

UPPER COLUMBIA SALMON RECOVERY BOARD

2021 ANNUAL IMPLEMENTATION REPORT

October 2022



Introduction

The *Annual Implementation Report* summarizes work accomplished in the Upper Columbia Region and documents progress toward recovery of ESA-listed salmon stocks. The 2007 *Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan (Recovery Plan)* envisions an approach for success in recovering imperiled Upper Columbia salmon populations which requires a comprehensive effort across multiple management and geographic boundaries, with a focus on restoring degraded **Habitat**, addressing causes of mortality in the **Hydropower** system and migration corridor, mitigating the influence of fish **Hatcheries** on wild populations, and managing **Harvest** at sustainable levels. These four management sectors are often called the “Four Hs” of salmon recovery.

This *Annual Implementation Report* includes information on environmental conditions across habitats used by ESA-listed Upper Columbia salmon and steelhead in 2021 and provides a general overview of hydropower, hatchery, and harvest arenas affecting these populations. The annual summary of actions taken to restore and protect habitat in the Upper Columbia provides a context for the contribution of local efforts toward the recovery of viable Upper Columbia spring Chinook salmon and steelhead populations.

Adult Returns in 2021

Spawner escapement estimates describe the numbers of adult Chinook salmon and steelhead returning to the Upper Columbia Region. Exact methods used to generate these estimates differ among populations. The estimated number of spawning spring Chinook salmon is based on redd count data, with corrections applied to account for estimates of fish per redd, sex ratios, and hatchery-to-natural-origin ratios, depending on available data for individual populations. Since 2010, population-level steelhead spawner escapement rates have been estimated from a PIT-tag based model for each primary population in the Upper Columbia (Hillman et. al. 2022).

An estimated 1,228 natural-origin Upper Columbia spring Chinook salmon returned to spawning grounds in 2021. This number was higher than the previous four years, but the 12-year geometric mean of 1,047 remained well below the delisting abundance target of 4,500 naturally produced spawners. The estimated return of hatchery-origin spawners was 1,848, for a combined estimate of 3,076 spring Chinook spawners in the region. The increase in number of spawners relative to recent years was represented in all three of the populations in the region (Figure 1), with an estimated 140 natural-origin spawners in the Entiat River (154 total including hatchery-origin fish), 495 in the Methow River (1,118 total), and 593 in the Wenatchee River (1,804 total).

The number of steelhead returning to spawn in the Upper Columbia also increased in 2021 compared with the previous four years, with an estimated 1,550 natural-origin spawners. This estimate was close to the 12-year geometric mean of 1,589 and approximately half that of the delisting abundance target of 3,000 naturally produced spawners. The estimated return of hatchery-origin steelhead was 2,451, resulting in a total estimate of 4,001 spawners in the region. The total number of spawning adults increased relative to recent years in each of the four tributary populations (Figure 1), but the numbers of natural-origin fish increased in only the Entiat and Wenatchee populations. Estimates of natural-origin steelhead in 2021 were 313 (383 total) in the Entiat River, 508 (1,820 total) in the Methow River, 571 (825 total) in the Wenatchee River, and 158 (973 total) in the Okanogan River.

