At the bottom of the fish ladder, projecting downstream from the line of the hydrocombine is the portion of the endwall structure that incorporates the functions of fish attraction and collection. Two turbine pumps on each ladder deliver 800 to 2500 cfs (depending upon tailwater elevation) of fish attraction flow to the water supply chamber located immediately adjacent to the collection gallery. Supply chamber water flows into the upper sections of the collection gallery where it is used to maintain an attraction velocity of 2 feet per second; and also into the main collection gallery at the foot of the ladder through diffusion gratings. The total fishway flow from the turbine pump(s) and the 48 cfs coming down the ladder from the forebay is discharged into the tailrace through two fish entrances.

Fishways are inspected daily to ensure that debris accumulations are removed, that the automated fishway instruments are calibrated properly and to ensure that lights in the fishway are maintained.

Upstream Passage: Salmonid Species

The 2012 Biological Opinion by NMFS (NMFS 2012) summarized adult passage through the Wells Project:

“Using available telemetry studies, NMFS (2002a) compared the migration rates of adult Chinook salmon, steelhead, and sockeye salmon through both impounded (dams and reservoirs) and unimpounded reaches of the Snake, mid-Columbia, and lower Columbia rivers. In each case, migration rates (miles/day) through the mid-Columbia River generally exceeded migration rates through unimpounded reaches of the Snake or Columbia rivers and were very similar to those observed in the other impounded reaches (13 to 36 miles/day versus 6 to 19 miles/day in unimpounded reaches or 15 to 40 miles/day in other impounded reaches, respectively). Additionally, calculation of adult conversion rates (the proportion of tagged individuals detected at location (Y) that were previously detected at location (X) illustrates the successful migration of adults through the mid-Columbia River (Table 1). Conversion rates include a combination of mortality attributable to non-project related causes (e.g., recreational and tribal harvest,

predation, and disease) and dam passage, as well as non-detections resulting from straying and spawning below Wells Dam. The nearly 100 percent per-project survival of PIT-tagged adult spring Chinook through the mid-Columbia hydroelectric projects indicates the relative benign nature of adult project passage and a low mortality from all causes combined.

This body of information suggests that passage through the Wells Project is not likely to cause pre-spawning mortality or loss of condition. A brief delay at the dam is more than

compensated for by a faster travel time through the reservoir NMFS (2002a). In addition, any delay that does occur is less likely to affect UCR spring Chinook, which hold in the rivers or streams for considerable periods of time prior to spawning than unlisted UCR summer/fall Chinook or sockeye salmon, which spawn soon after completing their migration.” (pages 33-34; NMFS 2012)

Additionally, NMFS determined that upstream passage and survival rates were similar for UCR steelhead and that the brief delay caused by the dam may even be less likely to affect steelhead because they hold in rivers and streams for longer periods of time prior to spawning (NMFS 2012). Based on these studies and studies at other Columbia River dams, Douglas PUD expects the upstream passage rates and survival to be similar for all salmonid species.

When the HCP was completed in 2002, the signatories acknowledged the lack of a scientifically accepted methodology for assessing adult survival at the Wells Project for Plan Species (assumed to be at least 98 percent). Available methods cannot differentiate between mortality caused by the project versus other sources of non-detection of tagged fish. Such sources might include mortality from natural causes or fisheries (e.g., mortality from disease, delayed mortality from injuries resulting from passage at downstream projects, and injuries sustained by marine mammals or harvest activities) or fish not detected for other reasons, such as spawning in locations downstream from Wells Dam or loss of PIT tags from the body cavity due to gonadal maturation during migration. Regardless of the tagging method used, this limitation remains—the current technology does not allow a determination of the fates of all tagged fish detected passing a dam but not detected at the next dam upstream. However, in the 2003 Biological Opinion for the Wells HCP, National Oceanic and Atmospheric Administration (NOAA) Fisheries concluded that calculations of total unaccounted-for losses of known-origin PIT-tagged fish from upstream populations between projects provides a means for evaluating compliance with the Wells HCP standards for adult passage (NOAA 2003). Sequential detections of known-origin PIT-tagged adult salmonids from upstream populations through PIT-tag detection systems in the fishways of each dam provide data for calculating conversion rates through the hydropower system. Calculated per-project conversion rates furnish sufficient evidence for the achievement of adult survival standards, in that project-related mortality must be less than 2 percent when per-project conversion rates exceed 98 percent (i.e., less than 2 percent of fish are missing due to all sources of mortality, including any Wells Project-related mortality).

The PIT-tag conversion-rate method utilized by NOAA Fisheries relies on the use of known-origin fish tagged above Wells Dam with the assumption “that all returning adults will attempt to return to locations at or upstream of the release location (in this instance, above Wells Dam)” (NOAA 2003). Table 3 details PIT-tag detections at Rocky Reach Dam of known-origin, adult spring and summer Chinook Salmon, Sockeye Salmon, Coho Salmon, and steelhead originating above Wells Dam; the number of those adults redetected at Wells Dam; and the estimated conversion rate (Rocky Reach Dam to Wells Dam) for return years 2015-2022. The Rocky Reach-to-Wells conversion rates were 99 percent for steelhead and 99 percent for spring Chinook Salmon, neither of which were the subjects of targeted fisheries between 2018 and 2022. Conversion rates were 97 percent for summer Chinook Salmon, 96 percent for Coho Salmon, and 99 percent for Sockeye Salmon. The rates for summer Chinook Salmon, Coho Salmon, and Sockeye Salmon include losses associated with popular recreational fisheries that takes place upstream of Rocky Reach and downstream of Wells Dam. Additionally, summer Chinook Salmon spawn in the Wells Dam tailrace, and Coho Salmon routinely spawn in locations between Rocky Reach and Wells dams, including the Entiat River, Chelan River, Beebe Springs, and the Wells Fish Hatchery outfall.

Table 4. Return Year 2015-2022 Rocky Reach-to-Wells Adult Conversion Rates for PIT-Tagged Fish Originating above Wells Dam. Data from Columbia Basin PIT-tag Information System (PTAGIS) queried on 3-6-2024 (<https://www.ptagis.org/>).

Stock Species	Number Detected at Rocky Reach Dam	Number Detected at Wells Dam	Rocky Reach-to-Wells Conversion Rate
Summar Steelhead	1191	1177	99%
Spring Chinook Salmon	1186	1175	99%
Summer Chinook Salmon	1064	1033	97%
Coho Salmon	1716	1640	96%
Sockeye Salmon	457	450	99%

As described in Table 4, conversion rates of PIT-tagged fish provide a minimum estimate of survival between detection sites (for those populations of fish represented by the PIT tags) because they encompass mortalities from all sources and any of those fish that passed between the two detection sites without being detected. The variable and relatively low detection probability of PIT-tag detection systems upstream of Wells Dam precludes calculation of adult conversion rates that include both Wells Dam and reservoir. As noted earlier in this section, conversion rates reflect a combination of mortality attributable to non-project-related causes (e.g., recreational harvest, predation, and disease) and dam passage, as well as non-detections resulting from fallback, straying, and spawning downstream of Wells Dam in the Rocky Reach Reservoir or tributaries.

A 2016 – 2017 study looked at the rates of Bull Trout upstream passage through Wells Dam and this study found that 9 out of 11 fish successfully migrated upstream through the fishways with no issues (Robichaud and Gingerich 2017). Of the two fish that approached the dam but did not pass, one had previously successfully migrated upstream in 2016 and entered the fishway in 2017 but ultimately did not pass. The other fish approached the fishway outside of the typical spawning migration period and researchers concluded that both fish may not have been attempting an upstream spawning migration (Robichaud and Gingerich 2017). These results were similar to other Bull Trout passage studies that had been completed prior to relicensing (LGL and Douglas PUD 2008).

Upstream Passage: Pacific Lamprey

Pacific Lamprey passage is less successful than for salmonid species but Douglas PUD but is complicated by the species panmictic population structure (not having or desiring a return to a natal stream). As such, examining passage success at Wells Dam has been difficult. Nevertheless, Douglas PUD has been working to study and improve passage for adult Pacific Lamprey through the fishway. The Pacific Lamprey Management Plan outlines requirements for both fishway modifications to improve upstream lamprey passage and to evaluate upstream passage (Attachment D; Douglas PUD 2008). Multiple studies have occurred over the years and found that Pacific Lamprey passage through the lower fishway is low (14%-33%) but passage through the upper fishway is high (67%- 100%; Robichaud and Kyger 2014). Improvements to the fishway have been completed and Douglas PUD is awaiting results from a study conducted from 2022 to 2023.

Pacific Lamprey do not exhibit natal stream fidelity like salmon species, rather, they are attracted to pheromones released from larvae and juveniles upstream. Pacific Lamprey densities above the project area had greatly declined by 2015 and, in the Okanogan Basin, were likely extirpated. In order to mitigate for any potential project effects, Douglas PUD has been translocating adult Pacific Lamprey from Priest Rapids Dam to the Wells reservoir, up to 1000 fish per year. Initial results have been promising. Abundance of larvae and juvenile lamprey have been increasing in the Methow and Okanogan Basins and more adult fish have been passing Wells Dam. Douglas PUD will continue to assess any issues with fishway passage for Pacific Lamprey and make modifications as necessary.

Upstream Passage: White Sturgeon

There has not been any documentation that white sturgeon have successfully been able to pass upstream through the fishways. It is unknown if this is due to lack of interest/biological need or if they are unable to successfully ascend the fishway. It is likely a combination of both factors and the situation is similar at the other Mid-Columbia hydroelectric projects.

Adult white sturgeon upstream passage is an objective in the White Sturgeon Management Plan (Douglas PUD 2008) and Douglas PUD will continue to evaluate the biological merit of providing passage and assess if there are “reasonable and appropriate means to provide upstream passage” (Douglas PUD 2008). Globally, passage of adult white sturgeon through fishways has been rarely documented. Within the Columbia, Sturgeon may pass hydroelectric projects that operate a lock system for commercial boat traffic, rather than existing fish ladders.

Downstream Fish Passage

The Impoundment Zone of Effect meets the D-2 Standard for Downstream Fish Passage.

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
D	2	<p><u>Agency Recommendation:</u></p> <ul style="list-style-type: none"> • Identify the proceeding and source, date, and specifics of the agency recommendation applied (NOTE: there may be more than one; identify and explain which is most environmentally protective). • Explain the scientific or technical basis for the agency recommendation, including methods and data used. This is required regardless of whether the recommendation is part of a Settlement Agreement or not. • Describe any provisions for fish passage monitoring or effectiveness determinations that are part of the agency recommendation, and how these are being implemented. • Provide evidence that required passage facilities are being operated and maintained as mandated (e.g., meets seasonal operational requirements, coordination with agencies, effectiveness relative to performance targets).

Both the Downstream Reach and the Transmission Zone meet the D-1 Standard for Downstream Fish Passage. Once fish pass Wells Dam, there are no additional barriers to downstream movement within the Downstream Reach Zone. The transmission Zone is not applicable to downstream fish passage.