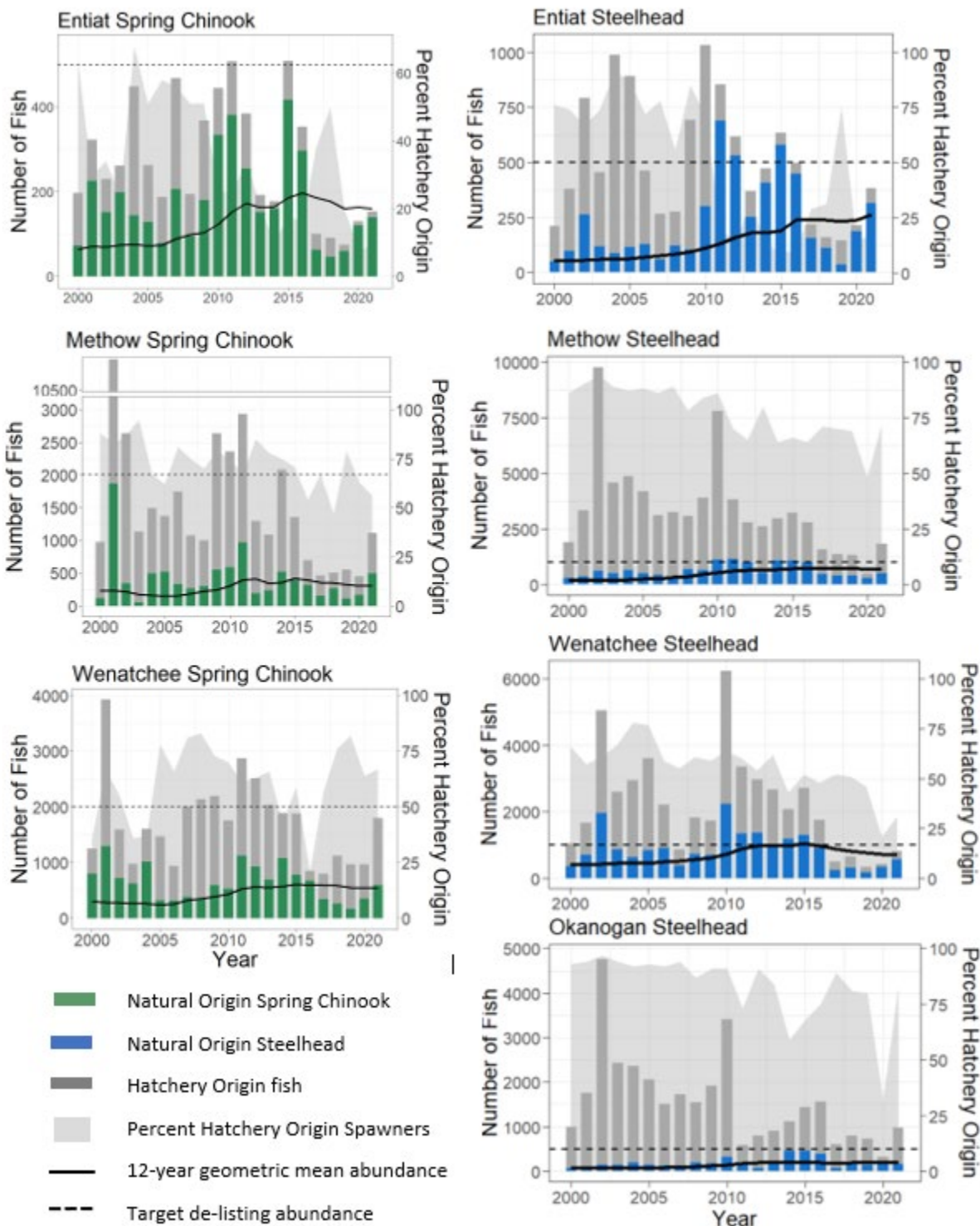


Figure 1. Upper Columbia spring Chinook salmon and steelhead returns (left axis) between 2000-2021 for natural-origin (colored bars) and hatchery-origin (gray bars) fish and percent hatchery-origin spawners (right axis; light gray fill) by year. The black line indicates the 12-year geometric mean of natural-origin spawners, and the dashed line is the abundance delisting target for natural-origin fish. Note the difference in axes among plots and a break in the y-axis for Methow Chinook. Source: NOAA SPS data; WDFW 2021 SaSI data; Fraser et al. 2022.

Habitat Conditions in 2021

The winter of 2021 (November 2020 through March 2021) across the Upper Columbia Region was moderately wet and cold. Winter precipitation was 20% and 4% above average in Chelan and Okanogan Counties, respectively ([West Wide Drought Tracker; Abatzoglou 2013](#)). Due to the cold and wet winter, the average peak snowpack in the Upper Columbia was 10% above normal ([NRCS 2021](#); Figure 3) but total streamflow in the 2021 water year (October 2020 – September 2021) was only 0.6% above average. In contrast to the cold and wet winter, summer in the Upper Columbia was drier and warmer than normal, with air temperatures 5.1 °F above average. As a result, August average flow was 32% below average across the Upper Columbia ([USGS 2021](#); Figure 3) and the average peak 7-day average water temperature across the Upper Columbia was 77.4 °F, a full 2.0 °F above the historic 7-day maximum water temperature.