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
D	1	<p><u>Not Applicable / De Minimis Effect:</u></p> <ul style="list-style-type: none"> • Explain why the facility does not impose a barrier to downstream fish passage in the designated ZoE, considering both physical obstruction and increased mortality relative to natural downstream movement (e.g., entrainment into hydropower turbines). Typically, tailwater/downstream zones will qualify for this standard since below a dam and powerhouse there is no additional facility barrier to further downstream movement. Bypassed reach zones must demonstrate that flows in the reach are adequate to support safe, effective, and timely downstream migration. • For riverine fish populations that are known to move downstream, explain why the facility in the designated ZoE does not contribute adversely to the species populations or to their access to habitat necessary for successful completion of their life cycles; or • Document available fish distribution data and the lack of fish species requiring passage in the ZoE; or • If migratory fish species have been extirpated from the area, explain why the facility is not or was not the cause of the extirpation.

Native Species	Non-Native Species
Chiselmouth <i>Acrocheilus alutaceus</i>	Carp <i>Cyprinus carpio</i>
Longnose sucker <i>Catostomus catostomus</i>	Black bullhead <i>Ictalurus melas</i>
Bridgelip sucker <i>Catostomus columbianus</i>	Brown bullhead <i>Ictalurus nebulosus</i>
Largescale sucker <i>Catostomus macrocheilus</i>	Pumpkinseed <i>Lepomis gibbosus</i>
Prickly sculpin <i>Cottus asper</i>	Bluegill <i>Lepomis macrochirus</i>
Threespine stickleback <i>Gasterosteus aculeatus</i>	Smallmouth bass <i>Micropterus dolomieu</i>
Burbot <i>Lota lota</i>	Largemouth bass <i>Micropterus salmoides</i>
Peamouth <i>Mylocheilus caurinus</i>	Yellow Perch <i>Perca flavescens</i>
Rainbow trout <i>Oncorhynchus mykiss</i>	Black crappie <i>Pomoxis nigromaculatus</i>
Mountain whitefish <i>Prosopium williamsoni</i>	Walleye <i>Sander vitreus</i>
Northern pikeminnow <i>Ptychocheilus oregonensis</i>	Tench <i>Tinca tinca</i>
Redside shiner <i>Richardsonius balteatus</i>	Lake whitefish <i>Coregonus clupeaformis</i>
Dace <i>Rhinichthys spp.</i>	

Adult Downstream Passage

Adult fish may “fallback” through the dam, which includes both voluntary and involuntary movement of a fish downstream through the dam after it has passed upstream via the fishway. Fallback rates are estimated to be low (3.6 to 5%; NMFS 2002). Most of the fallback occurs through the bypass system and downstream survival through the bypass for adults is greater than 98% (Douglas PUD and Anchor Environmental 2010).

A 2016 – 2017 study on Bull Trout movement had 12 radio-tagged Bull Trout move downstream through Wells Dam. All 12 fish were successful in their downstream migration and survived (Robichaud and Gingerich 2017). These results were similar to those found in studies conducted prior to relicensing (LGL and Douglas PUD 2008).

Juvenile Downstream Passage

As Wells Dam is a hydrocombine, the primary method of downstream juvenile bypass is through bypass spillways and the HCP details the specific way that the that bypass bays will be operated depending on the turbine units in operation, the discharge going through the project, and the time of year. Bypass is operated from early April to the time that over 95% of the juvenile salmonids have passed the project.

The HCP requires that juvenile project survival (survival through the reservoir, forebay, dam and tailrace) for all five anadromous plan species be at least 93% and that the dam passage survival (survival through the dam) be at least 95%. To evaluate the continued achievement of the HCP’s downstream juvenile project survival standard, Douglas PUD has conducted a number of large scale juvenile survival studies. The most recent juvenile project survival study was conducted in 2020. During that study estimated juvenile project survival for yearling spring migrating Chinook was 95.2%. Since the HCP was ratified in 2002 there have been a total of five Juvenile Project survival studies conducted at Wells Dam. The average juvenile project survival for these five studies is 96%, which exceeds the 93% juvenile project survival standard and is the highest juvenile project survival rate for any hydro projects on the Columbia or Snake rivers (Gingerich et al. 2020).

DOUGLAS PUD EASILY ACHIEVES WELLS HCP SURVIVAL STANDARDS

The fish-friendly design of the Wells Hydroelectric Project facilitated the achievement of the project survival standards specified by the Wells Habitat Conservation Plan (HCP). The relevant standards for juveniles are 93% Measured Project Survival, and 95% Calculated Dam Passage Survival. Project survival includes survival through the reservoir, dam, and tailrace.

Wells Bypass Guidance Efficiency:

Yearling Chinook	92.0%
Yearling Steelhead	92.0%
Yearling Sockeye	95.3%
Subyearling Chinook	96.2%

Measured Juvenile Project Survival

1998: Methow Yearling Chinook	99.7%
1999: Methow Yearling Steelhead	94.3%
2000: Methow Yearling Steelhead	94.6%
2010: Methow & Okanogan Yearling Chinook	96.4%
2020: Methow & Okanogan Yearling Chinook	96.2%
5-Year Average for Yearling Spring Migrants	96.04%



Calculated Dam Passage Survival (Based on Bypass Guidance Efficiency)

Yearling Sockeye	>95%
Subyearling Chinook	>95%

FIGURE 11. Wells Habitat Conservation Plan – Project Survival

Downstream passage and survival rates for juvenile Pacific Lamprey is unknown but the PLMP requires a study be conducted once appropriate technology and study methodologies are developed (Douglas PUD 2008). Douglas PUD believes that downstream passage rates of juvenile Pacific Lamprey through the dam are likely similar to that of salmonid species as they are out-migrating at the same time as juvenile salmonids and using the same bypass gates.

Shoreline and Watershed Protection

The Impoundment, Downstream Reach, and Transmission Zones of Effect all meet standard E-2.

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
E	2	<u>Agency Recommendation:</u> <ul style="list-style-type: none">• Provide copies or links to any agency recommendations or management plans that are in effect related to protection, mitigation, or enhancement of shoreline surrounding the facility in the designated ZoE (e.g., Shoreline Management Plans).• Provide documentation that the facility is in full compliance with applicable agency recommendations or management plans.

The Wells Project reservoir shoreline is approximately 108 miles long with 96 miles of natural habitat. The shoreline is generally owned in fee title by Douglas PUD. Also within the Project Boundary are approximately 15 miles of shoreline around isolated ponds, the largest being Washburn Pond. Douglas PUD owns over 99 percent of the shoreline within the Project. Most of the lands upland of the Project boundary are privately owned, primarily used for agriculture, with tracts of federal and state-owned land interspersed as seen in Figure 12. The Wells Project has two 230kV transmission lines which have a 235ft Right of Way (ROW) Easement that travels 41 miles from Wells Dam to Douglas Switchyard, totaling 1117 acres. Lands within the Wells Project Boundary include shrub steppe; irrigated agriculture; wildlife habitat, and recreation lands, including parks in Pateros, Brewster, and Bridgeport.

Land Use Policy

Douglas PUD has implemented a Land Use Policy which ensures that non-Project uses of Wells Project Lands are consistent with the FERC license for the Wells Hydroelectric Project. Where not inconsistent with Project purposes and within the cities urban interface with project lands, Douglas PUD may issue land use permits to adjacent upland property owners for nonexclusive uses of Project lands, including docks, landscaping and existing agriculture uses. Any ground disturbing activities will require cultural resources review, and may require cultural resources survey and mitigation at the applicant's expense prior to consideration for approval.

The goals of the Land use Policy include: complying with federal and state law for protection of cultural resources located on Wells Project of Douglas PUD lands in coordination with appropriate agencies, develop only those recreational facilities that will not interfere with the preservation of natural ecosystems associated with the Wells Project, and sustain the existing natural systems associated with the Wells Project or other PUD lands.

The full Land Use Policy can be found at <https://douglaspud.org/environmental-stewardship/for-regulatory-agencies/terrestrial-resources/land-use-policy-and-permitting/>.

Off-License Settlement

Public Utility District No. 1 of Douglas County (Douglas PUD) strives to be a good steward of wildlife and fish resources. The Wells Project area is home to a variety of fish (i.e. salmon, steelhead, trout and bass) and wildlife (i.e. otters, waterfowl, upland birds, eagles and deer). As part of the relicensing of the Wells Project, Douglas PUD and the Washington State Department of Fish and Wildlife (WDFW) entered into an Off-License Settlement Agreement (Off-License Settlement) on December 17, 2007.

Under the terms of the Off-License Settlement, Douglas PUD provides funds for the operation and maintenance of the Wells Wildlife Area (WWA). The WWA is operated by WDFW and consists of six Habitat Management Units with a combined area of over 8,200 acres as seen in Figure 12. Development of wildlife habitat for native wildlife species along with public wildlife-oriented recreation are features of this Off-License Settlement. As part of the Agreement, Douglas PUD also annually raises 20,000 pounds of rainbow trout for recreational fishing enhancement in non-project waters including planting fish in 26 lakes in Okanogan, Chelan and Douglas counties.

Wildlife and Botanical Management Plan

The Wildlife and Botanical Management Plan (WBMP) is an important component in the Wells Project license. The WBMP is intended to guide wildlife management activities and to protect rare, threatened, and endangered (RTE) wildlife and plant species on Project lands during the term of the new license for the Wells Project. Douglas PUD developed this plan in consultation with U.S. Fish and Wildlife Service and Washington State Department of Fish and Wildlife.

The WBMP will protect and enhance the habitat of rare, threatened, and endangered wildlife and botanical species on Project lands. Bald eagle perching opportunities will be protected and increased. Food plots will be planted annually to provide food for wintering waterfowl. Douglas PUD will patrol the Wells reservoir to prevent unauthorized encroachment on Project land and replace damaged habitat. Noxious weeds will be controlled on Project lands while protecting sensitive plants and habitats.

Douglas PUD performs invasive plant surveys every five years to look for new species. Every 10 years. Douglas PUD is required to control all State Classified A, and County B class designated invasive weeds in the ROW corridor. There is a 500ft buffer zone around these RTE plant sites where herbicide spraying or ground disturbing activities is prohibited. This includes Thompson's Clover (*Trifolium Thompsonii*) and Brewer's Navarretia that were found in the last survey of the transmission line corridor. Douglas PUD had two employees that controlled Class A and Class B weeds during the spring, summer and fall of 2022. Weeds were controlled on Wells Project land and the Wells 230 kV Transmission Line Corridor. Douglas PUD worked with the Okanogan County Weed Control Board to identify any new infestation of weeds on Wells Project lands within Okanogan County. Terrestrial weed surveys were completed in 2017 (DCPUD 2018) in the spring and summer of 2022. Locations of class B and C weeds were mapped for the entire project (Appendix F of the Wildlife and Botanical Management Plan). Results from this study were shared with Douglas PUD's Land Services department and certified weed control operators were dispatched in order to treat these areas.

The Weed Management Plan for the Wells Project include the following steps to control weeds:

1. Consider the species of noxious weeds, density and size of the sites and surrounding vegetation when determining control measures.
2. Consider the land use of the site.
3. Acquire all environmental permits required (e.g., wetlands).
4. Consult the Washington State Department of Agriculture, pesticide-sensitive individual lists for properties adjacent to the control site.
5. Determine the effectiveness of various control options: burning, tilling, digging, herbicide application by wicking, spot spraying or broadcast spraying, or biological control agent.
6. Determine the most effective physiological growth stages of the target weed to obtain maximum control with least impact to surrounding vegetation.

7. Control weeds using method(s) selected for the site.
8. Monitor all application sites to determine the effectiveness of the weed control.
9. Control sites denuded by herbicide treatment will be replanted with native plant species appropriate to the site.