There were multiple major wildfires throughout the Upper Columbia Region that burned during the summer and fall of 2021 ([Northwest Interagency Coordination Center 2022](#)). In the Methow Subbasin, the Cub Creek Fire burned 70,000 acres which included the Upper Chewuch River and Eight Mile Creek drainages. The Cedar Creek Fire, also in the Methow Subbasin, burned 56,000 acres, including around numerous salmon spawning streams: Early Winters Creek, Cedar Creek, Wolf Creek, and much of the west side of the upper Methow Valley. In the Okanogan Subbasin, the Whitmore Wildfire burned 57,000 acres, which included parts of the Omak Creek drainage. Finally, the Cold Springs wildfire in the Okanogan Subbasin burned 190,000 acres of predominantly sagebrush and grasslands. These wildfires had and will continue to have an impact on salmon habitat in the Upper Columbia.

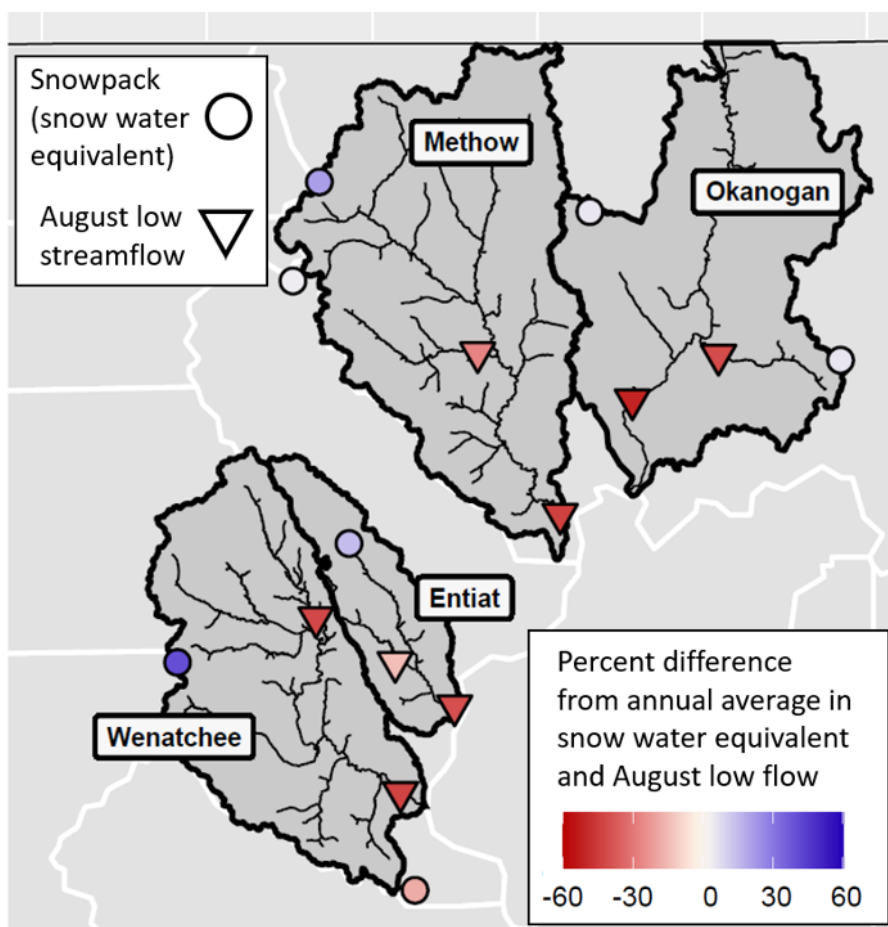


Figure 2. Map of the four major Upper Columbia River subbasins showing the location of SNOWTEL sites where snow-water equivalent is assessed (circles) and USGS stream gages where flow is measured (triangles). The color ramp indicates the percent difference from annual average for each of the two measurements.

Ocean conditions in 2021 were some of the best for salmon in the past two decades (NOAA 2021). Across 16 ocean ecosystem indicators used by [NOAA to summarize ocean conditions](#) for juvenile salmon survival in the ocean, 2021 conditions ranked as the second best in the 24-year time series (Figure 3). Cold sea surface temperatures and upwelling along the continental shelf led to productive conditions, with high chlorophyll concentrations and higher than average biomass of cold water northern copepods. These tiny cold-water crustaceans are high in lipids, which appear to be essential for the survival of many cold-water fishes, and their abundance is correlated with salmon survival.