Douglas PUD employees use appropriate weed control methods that are specific to the species of weed to be controlled and the location of the weeds on the landscape. The lowest concentration of herbicide is used that is effective at eradicating the target weeds. All weed control sites are revisited to determine the effectiveness of the herbicide application and reapplied, if needed. Douglas PUD has been using biological control agent (insects) specific to the Class B noxious weeds purple loosestrife (*Lythrum salicaria*) and Dalmatian toadflax (*Linaria dalmatica*) rather than applying herbicides to kill these weeds. Douglas PUD chose biological control for purple loosestrife since it is a wetland plant and herbicides would harm other wetland plants. Biological control was picked for Dalmatian toadflax since it has a waxy leaf that is resistant to control with herbicides.

Douglas PUD developed a Weed Management Plan in 2014 to inform employees and contractors performing weed control work on the Wells Project lands and the Wells 230 kV Transmission Line Corridor. Douglas PUD employees maintain adherence to the below practices and protocols toward minimizing new weed infestations on Wells Project lands.

- Use certified weed free straw and mulch and seed for habitat restoration projects.
- Limit public vehicle traffic to designated roads on Project lands.
- Douglas PUD employees and contractors will be instructed to check their vehicle undercarriage for weeds before driving on undeveloped Project lands.
- Minimize earth disturbing activities by vehicles, machinery, and water runoff on undeveloped land.
- Manage healthy native vegetation and replant native vegetation disturbed by Douglas PUD's management activities.

The Wildlife Management Plan can be found here:

https://nr.dcpud.net/_layouts/15/WopiFrame.aspx?sourcedoc={3FD5AFBE-3A0B-4593-884E-ACD17DA29D43}&file=Wildlife_Management_Plan.DOC&action=default&DefaultItemOpen=1

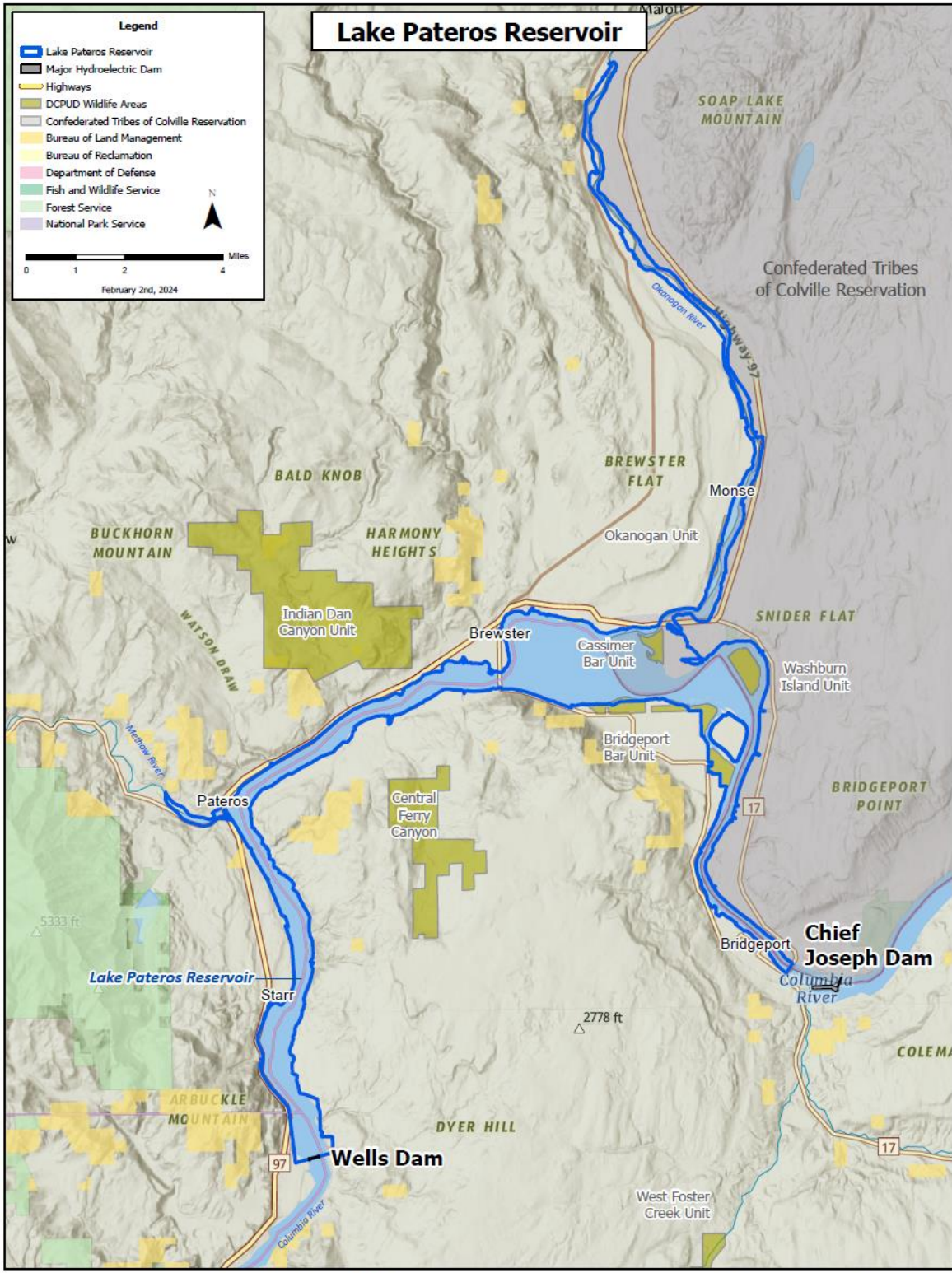


Figure 12. Well Project reservoir shoreline and surrounding area

Threatened and Endangered Species

The Impoundment, Downstream Reach, and Transmission Zones of Effect meet the F-3 Standard for Threatened and Endangered Species. Maps of Threatened and Endangered Species are included in Appendix A.

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
F	3	<p><u>Recovery Planning and Action:</u></p> <ul style="list-style-type: none"> • If listed species are present, document that the facility is in compliance with relevant conditions in the species recovery plans, incidental take permits or statements, biological opinions, habitat conservation plans, or similar government documents. • Document that any incidental take permits and/or biological opinions currently in effect were designed as long-term solutions for protection of listed species in the facility area.

Steelhead Trout and Spring Chinook Salmon

Upper Columbia River (UCR) steelhead were listed as endangered on August 18, 1997; reclassified as threatened on January 5, 2006; and because of a legal challenge, reinstated to endangered status on June 13, 2007. UCR Spring Chinook were listed as *endangered* on March 24, 1999. They are found in the mainstem Columbia River, the Methow River, and UCR steelhead are also present in the Okanogan River (see map in Appendix A).

As part of the HCP approval process, the Wells Project was issued an Endangered Species Act incidental take statement (ITS) from NOAA in 2003. This ITS is valid for a term of 50 years starting in 2004, when the FERC approved the HCP and amended it into the Project license, and ending in 2054. This incidental take statement covers all operation and maintenance activities at Wells Dam for UCR steelhead, UCR Spring Chinook, UCR summer/fall Chinook, and Okanogan River sockeye salmon (all of which are currently listed or could be listed during the term of the take statement; NOAA 2003). The primary means of estimating/reporting incidental take occurs using survival estimates through the project (see passage sections above) as fish are not generally handled as they pass through the dam, except for when fish are salvaged from the fishway during de-watering for maintenance or adults are handled in order to conduct passage studies or for hatchery brood stock. Douglas PUD reports all incidental take to NOAA on an annual basis via annual reporting. In 2012, as part of the relicensing of the Wells Project, NOAA issued an updated biological opinion supporting the continuation of the 2004 ITS specifically for UCR Steelhead and Spring Chinook Salmon that interact with the Wells Project.

In 2007, a recovery plan was developed by NOAA for both UCR Spring Chinook salmon and steelhead (UCSRB 2007). This document outlines many of the recovery goals and current actions that are already being implemented. The actions being implemented under the terms of the Wells HCP, including juvenile and adult passage and survival measures, tributary habitat enhancement, and the production of juvenile anadromous fish, toward ensuring No Net Impact is achieved, form the foundation of the NOAA recovery plan for UCR Spring Chinook and steelhead.

Bull Trout

Bull trout were listed as threatened on November 1, 1999. USFWS issued a biological opinion and included an incidental take statement for Columbia River bull trout in 2012 (USFWS 2012). Bull trout are

found in the mainstem Columbia River and the Methow River (see map in Appendix A). Douglas PUD submits an annual report on the project's impact to bull trout, including any incidental take that occurred in the previous year. The USFWS has developed a recovery plan for Mid-Columbia River Bull Trout and this document identifies several potential threats to bull trout related to management of the hydroelectric projects within the Mid-Columbia Basin (USFWS 2015). As part of the Wells Project Aquatic Settlement Agreement, the Bull Trout Management Plan outlines several objectives related to bull trout passage, bull trout stranding during low water/reservoir drawdowns, and other objectives that support the Recovery Plan. In addition, biotelemetry studies show that passage and survival standards for bull trout traveling up- and downstream past Wells Dam are being exceeded as required by the terms and conditions of the most recent Biological Opinion issued by the United State Fish and Wildlife Service.

The USFWS issued a Biological Opinion and Incidental Take Statement for the operation of Wells Dam and the associated hydro-related mitigation activities including hatchery and habitat enhancement actions on June 12, 2012.

Wildlife and Botanical Management Plan

The Washington Natural Heritage Program (WNHP), which is administered by the Washington Department of Natural Resources, has developed a list of plant species considered endangered, threatened, sensitive, possibly extirpated, and under review (lists 1 and 2) for conservation purposes.

EDAW, Inc. (2006a) conducted a baseline botanical survey of Wells Project lands and Parametrix, Inc. (2009) conducted baseline botanical studies on the Wells 230 kV transmission line corridor. Studies included cover type mapping, RTE plant surveys and weed surveys. The four RTE plant species that were documented include two state-threatened species, Thompson's clover (*Trifolium thompsonii*) and little bluestem (*Schizachyrium scoparium*); and one WNHP Review 1 Species: northern sweetgrass (*Hierochloa hirta*). All RTE plant locations were documented using a handheld Global Positioning System (GPS) unit and resulting maps are included in Appendix A. In 2017, Beck Botanical Services and the District found adder's tongue (*Ophioglossum pusillum*), a state threatened species, on Washburn Island. In 2017, WDFW documented swamp milkweed (*Asclepias incarnata*) on the Okanogan River unit. Currently, it's the only known occurrence in Washington State. Native milkweeds are used as a larval host plant by monarch butterflies (*Danaus plexippus*), a species of greatest conservation need in the state.

Beginning in year five (2017) of the new license, and every 10 years thereafter, Douglas PUD will survey and revise site boundaries for populations of little bluestem and Thompson's clover found within the Wells Project boundary. RTE surveys were completed in 2017. No little bluestem and Thompson's clover surveys are required until spring 2027.