Ocean conditions are thought to have the greatest impact on salmon during their first year at sea. Therefore, the effect of ocean conditions may not be reflected in returning adult numbers for several years because the number of years spent in the ocean varies among species, populations, and individual fish. Poor ocean conditions in 2015-2019 likely contributed to lower numbers of salmon and steelhead returning to the Upper Columbia in recent years. Conversely the uptick in 2021 adult returns may in part reflect improved ocean conditions in 2018 and 2020. Ocean conditions in 2021 were particularly good for populations that migrate along the continental shelf toward the Gulf of Alaska, including Upper Columbia spring Chinook salmon. The benefits of these conditions may not be as pronounced for steelhead, which move offshore in the ocean where sea surface temperatures were not as favorable.

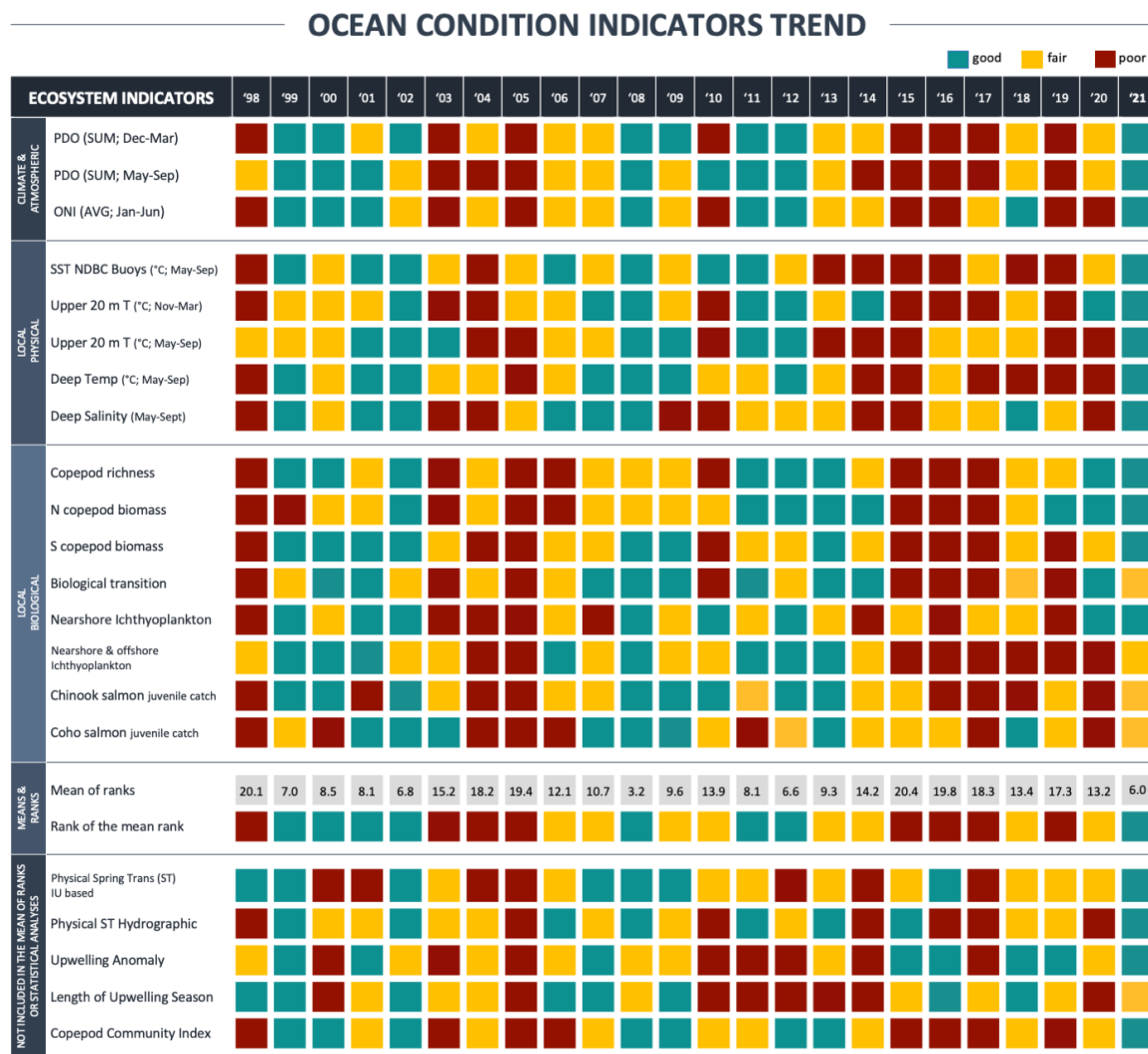


Figure 3. Ocean ecosystem indicators of the Northern California Current, 1998-2021. Colored squares indicate either positive (green), neutral (yellow), or negative (red) conditions for salmon entering the ocean in the year indicated. Mean ranks are listed for each year. Figure from [NOAA fisheries](#).

Harvest

Harvest of salmon and steelhead in tributaries to the Columbia River is managed by the state of Washington and tribal fishery managers to limit impacts on ESA-listed species. In 2021, recreational fisheries occurred upstream of Priest Rapids Dam for Upper Columbia summer Chinook, sockeye, and coho salmon. All wild Chinook and wild steelhead were required to be released (ODFW & WDFW 2022). Additionally, there was a limited spring Chinook salmon fishery on the Icicle Creek in 2021 targeting unlisted, hatchery-origin spring Chinook salmon.

Harvest of Upper Columbia spring Chinook salmon and summer steelhead occurred primarily in the mainstem Columbia River below the confluence of the Snake River. Under the U.S. v. Oregon Management Agreement, fisheries in this area are managed in accordance with an agreed-upon harvest rate schedule. In 2021, an estimated 3,978 wild spring Chinook entered the Columbia River destined for the Upper Columbia, with 17,365 total hatchery and natural origin fish combined (including from the Chief Joseph hatchery). The estimated number of wild fish taken by non-treaty wild harvest was 47 (1.2% of the wild run) and treaty harvest through ceremonial and subsistence (C&S) fisheries accounted for 185 fish (4.7% of the run). An estimated 921 (23.2%) Upper Columbia wild spring Chinook salmon died from various causes during migration or failed to pass Rock Island Dam, for an estimated escapement of 2,824 (71.0% of initial wild run) at Rock Island Dam (ODFW & WDFW 2022).