For lands owned by Douglas PUD within the Wells Project boundary, no new ground disturbing activities will be allowed within a 500-foot buffer zone surrounding the RTE plant locations and no land use permits will be issued for these buffer areas. Any weed control needed within the buffer zone will utilize the following methods in descending order of preference: biological control, hand pulling, and hand wiping of individual weeds with herbicide. Details of the Weed Control Plan can be found in Section 4.6 of the WBMP. In 2023, Douglas PUD did not allow any ground disturbing activities to happen below the Wells Project boundary within five hundred feet of the RTE plant locations identified in the EDAW (2006a) RTE plant surveys. Douglas PUD's vegetation management employees have been informed of the RTE plant sites and no weed control was needed in any of the RTE plant locations during 2023. Bi-monthly reservoir

surveys will continue as a deterrent to future ground disturbing activities adjacent to the RTE plants identified within the Wells Project boundary.

Douglas PUD is required by Article 409 of the license for the Wells Project to annually consult the WNHP to review their rare plant list and include an updated copy in the annual Terrestrial Report to the FERC. A current copy of the WNHP rare plant list can be found in Appendix B of the Wildlife and Botanical Management Plan. The list was compiled by WNHP rare plant database for Chelan, Douglas and Okanogan counties, updated by WNHP in August 2021. No updates were available for 2022 or 2023.

Cultural and Historic Resources

The Impoundment, Downstream Reach, and Transmission Zones of Effect meet the G-2 Standard for Cultural and Historic Resources.

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
G	2	<p><u>Approved Plan:</u></p> <ul style="list-style-type: none"> • Provide documentation of all approved state, federal, and recognized tribal plans for the protection, enhancement, and mitigation of impacts to cultural and historic resources affected by the facility. • Document that the facility is in compliance with all such plans.

To protect cultural resources, Douglas PUD implements a Historic Properties Management Plan (HPMP) and programmatic agreement as part of its FERC license. The HPMP includes provisions for the protection of cultural resources within the Wells Project area of potential effects (APE) in compliance with the National Historic Preservation Act (NHPA) during the term of the FERC license (2012 – 2052).

The HPMP provides guidelines for management of historic properties potentially affected by the operation and maintenance of the Wells Project. The HPMP contains provisions for 1) coordination and consultation with the Washington State Historic Preservation Officer (SHPO), Confederated Tribes of the Colville Reservation Tribal Historic Preservation Officer (CCT THPO), FERC and other parties as appropriate; 2) education and interpretation for the public and Douglas PUD staff; 3) inadvertent discoveries and emergency situations; 4) management standards for monitoring and treatment of cultural resources; 5) curation and data management; and 6) periodic updates to accommodate for environmental and regulatory changes. The current HPMP was most recently updated in 2023.

Since 1957, numerous cultural resource inventories, site evaluations, protection measures, and monitoring studies have been conducted as part of the original Wells Project license, resulting in the identification of over 200 archaeological sites. Douglas PUD continues to implement measures for the identification, evaluation, and management of cultural resources within the Wells Project. These include annual archaeological monitoring of high priority archaeological sites, archaeological monitoring during low reservoir events, evaluation of individual sites for NRHP eligibility, and implementation of site protection measures for sites that may be impacted by Wells Project operations.

Douglas PUD regularly consults with the Wells Project Cultural Resources Work Group to develop strategies for monitoring and treatment of historic properties. The work group is comprised of representatives from the Confederated Tribes of the Colville Reservation (CCT), the Washington Department of Archaeology and Historic Preservation (DAHP), FERC, the Bureau of Land Management, the Bureau of Indian Affairs, and Douglas PUD. This group meets and corresponds on a regular basis. Further, the CCT History/Archaeology Program conducts much of the annual archaeological monitoring work on the Wells Project under contract with Douglas PUD.

Douglas PUD implements various archaeological site treatment measures or mitigation to protect historic properties. While erosion of sediments containing archaeological deposits is typically addressed through shoreline stabilization and limited archaeological investigations, other types of treatment are considered when these standard protection and mitigation measures are not feasible. Mitigation is a way to remedy, offset, or compensate for an adverse effect. Mitigation can take the form of, but is not limited to, public

interpretation, educational opportunities, archaeological data recovery, and historical research and documentation. Creative off-site mitigation might be used to enhance other similar resources, conduct research and analysis on collected archaeological materials, educate the public regarding endangered cultural resources, or other appropriate mitigation actions. Douglas PUD has also established an inadvertent discovery protocol for cases where previously unidentified archaeological resources are inadvertently discovered. The HPMP includes two specific protocols for inadvertent discovery of both archaeological resources and human remains.

The HPMP also includes provisions for employee and public education on cultural resources. The employee education program provides guidance for Douglas PUD employees and as necessary, contractor personnel who are involved with ground disturbing projects, building repair, and other Wells Project activities that could adversely affect historic properties. Managers are made aware of existing cultural resource inventories, the Wells Project inadvertent discovery plan, and the Secretary of the Interior's guidelines for the Treatment of Historic Properties, which provide guidance to work on historic hydroelectric facilities. The program also describes procedures for inadvertent discoveries, compliance with cultural resource regulations, and the concerns of tribes and other consulting parties. The public education component includes measures such as developing and maintaining interpretive exhibits at the Wells Project or other suitable locations, and other measures to inform and educate the public about the full range of human history as it relates to the Wells Project.



In addition to managing and protecting archaeological resources, Douglas PUD also implements a management program for historic structures within the Wells Dam Complex. In 2017 the Wells Dam Complex was determined eligible for listing on the National Register of Historic Places. As such, Douglas PUD has developed a Historic Preservation Management and Maintenance Guidelines document for activities associated with the dam, powerhouse, and other associated hydroelectric buildings or structures.

Cultural resources within the 230kv transmission line right-of-way (ROW) corridor are managed under the Wells Project HPMP. An archaeological survey has been conducted for the ROW which identified twelve archaeological sites. These sites are regularly monitored under the HPMP's archaeological monitoring program. All previously recorded archaeological sites along the ROW were revisited by archaeologists in 2023 in order to identify any change in conditions. Recommendations for future management measures were developed through consultation with the Wells Project Cultural Resources Work Group. The monitoring program will continue for the term of the Wells Project FERC license.

Recreational Resources

Both the Impoundment and Downstream Reach zones are standard H-2.

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
H	2	<u>Agency Recommendation:</u> <ul style="list-style-type: none"> Document any resource agency recommendations and any enforceable recreation plan that is in place for recreational access or accommodations. Document that the facility in the designated ZoE is in compliance with all such recommendations and plans.

The Transmission System Zone does not have any areas available for Recreational purposes. Except for some small tracts of public land, the transmission corridor is privately owned, and is accessed only for transmission line maintenance through easements with the landowners. Although there is some public land along the corridor, the transmission line right-of-way does not offer specific additional opportunities for recreational access.

<i>Criterion</i>	<i>Standard</i>	<i>Instructions</i>
H	1	<u>Not Applicable / De Minimis Effect:</u> <ul style="list-style-type: none"> Document that the facility does not occupy lands or waters in the designated ZoE to which public access can be granted and that the facility does not otherwise impact recreational opportunities in the facility area.

The Wells Project provides a variety of recreation opportunities for residents and visitors. Many people take advantage of the Wells Project area during the spring and summer including boating, fishing, bird watching, hiking, and camping. Additionally, sportsmen visit the area during the fall season to fish for steelhead and to hunt waterfowl, upland birds, and deer. Douglas PUD’s recreation developments include parks and boat launches as well as designated wildlife areas. Further, Douglas PUD owns over 95 percent of the shoreline, which includes over 2000 acres of land that is open to public use.

Douglas PUD’s approach to developing and enhancing recreational access to the lands and waters within the Project Boundary has been documented in its Wells Recreation Plan (1967), Wells Recreation Plan Supplement (1974), Public Use Plan (1982), Recreation Action Plans (1987, 1992, 1997, 2002 and 2007), and the Recreation Management Plans (2012 and 2023). Douglas PUD has funded and developed nineteen formal recreation facilities along the Wells Reservoir in Pateros, Brewster, and Bridgeport and along the lower reaches of the Methow and Okanogan rivers. There are also four designated wildlife areas within the Wells Project FERC boundary. [Wells Reservoir Recreation \(douglaspud.org\)](http://douglaspud.org)

The location of Wells Project recreation sites and recreational use areas are shown on Figure 14 below. Descriptions of existing recreational sites and facilities within the Wells Project are provided in Table 5. All facilities are located within the Wells Project FERC boundary and were developed and are maintained by Douglas PUD under the FERC license. Additional information and interactive maps can be found on Douglas PUD’s [Parks and Recreation website](http://douglaspud.org). Douglas PUD also installed informational kiosks at all major recreation developments (Figure 13).



Figure 13. Wells Project informational kiosk.

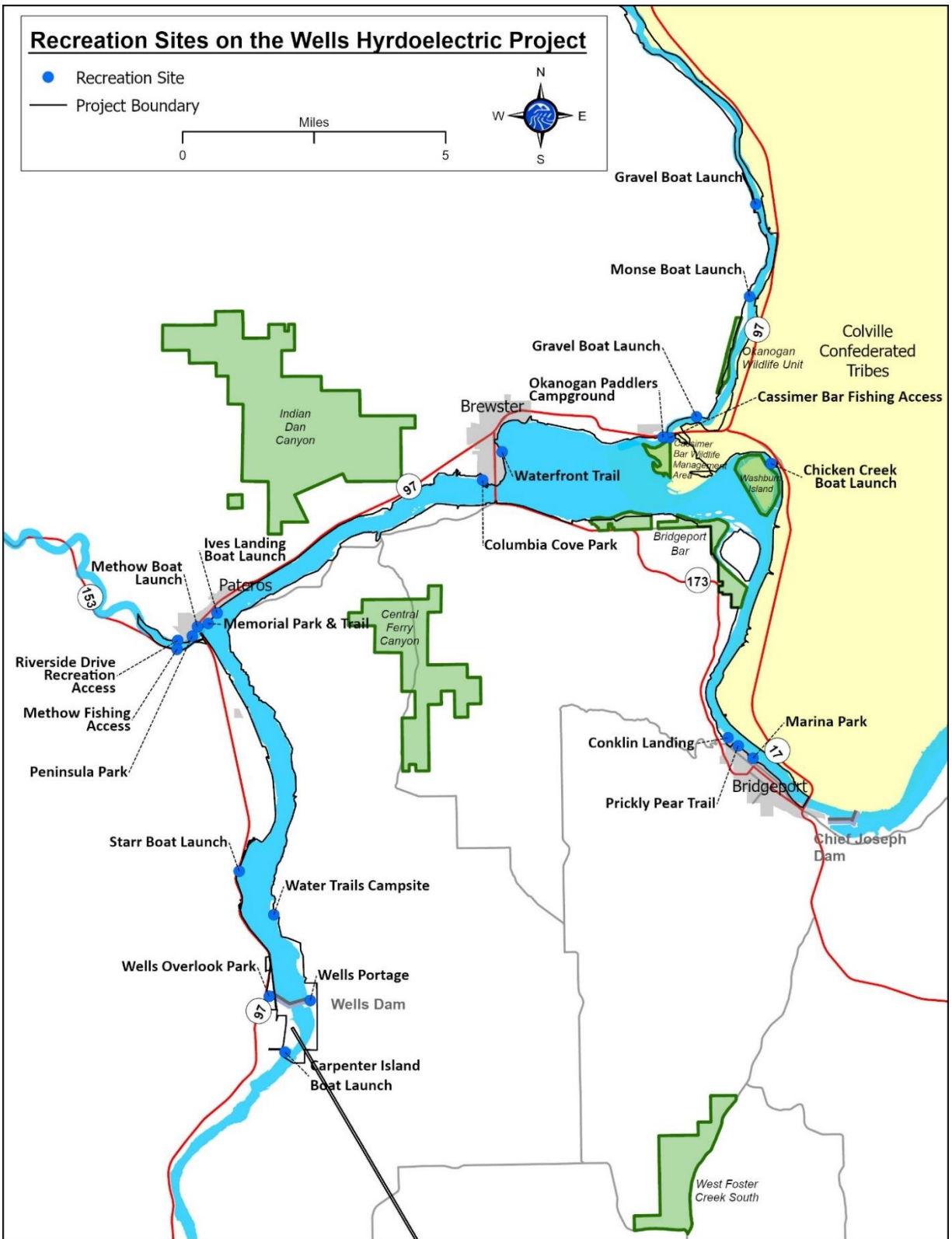


Figure 14. Map of Recreation Sites in the Wells Project

Table 5. Well Project Recreation Facilities

Peninsula Park

Peninsula Park is in Pateros near the confluence of the Methow and Columbia rivers. It includes one gazebo, paved walking path, covered picnic shelter, swimming beach, restroom facilities, playground equipment, swimming lagoon, vehicle parking and lawn area.



Memorial Park

Memorial Park is in Pateros along the Columbia River. It includes three covered picnic shelters, fishing and ski docks, vehicle parking, interpretive displays, playground equipment, concrete water access ramp, restroom facilities and a developed waterfront trail with park benches and lighting.



Ives Landing Boat Launch

The Ives Landing Boat Launch is in Pateros upstream of Memorial Park along the Columbia River. The site includes a concrete boat launch, dock, and parking. This boat launch provides year-round access to the Wells Reservoir, including winter when the Methow Boat Launch may be unusable due to ice on the Methow River. The City of Pateros has added overnight campsites adjacent to the launch.

Methow Boat Launch

The Methow Boat Launch is in Pateros between Peninsula Park and Memorial Park at the confluence of the Columbia and Methow rivers. The site includes a concrete boat launch and dock, parking, basketball hoops and restrooms. The boat launch area is connected to Memorial Park via an accessible walkway underneath Highway 97 and the railroad bridge.

Riverside Drive Recreation Access

The Riverside Drive Recreation Access is in Pateros along the left bank of the Methow River, upstream from Peninsula Park. The site includes a gradual landscaped access to the Methow River for fishing, kayaking, or canoeing.

Columbia Cove Park

Columbia Cove Park is in Brewster and includes a boat launch, boat docks, three covered picnic shelters, a swimming beach, restroom facilities, playground equipment, a lawn area, and vehicle parking.



Brewster Waterfront Trail

The waterfront trail in Brewster consists of a compacted stone surface that extends approximately one-half mile along the Brewster city waterfront. The trail is generally 6 to 8 feet above the water level and 20 feet or more below adjacent streets and residential areas.

Marina Park

Marina Park in Bridgeport includes covered picnic shelters, gazebo, playground equipment, swimming lagoon and swim platform, beach, a lawn area, restrooms, vehicle parking, asphalt pathway, a boat launch, and an RV campground. The RV campground includes 18 full hookups and five tent sites.

Conklin Landing

Conklin Landing includes RV campsites, restroom and shower facilities, lawn area, and a boat launch. The RV campground includes 17 full hookups. A trail along the shoreline connects to Marina Park.



Prickly Pear Trail

A ½ mile compacted gravel walking trail meandering along the shoreline of the Columbia River, within Bridgeport city limits, that connects Marina Park and Conklin Landing.



Wells Overlook

Wells Overlook Park is an outdoor interpretive center overlooking Wells Dam. The park includes vehicle and day-use RV parking, restrooms, and a picnic shelter, and one-half mile compacted gravel walking trail. There are also interpretive exhibits throughout the facility including Native American pictographs, a Wells Project information kiosk, and an original Wells Project turbine runner.



Carpenter Island Boat Launch

The Carpenter Island Boat Launch is a concrete plank boat launch located on the right bank of the Wells Tailrace about one mile downstream of Wells Dam. It includes a double-lane launch, handling floats and a restroom.



Starr Boat Launch
Starr Boat Launch is located on the right bank of the Wells Reservoir near RM 518. It is accessible via Highway 97. This site includes a gravel parking area, concrete boat launch and vault toilet.
Methow Fishing Access
The Methow Fishing Access is located off State Highway 153 approximately ½ mile from Highway 97 at the confluence of the Columbia and Methow rivers. The site is 2.4 acres and includes a gravel car-top boat launch, gravel parking area and two vault toilets.
Chicken Creek Boat Launch
The Chicken Creek Boat Launch is located near RM 537 at Washburn Island where Chicken Creek flows into the Washburn Pond. The facilities include a concrete plank boat launch, gravel parking lot and vault toilet. The boat launch provides access to the Washburn Pond but not the Wells Reservoir.
Monse Boat Launch
The Monse Boat Launch was developed by Douglas PUD and is located on the right bank of the Okanogan River at RM 4.7. Facilities at the boat launch include a concrete plank launching ramp, gravel parking and a vault toilet.
Cassimer Bar Fishing Access
The Cassimer Bar Fishing Access site was developed by Douglas PUD and is located on the left bank of the Okanogan River near RM. The site is near the Highway 97 Bridge near the confluence of the Okanogan and Columbia rivers. This site includes shoreline access, a parking area, a vault toilet, and single-track walking trails.
Okanogan River Informal Boat Launch and Fishing Site 1
The Okanogan River Informal Boat Launch 1 is a gravel boat ramp located on the right bank of the Okanogan River at RM 2.5. Public access to the site is available via Monse River Road off of Highway 97. This undeveloped area serves as a boat launch primarily for fishermen and waterfowl hunters. This site also provides shoreline fishing access.
Okanogan River Informal Boat Launch and Fishing Site 2
The Okanogan River Informal Boat Launch 2 is a gravel boat ramp located on the right bank of the Okanogan River at RM 6.7. Public access to the site is available via Monse River Road. This undeveloped area serves as boat launch for waterfowl hunters and fishermen. This site also provides shoreline fishing access.
Okanogan River Paddlers Campground
The Okanogan River Paddlers Campground is located on the right bank near RM 1 of the Okanogan River. This campground is accessible only by river and is for use by non-motorized boaters. The facility includes four tent pads, a picnic shelter, vault toilet, food storage locker, and a concrete launch ramp.



Rustic Boat-In Camping Area

The Rustic Boat-In Camping Area is located at RM 517.5 on the left bank of the Columbia River. It is available for camping for non-motorized boaters and consists of two tent pads.

Recreation Facilities Maintenance and Improvements

Upon issuance of the new FERC licensee for the Wells Project in 2012, Douglas PUD began implementing the measures contained within the RMP. Those measures included various recreation facility operation and maintenance programs as well as capital improvements to existing facilities and development of new facilities. During that time, Douglas PUD has also completed significant facility upgrades due to aging facilities or a demonstrated need based on use observations or stakeholder input (see Table 6). Since 2011, all boat launch facilities have been upgraded to modern standards.

In 2022, Douglas PUD conducted recreation visitor use surveys at 19 recreation sites during the peak recreation season (May 27 – September 8). During 48 days of sampling, surveys were obtained either in person or online from 305 visitor groups. Automatic traffic counters were installed at seven recreation sites and spot counts were conducted at all 19 sites. Ratings of overall site satisfaction and overall area satisfaction were high, averaging 4.7 on a scale from 1 (Very Dissatisfied) to 5 (Very Satisfied). Satisfaction with site amenities was also quite high, ranging from 4.4 to 4.7 on the 1-to-5 scale. Crowding was generally not an issue at recreation sites or on the water, with an average rating of 4.7 and 4.2, respectively, on a scale from 1 (Extremely Crowded) to 5 (Not at all Crowded).

Operation and maintenance (O & M) activities at Douglas PUD recreation facilities are conducted either by contracted custodial and landscaping services, Douglas PUD staff, or through agreements with the cities of Pateros, Brewster, and Bridgeport. Based on user surveys as well as online ratings, Wells Project recreation facilities are rated very high in cleanliness. The most recent FERC environmental inspection was conducted on August 6, 2014.

Table 6. Recreation Improvement Measures since 2011.

Project	Year	Cost*
Brewster & Bridgeport Boat Launch Improvements	2011	\$716,000
Peninsula Park Swim Beach	2012	\$65,800
Carpenter Island Boat Launch	2015	\$2,460,000
Methow Launch Dredging	2015	\$628,000
Methow Launch and Chicken Creek Launch Extensions	2015	\$60,000
Memorial Park Trail Repave	2015	\$62,000
Marina Park RV Electrical Upgrade	2016	\$60,000
Memorial Park Playground Surface Replacement	2016	\$30,000
Conklin Landing Boat Launch	2016	\$130,000
Wells Overlook Interpretive Center and Restroom Replacement	2017	\$1,670,000
Okanogan River Paddlers Campground	2017	\$200,000
Ives Landing Restroom and Parking	2017	\$180,000
Peninsula Park Restroom Replacement	2018	\$123,000
Memorial Park Restroom Remodel	2018	\$200,000
Memorial Park and Ives Landing Dock Replacements	2018	\$750,000
Columbia Cove Shoreline Improvements	2018	\$270,000
Conklin Landing RV Park	2019	\$1,134,000
Restroom Replacement Starr Boat Launch	2020	\$25,000
Restroom Replacement Methow Access	2020	\$75,000
Marina Park Trail Repave and Extension	2020	\$165,000
Memorial Park Picnic Shelter Replacements	2021	\$100,000
Brewster Playground Replacement	2021	\$75,000
Bridgeport Trail	2022	\$40,000
Pateros Trail Extension	2022	\$307,000
Bridgeport Entrance Signs	2022	\$10,000
Cassimer Bar Fishing Access Restroom Replacement	2022	\$42,000
Chicken Creek Restroom Replacement	2022	\$42,000
Wildlife Viewing Enhancements	Underway	
Methow Launch Dock Replacement	2023	\$54,000
Marina Park & Conklin Restroom Floor Resurface	2023	\$30,000
Parks pavement sealcoat (Pateros, Carpenter Island)	2023	\$25,000
Ives Landing Picnic Shelter	2023	\$60,000
Columbia Cove Restroom Replacement	2024	\$550,000

*Costs do not include engineering, design, and permitting.

References

Anchor QEA. 2023. Annual Report Calendar Year 2022 Activities Under the Aquatic Settlement Agreement. May 2023.

Anchor QEA and Douglas PUD. 2023. Annual Report Calendar Year 2022 of Activities Under the Anadromous Fish Agreement and Habitat Conservation Plan. May 2023.

Department of Ecology (Ecology). 2019. Draft Rule Implementation Plan Chapter 173-201A WAC Water Quality Standards for Surface Waters of the State of Washington. Department of Ecology State of Washington. Publication 19-10-024 Olympia, WA.

Douglas PUD and Anchor Environmental, L.L.C. 2010. Annual Report Calendar Year 2009 of Activities Under the Anadromous Fish Agreement and Habitat Conservation Plan. Wells Hydroelectric Project FERC License NO. 2149.

Ecology. 2004a. Total Maximum Daily Load for Total Dissolved Gas in the Mid-Columbia River and Lake Roosevelt. Publication No. 04-03-002.