Data for 2021 upriver summer steelhead are not currently available.

See more information on harvest in the UCSRB [Harvest Background Summary](#).

Hydrosystem survival

Salmon and steelhead from Upper Columbia populations migrate through the Columbia River hydrosystem during their emigration to the ocean as juveniles and again as adults returning to their stream of origin. Survival during migration may be influenced by environmental conditions and operations associated with the dams and reservoirs encountered prior to ocean entry and upon return up the Columbia River. The water year 2021 was below average on the mainstem Columbia River, resulting in a runoff volume of 85% of average (1991-2020) at Priest Rapids Dam and 79% at The Dalles Dam (Dehart 2021). The result of these low flows was that seasonal flow targets were not met for spring or summer juvenile migrations at any of the federal Columbia River dams, and summer spill was curtailed on August 15. On average, in-river 2021 conditions for out-migrating Upper Columbia juvenile steelhead and yearling Chinook showed moderate-to-high-powerhouse encounter rates (correlated with lower survival) and long travel times (also correlated with lower survival; McCann 2021). For Upper Columbia populations, survival estimates through the hydrosystem were well below the 2008-2020 average for both yearling Chinook salmon and steelhead (Figure 4).

Juvenile survival through the hydrosystem is estimated annually by the National Marine Fisheries Service for hatchery-origin Upper Columbia spring Chinook and steelhead. Survival of natural-origin Upper Columbia spring Chinook and steelhead is not assessed. For **hatchery yearling Chinook salmon**, estimated survival was 53% (SE 2.8%) from release to McNary Dam and 62% (SE 5.0%) from McNary to Bonneville Dam (Widener et al. 2022). When these two estimates were combined (i.e., release to McNary rate multiplied by McNary to Bonneville rate), the total estimated survival for hatchery yearling Chinook salmon in 2021 was 33%. For **hatchery steelhead**, estimated survival from release to McNary Dam was 32% (SE 2.5%) and 56% (SE 5.0%) from McNary to Bonneville Dam, and the combined survival estimate was 18% (Figure 4).

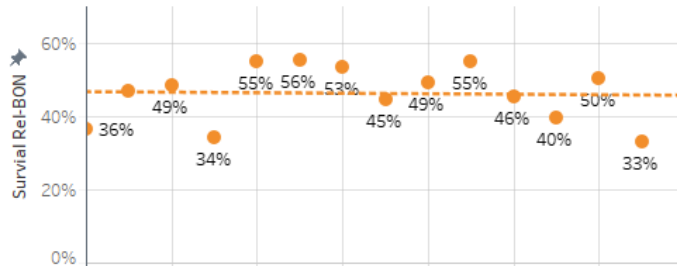
The Comparative Survival Study (CSS) evaluates hydropower survival over time and includes estimates of survival for wild spring Chinook and steelhead (McCann et al. 2021). The most recent smolt-to-adult returns (SAR) survival estimate

for **wild spring Chinook** (Entiat and Methow populations combined) indicate that survival from Rocky Reach Dam back to Bonneville Dam (RRE-BOA) was 0.87% (without jacks) for the 2018 juvenile migration year (12-year geometric mean = 0.64%). The estimate for **wild steelhead** (Okanogan River or Columbia Mainstem above Wells Dam) at the same points for the 2017 juvenile migration year was 0.38% (12-year geometric mean = 0.31%). Each of these SAR estimates fell well below the target rate of 2%-6% defined by the Northwest Power and Conservation Council (McCann 2021).

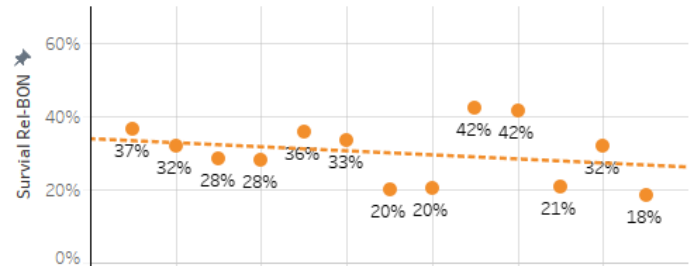
See more information on harvest in the UCSRB [Hydropower Background Summary](#).

Yearling Chinook and Steelhead Survival (2008-2021)

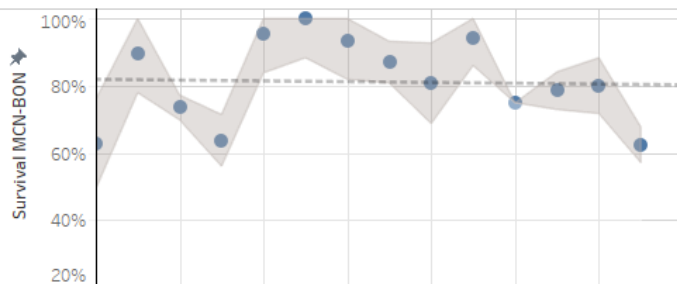
Release to Bonneville (Computed)- Chinook



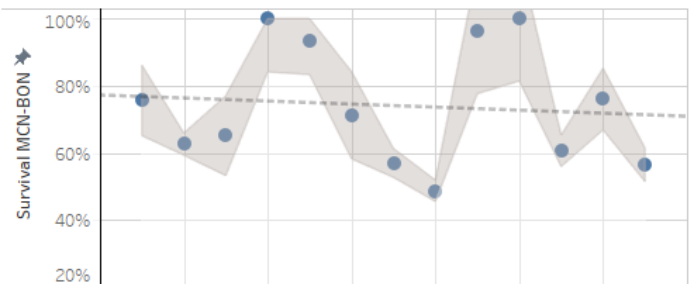
Release to Bonneville (Computed)- Steelhead