Ecology. 2004b. Lower Okanogan River Basin DDT and PCBs Total Maximum Daily Load (TMDL). Publication No. 04-10-043.

Fish Passage Center (FPC). 2019. Gas Bubble Trauma Monitoring Protocol and GBT.net Data Entry User's Manual. Version – 2019 Season.

Gingerich, A., S.A. Bickford, T. Kahler, J.R. Skalski, R.L. Townsend, R. Richmond, and S. Anglea. 2020. Project Survival Estimates for Yearling Chinook Migrating Through the Wells Hydroelectric Project, 2020. Public Utility District No. 1 of Douglas County, East Wenatchee, WA. October 2020.

LGL and Douglas PUD. 2008. Wells Bull Trout monitoring and management plan 2005-2008 final report. Report to Public Utility District No. 1 of Douglas County, East Wenatchee, WA.

National Marine Fisheries Service (NMFS). 2002. Anadromous Fish Agreements and Habitat Conservation Plans: Final Environmental Impact Statement for the Wells, Rocky Reach, and Rock Island Hydroelectric Projects. US Department of Commerce. National Oceanic and Atmospheric Administration. National Marine Fisheries Service, Northwest Region, Portland, OR. December 2002.

NOAA Fisheries (National Oceanic and Atmospheric Administration Fisheries). 2003. Biological Opinion, Unlisted Species Analysis, and Magnuson-Stevens Fishery Conservation and Management Act Consultation for Proposed Issuance of a Section 10 Incidental Take Permit to Public Utility District No. 1 of Douglas County for the Wells Hydroelectric Project (FERC No. 2149) Anadromous Fish Agreement and Habitat Conservation Plan. August 12, 2003.

Public Utility District No. 1 of Douglas County (Douglas PUD). 2002. Anadromous Fish Agreement and Habitat Conservation Plan for Wells Hydroelectric Project (FERC License No. 2149). March 2002. Public Utility District No. 1 of Douglas County, East Wenatchee, WA.

Robichaud, D. and A. Gingerich. 2017. Bull Trout Passage and Take Monitoring at Wells Dam and the Twisp Weir: Final Report. November 2017. Report to Public Utility District No. 1 of Douglas County, East Wenatchee, WA.

U.S. Environmental Protection Agency (US EPA). 2021 Columbia and Lower Snake Rivers Temperature Total Maximum Daily Load. Seattle, WA.

United States Fish and Wildlife Service (USFWS). 2012. Biological Opinion for the Proposed Relicensing of Wells Hydroelectric Project. USFWS Reference Numbers: 13410-2011-F-009 and 13260-2006-P-0009. Wenatchee, WA. March 2012.

USFWS. 2015. Mid-Columbia Recovery Unit Implementation Plan for Bull Trout (*Salvelinus confluentus*). Oregon Fish and Wildlife Office, USFWS, Portland, OR. September 2015.

Upper Columbia Salmon Recovery Board (UCSRB). 2007. Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan. UCSRB, Wenatchee, WA. August 2007.

West Consultants, Inc. 2008. Development of a Water Temperature Model Relating Project Operations to Compliance with the Washington State and EPA Water Quality Standards (Water Temperature Study). Wells Hydroelectric Project, FERC No. 2149. Initial Study Report required by FERC. Prepared for Public Utility District No. 1 of Douglas County, East Wenatchee, WA. Appendix B – Pages 1992-2047.

Attestation

As an Authorized Representative of Public Utility District No. 1 of Douglas County, the Undersigned attests that the material presented in the application is true and complete.

The Undersigned acknowledges that the primary goal of the Low Impact Hydropower Institute's certification program is public benefit, and that the LIHI Governing Board and its agents are not responsible for financial or other private consequences of its certification decisions.

The Undersigned further acknowledges that if LIHI Certification of the applying facility is granted, the LIHI Certification Mark License Agreement must be executed prior to the final certification decision and prior to marketing the electricity product as LIHI Certified® (which includes selling RECs in a market that requires LIHI Certification).

The Undersigned further agrees to hold the Low Impact Hydropower Institute, the Governing Board, and its agents harmless for any decision rendered on this or other applications, from any consequences of disclosing or publishing any submitted certification application materials to the public, or on any other action pursuant to the Low Impact Hydropower Institute's certification program.

FOR PRE-OPERATIONAL CERTIFICATIONS:

The Undersigned acknowledges that LIHI may suspend or revoke the LIHI Certification should the impacts of the facility, once operational, fail to comply with the LIHI program requirements.

Authorized Representative:

Name: Shane Bickford

Title: Assistant Manager – Natural Resources and Dam Safety

Authorized Signature:  _____

Date: 3-6-2024

Contacts Forms

Applicant-related contacts

Facility Owner:	
Name and Title	Shane Bickford
Company	Public Utility District No. 1 of Douglas County
Phone	509.881.2208
Email Address	Shane.bickford@dcpud.org
Mailing Address	1151 Valley Mall Parkway, East Wenatchee, WA 99802
Facility Operator (if different from Owner):	
Name and Title	same
Company	
Phone	
Email Address	
Mailing Address	
Consulting Firm / Agent for LIHI Program (if different from above):	
Name and Title	N/A
Company	
Phone	
Email Address	
Mailing Address	
Compliance Contact (responsible for LIHI Program requirements):	
Name and Title	Shane Bickford
Company	Public Utility District No. 1 of Douglas County
Phone	509.881.2208
Email Address	Shane.bickford@dcpud.org
Mailing Address	1151 Valley Mall Parkway, East Wenatchee, WA 99802
Party responsible for accounts payable:	
Name and Title	Accounts Payable
Company	Public Utility District No. 1 of Douglas County
Phone	509.884.7191
Email Address	accountspayable@dcpud.org
Mailing Address	1151 Valley Mall Parkway, East Wenatchee, WA 99802

Current relevant state, federal, and tribal resource agency contacts (excluding FERC).

Agency Contact		Area of Responsibility (check applicable boxes)
Agency Name	Public Utility District No 1 of Douglas Couty	<input checked="" type="checkbox"/> Flows <input checked="" type="checkbox"/> Water Quality <input checked="" type="checkbox"/> Fish/Wildlife <input checked="" type="checkbox"/> Watershed <input checked="" type="checkbox"/> T&E Species <input type="checkbox"/> Cultural/Historic <input type="checkbox"/> Recreation
Name and Title	Shane Bickford	
Phone	509.881.2208	
Email address	Shane.bickford@dcpud.org	
Mailing Address	1151 Valley Mall Pkwy, East Wenatchee WA 98802	

Agency Contact		Area of Responsibility (check applicable boxes)
Agency Name	Public Utility District No 1 of Douglas Couty	<input type="checkbox"/> Flows <input type="checkbox"/> Water Quality <input type="checkbox"/> Fish/Wildlife <input type="checkbox"/> Watershed <input type="checkbox"/> T&E Species <input checked="" type="checkbox"/> Cultural/Historic <input checked="" type="checkbox"/> Recreation
Name and Title	Scott Krieter	
Phone	509.881.2327	
Email address	Scott.krieter@dcpud.org	
Mailing Address	1151 Valley Mall Pkwy	

Stakeholder Contact		Area of Responsibility (check applicable boxes)
Organization Name	National Marine Fisheries Service	<input type="checkbox"/> Flows <input type="checkbox"/> Water Quality <input checked="" type="checkbox"/> Fish/Wildlife <input type="checkbox"/> Watershed <input checked="" type="checkbox"/> T&E Species <input type="checkbox"/> Cultural/Historic <input type="checkbox"/> Recreation
Name and Title	Ritchie Graves	
Phone	503-730-5148	
Email address	Ritchie.graves@noaa.gov	
Mailing Address	1201 NE Lloyd Blvd #1100, Portland, OR, 97232	

Stakeholder Contact		Area of Responsibility (check applicable boxes)
Organization Name	Washington Department of Ecology	<input type="checkbox"/> Flows <input checked="" type="checkbox"/> Water Quality <input type="checkbox"/> Fish/Wildlife <input type="checkbox"/> Watershed <input type="checkbox"/> T&E Species <input type="checkbox"/> Cultural/Historic <input type="checkbox"/> Recreation
Name and Title	Chad Brown	
Phone	360-522-6441	
Email address	Chbr461@ecy.wa.gov	
Mailing Address	300 Desmond Drive SE, Lacey, WA, 98503	

Stakeholder Contact		Area of Responsibility (check applicable boxes)
Organization Name	US Fish and Wildlife	<input type="checkbox"/> Flows <input checked="" type="checkbox"/> Water Quality <input checked="" type="checkbox"/> Fish/Wildlife <input checked="" type="checkbox"/> Watershed <input checked="" type="checkbox"/> T&E Species <input type="checkbox"/> Cultural/Historic <input checked="" type="checkbox"/> Recreation
Name and Title	RD Nelle	
Phone	509-548-2981	
Email address	rdnelle@fws.gov	
Mailing Address	7501 Icicle Road, Leavenworth, WA, 98826	

Stakeholder Contact		Area of Responsibility (check applicable boxes)
Organization Name	Colville Confederated Tribes	<input type="checkbox"/> Flows <input checked="" type="checkbox"/> Water Quality <input checked="" type="checkbox"/> Fish/Wildlife <input type="checkbox"/> Watershed <input checked="" type="checkbox"/> T&E Species <input type="checkbox"/> Cultural/Historic <input type="checkbox"/> Recreation
Name and Title	Kirk Truscott	
Phone	509-884-6980	
Email address	kirk.truscott@colvilletribes.com	
Mailing Address	P.O. Box 150, Nespelem, WA, 99155	

Stakeholder Contact		Area of Responsibility (check applicable boxes)
Organization Name	National Park Service	<input type="checkbox"/> Flows <input type="checkbox"/> Water Quality <input type="checkbox"/> Fish/Wildlife <input type="checkbox"/> Watershed <input type="checkbox"/> T&E Species <input type="checkbox"/> Cultural/Historic <input checked="" type="checkbox"/> Recreation
Name and Title	Susan Rosebrough	
Phone	202-993-6307	
Email address	Susan_rosebrough@nps.gov	
Mailing Address		

Stakeholder Contact		Area of Responsibility (check applicable boxes)
Organization Name	Washington State Parks	<input type="checkbox"/> Flows <input type="checkbox"/> Water Quality <input type="checkbox"/> Fish/Wildlife <input type="checkbox"/> Watershed <input type="checkbox"/> T&E Species <input type="checkbox"/> Cultural/Historic <input checked="" type="checkbox"/> Recreation
Name and Title	Josh Bell	
Phone	509-665-4313	
Email address	Josh.bell@parks.wa.gov	
Mailing Address		

Stakeholder Contact		Area of Responsibility (check applicable boxes)
Organization Name	Washington State Recreation & Conservation Office	<input type="checkbox"/> Flows <input type="checkbox"/> Water Quality <input type="checkbox"/> Fish/Wildlife <input type="checkbox"/> Watershed <input type="checkbox"/> T&E Species <input type="checkbox"/> Cultural/Historic <input checked="" type="checkbox"/> Recreation
Name and Title	Adam Cole	
Phone	360-867-8615	
Email address	Adam.cole@rco.wa.gov	
Mailing Address		

Stakeholder Contact		Area of Responsibility (check applicable boxes)
Organization Name	City of Brewster	<input type="checkbox"/> Flows <input type="checkbox"/> Water Quality <input type="checkbox"/> Fish/Wildlife <input type="checkbox"/> Watershed <input type="checkbox"/> T&E Species <input type="checkbox"/> Cultural/Historic <input checked="" type="checkbox"/> Recreation
Name and Title	Art Smyth	
Phone	509-689-3464	
Email address	Brewstermayor1@frontier.com	
Mailing Address	105 South 3rd St, Brewster WA 98812	

Stakeholder Contact		Area of Responsibility (check applicable boxes)
Organization Name	City of Pateros	<input type="checkbox"/> Flows <input type="checkbox"/> Water Quality <input type="checkbox"/> Fish/Wildlife <input type="checkbox"/> Watershed <input type="checkbox"/> T&E Species <input type="checkbox"/> Cultural/Historic <input checked="" type="checkbox"/> Recreation
Name and Title	Kelly Hook	
Phone	509-449-9670	
Email address	paterosparks@outlook.com	
Mailing Address	PO Box 8, Pateros WA 98846	

Stakeholder Contact		Area of Responsibility (check applicable boxes)
Organization Name	City of Bridgeport	<input type="checkbox"/> Flows <input type="checkbox"/> Water Quality <input type="checkbox"/> Fish/Wildlife <input type="checkbox"/> Watershed <input type="checkbox"/> T&E Species <input type="checkbox"/> Cultural/Historic <input checked="" type="checkbox"/> Recreation
Name and Title	Sergio Orozco	
Phone	509-686-4041	
Email address	mayor@bridgeportwa.net	
Mailing Address		

Stakeholder Contact		Area of Responsibility (check applicable boxes)
Organization Name	Okanogan County	<input type="checkbox"/> Flows <input type="checkbox"/> Water Quality <input type="checkbox"/> Fish/Wildlife <input type="checkbox"/> Watershed <input type="checkbox"/> T&E Species <input type="checkbox"/> Cultural/Historic <input checked="" type="checkbox"/> Recreation
Name and Title	Andy Hover	
Phone	509-669-1606	
Email address	Andy.hover@co.okanogan.wa.us	
Mailing Address		

Stakeholder Contact		Area of Responsibility (check applicable boxes)
Organization Name	Colville Confederated Tribes	<input type="checkbox"/> Flows <input type="checkbox"/> Water Quality <input type="checkbox"/> Fish/Wildlife <input type="checkbox"/> Watershed <input type="checkbox"/> T&E Species <input type="checkbox"/> Cultural/Historic <input checked="" type="checkbox"/> Recreation
Name and Title	Linda Palmer	
Phone	509-634-3138	
Email address	Linda.palmer@colvilletribes.com	
Mailing Address		

Stakeholder Contact		Area of Responsibility (check applicable boxes)
Organization Name	Douglas County	<input type="checkbox"/> Flows <input type="checkbox"/> Water Quality <input type="checkbox"/> Fish/Wildlife <input type="checkbox"/> Watershed <input type="checkbox"/> T&E Species <input type="checkbox"/> Cultural/Historic <input checked="" type="checkbox"/> Recreation
Name and Title	Mark Straub	
Phone	509-745-8537	
Email address	mstraub@co.douglas.wa.us	
Mailing Address		

Stakeholder Contact		Area of Responsibility (check applicable boxes)
Organization Name	Colville Confederated Tribes	<input type="checkbox"/> Flows <input type="checkbox"/> Water Quality <input type="checkbox"/> Fish/Wildlife <input type="checkbox"/> Watershed <input type="checkbox"/> T&E Species <input checked="" type="checkbox"/> Cultural/Historic <input type="checkbox"/> Recreation
Name and Title	Guy Moura	
Phone	509-634-2695	
Email address	Guy.moura@colvilletribes.com	
Mailing Address		

Stakeholder Contact		Area of Responsibility (check applicable boxes)
Organization Name	Washington State Department of Archaeology and Historic Preservation	<input type="checkbox"/> Flows <input type="checkbox"/> Water Quality <input type="checkbox"/> Fish/Wildlife <input type="checkbox"/> Watershed <input type="checkbox"/> T&E Species <input checked="" type="checkbox"/> Cultural/Historic <input type="checkbox"/> Recreation
Name and Title	Rob Whitlam	
Phone	360-890-2615	
Email address	Rob.whitlam@dahp.wa.gov	
Mailing Address		

Stakeholder Contact		Area of Responsibility (check applicable boxes)
Organization Name	Bureau of Land Management	<input type="checkbox"/> Flows <input type="checkbox"/> Water Quality <input type="checkbox"/> Fish/Wildlife <input type="checkbox"/> Watershed <input type="checkbox"/> T&E Species <input checked="" type="checkbox"/> Cultural/Historic <input type="checkbox"/> Recreation
Name and Title	Rich Bailey	
Phone	509-526-1217	
Email address	rbailey@blm.gov	
Mailing Address		

Stakeholder Contact		Area of Responsibility (check applicable boxes)
Organization Name	Bureau of Indian Affairs	<input type="checkbox"/> Flows <input type="checkbox"/> Water Quality <input type="checkbox"/> Fish/Wildlife <input type="checkbox"/> Watershed <input type="checkbox"/> T&E Species <input checked="" type="checkbox"/> Cultural/Historic <input type="checkbox"/> Recreation
Name and Title	Randall Friedlander	
Phone	509-258-4561	
Email address	Randall.friedlander@bia.gov	
Mailing Address		

Appendix A: Additional Maps

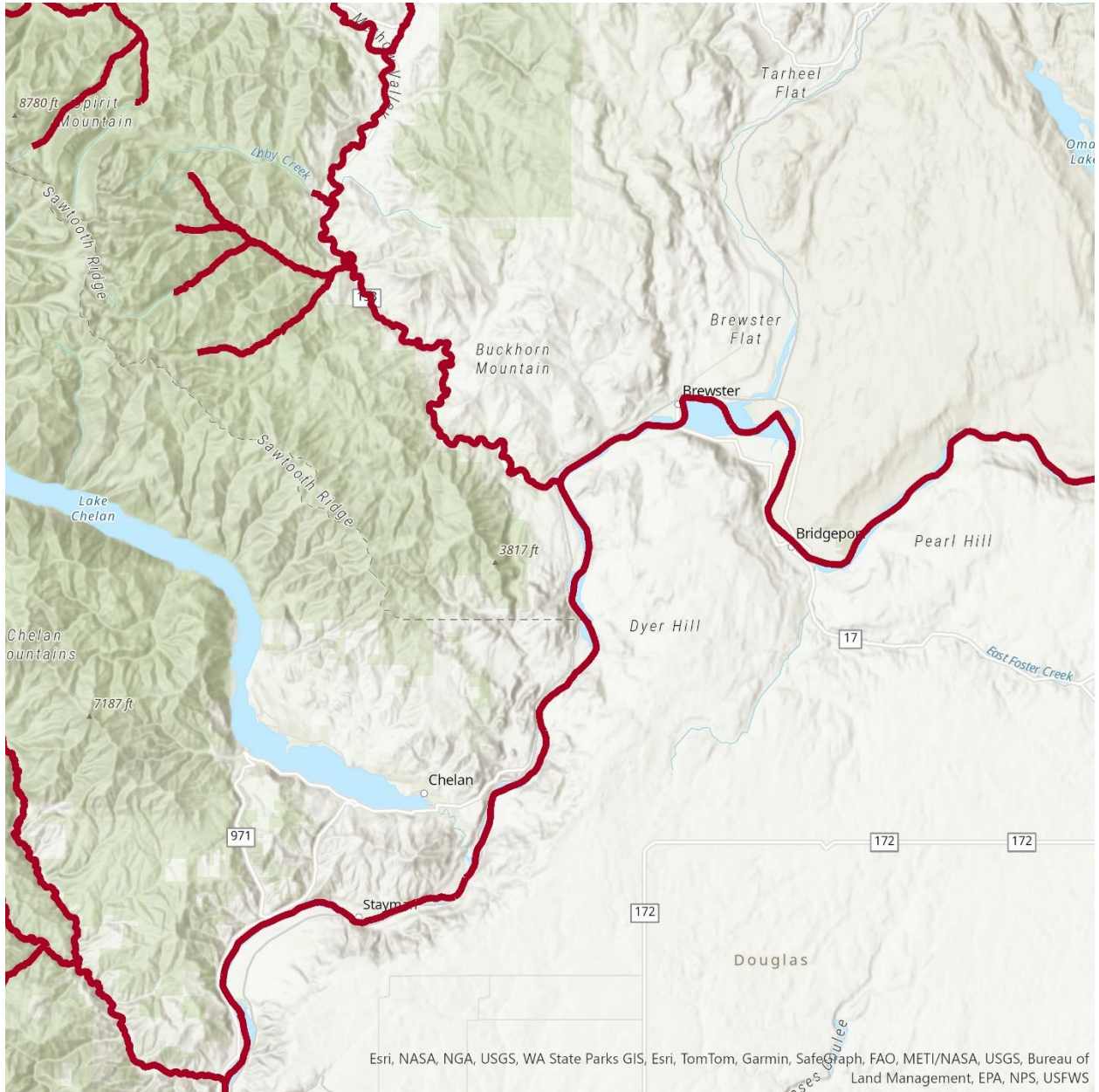


Figure 1. Distribution of Bull Trout within the Wells Dam Project area.

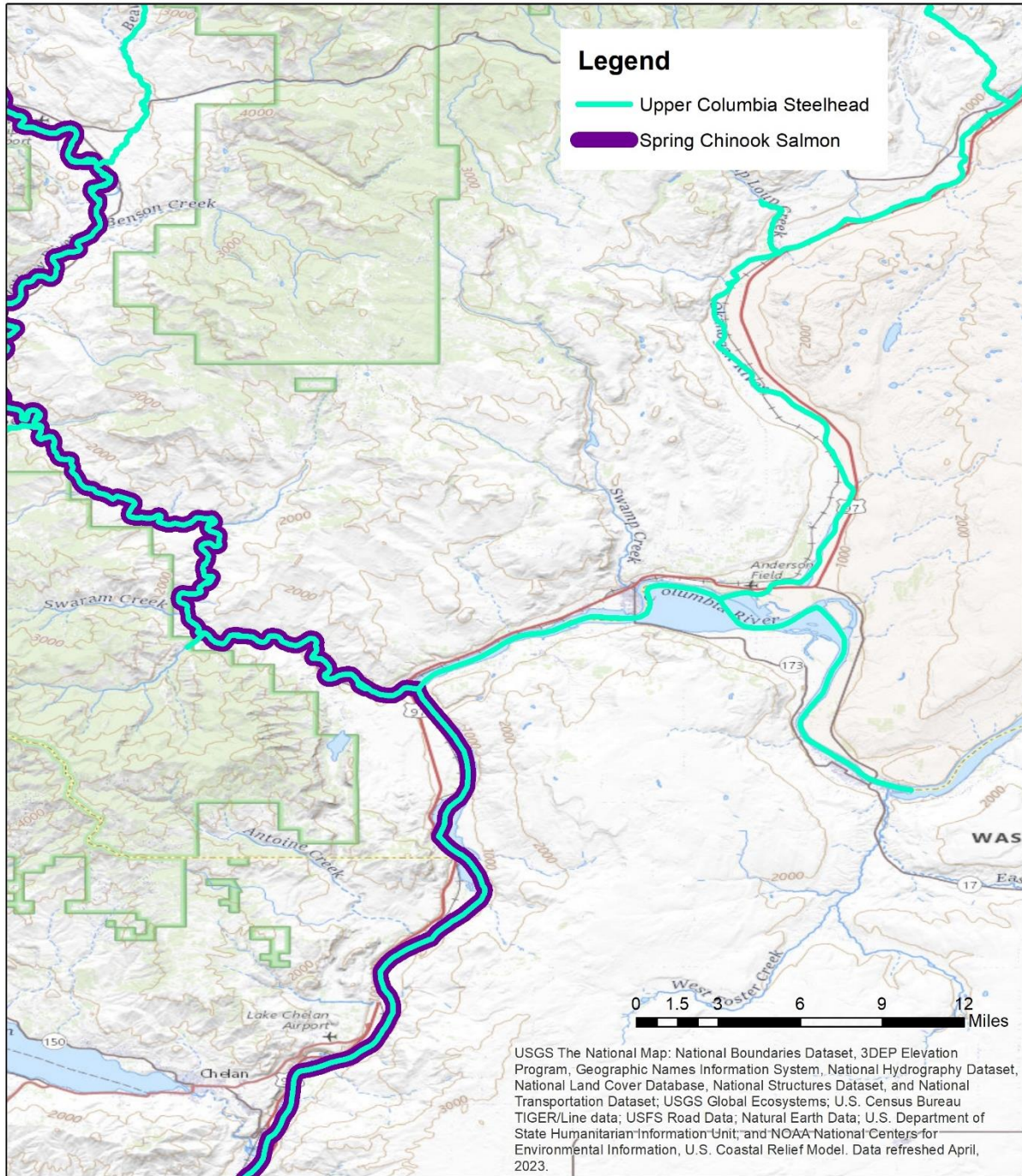


Figure 2. Distribution of Steelhead and Spring Chinook Salmon within the Wells Dam Project area.



- ★ HIOD = *Hierochloa odorata*, sweet grass
- ★ OPPU = *Ophioglossum pusillum*, Adder's tongue
- SCSC = *Schizachryum scoparium*, little bluestem
- Wells Project Boundary

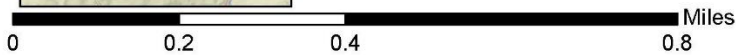
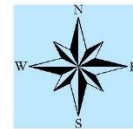


Figure 3. Presence of listed plant species within the Wells Reservoir, Map 1 of 2.



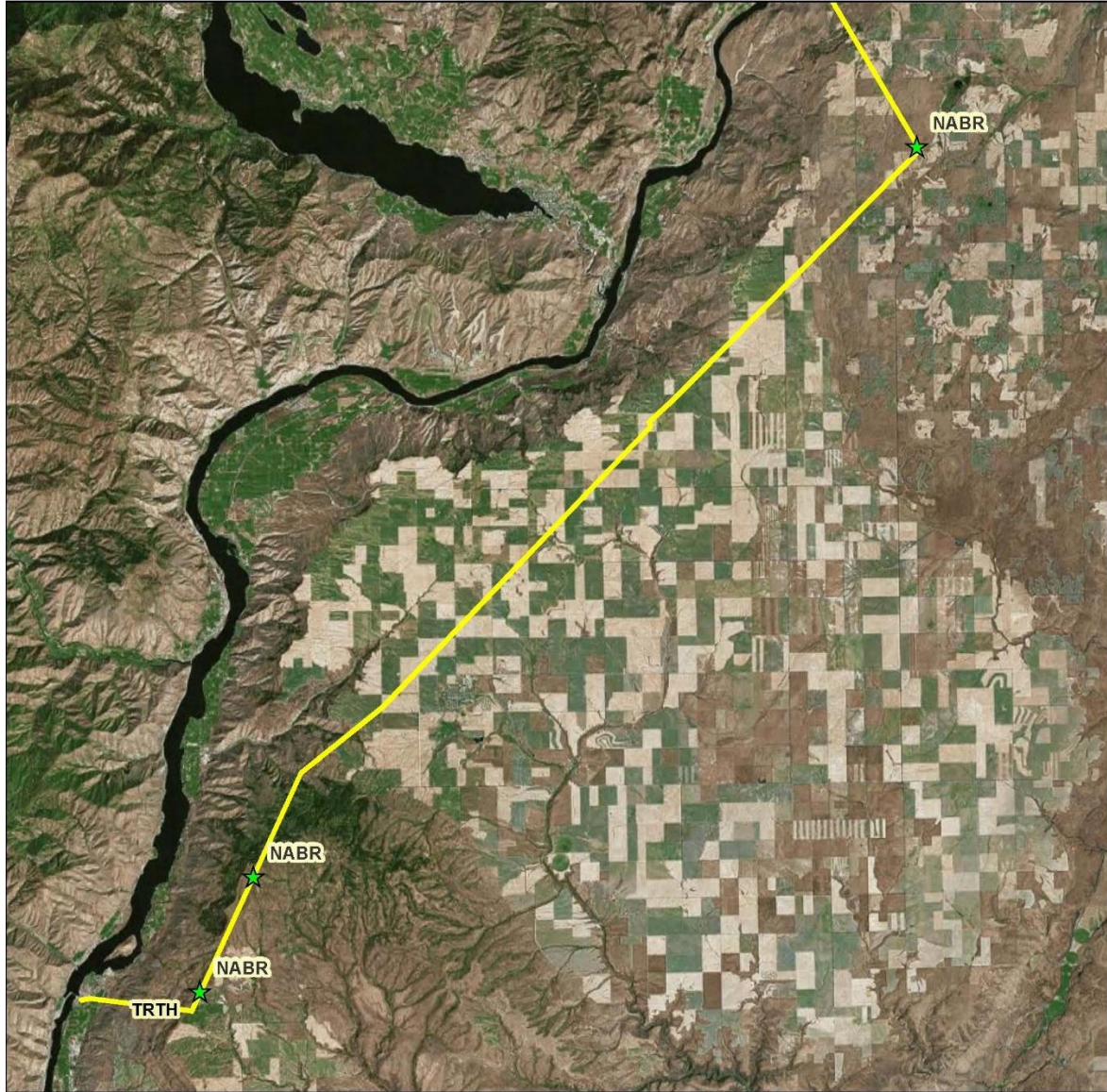
- ★ HIOD = Hierochloa odorata, sweet grass
- ★ OPPU = Ophioglossum pusillum, Adder's tongue
- SCSC = Schizachryum scoparium, little bluestem
- Wells Project Boundary



0 0.05 0.1 0.2 Miles

Page 2 of 2

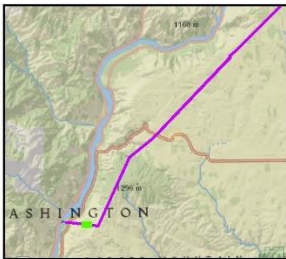
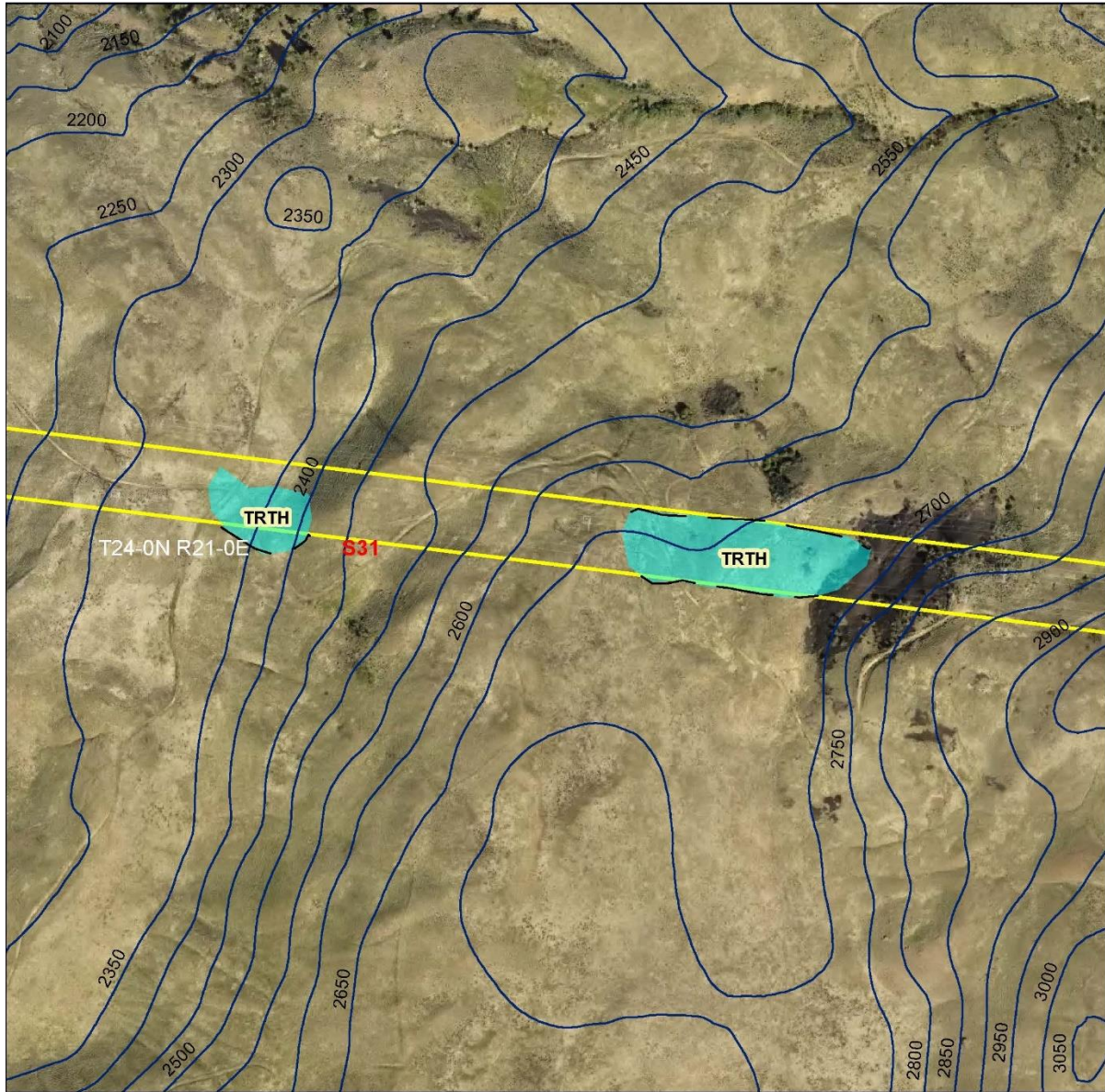
Figure 4. Presence of listed plant species within the Wells Reservoir, Map 2 of 2.



- ★ NABR = *Navarretia breweri*, Brewer's navarretia
- TRTH = *Trifolium thompsonii*, Thompson's clover
- Wells Project Boundary



Figure 5. Presence of listed plant species along transmission line, Map 1 of 2.



- ★ NABR = *Navarretia breweri*, Brewer's navarretia
- TRTH = *Trifolium Thompsonii*, Thompson's clover
- Wells Project Boundary

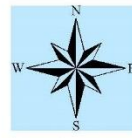


Figure 6. Presence of listed plant species along transmission line, Map 2 of 2.