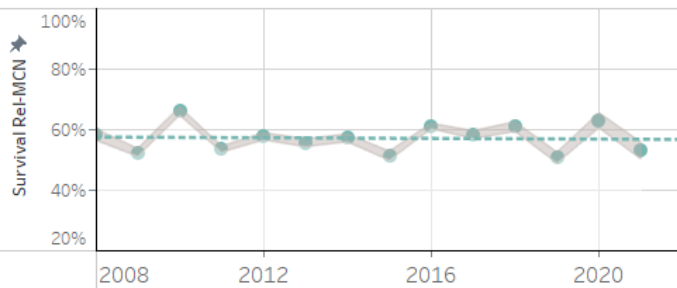
McNary to Bonneville- Chinook



McNary to Bonneville- Steelhead



Release to McNary- Chinook



Release to McNary- Steelhead

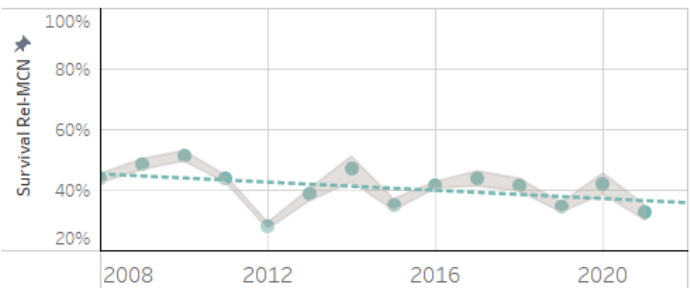


Figure 4. Estimated rates of survival (points) and standard error (gray shading) through the Columbia River hydropower system for hatchery-origin yearling Chinook salmon and steelhead originating in the upper Columbia River, 2008–2021 (data from Widener et al. 2021)

Hatcheries

In 2020, hatchery programs in the Upper Columbia released nearly 3.5 million spring Chinook and 898,000 steelhead (Fish Passage Center 2021). These fish were released as part of public utility district (PUD), U.S. Fish and Wildlife Service, and Confederated Tribes of the Colville Reservation (CTCR) programs aimed at harvest, conservation, reintroduction, and safety-net goals.

These hatchery fish, released as juveniles, are managed as adults according to the goals of the program from which they were released. One method for assessing the risk of a supplementation program is to determine the influence of the hatchery and natural environments on the adaptation of the composite population. This is estimated by the proportion of natural-origin fish in the hatchery broodstock (pNOB) and the proportion of hatchery-origin fish in the natural spawning escapement (pHOS). In 2021, pHOS was greater than 50% for Methow and Wenatchee spring Chinook salmon and for steelhead in the Methow and Okanogan populations (Figure 1). Notably, 2021 pHOS was less than 20% for both spring Chinook salmon and steelhead populations in the Entiat, while natural origin returns were higher than in previous years.

A composite metric called the Proportionate Natural Influence (PNI) combines pNOB and pHOS to assess genetic risk for a salmon population that is supplemented with hatchery fish (i.e., spawners are a combination of natural and hatchery-origin individuals). Higher PNI values indicate greater strength of selection in the natural environment relative to that of the hatchery environment. Estimates of spring Chinook salmon PNI values in the Wenatchee River subbasin were 0.66, 0.41, and 0.64 for the Chiwawa River, Nason Creek, and White River populations, respectively (Hillman et al. 2022). In the Methow River, the spring Chinook PNI estimate was 0.47 (Snow et al. 2022). For steelhead, PNI estimates were 0.63 for the Wenatchee subbasin and 0.49 for the Methow subbasin. Annual 2021 PNI values fell below the recommended value of ≥ 0.67 for conservation programs as defined by the Hatchery Scientific Review Group (2009), and a few were below the 0.50 rate required for the natural environment to dominate selection (Paquet 2011).

See more information on hatcheries in the UCSRB [Hatchery Background Summary](#).

Habitat

Habitat restoration and protection projects in the Upper Columbia are tracked on the [Salmon Recovery Portal](#) database, administered by the State of Washington Governor’s Salmon Recovery Office. All habitat projects that could benefit salmon, steelhead, and bull trout are entered in the database. This information is used to track our progress toward implementing habitat goals in the *Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan* and *Upper Columbia Biological Strategy*.

2021
ACCOMPLISHMENTS

- 31 Projects completed
- 20 acres of habitat protected
- 14 miles of stream treated
- 13 barriers removed
- 30 miles of stream opened
- 19 acres of floodplain reconnected
- 186 structures placed in channel
- 26 beavers relocated
- 2.2 miles of off-channel stream created

In 2021, partners completed 31 projects across all four major subbasins (Figure 5), with seven projects implemented in the Methow, fifteen in the Wenatchee, three in the Entiat, and six in the Okanogan. Among completed projects, 22 were restoration, six were design, two protection, and one assessment. Since 1998, there have been 550 projects completed in the region, with most projects (56%) implemented in the last 10 years, with a 10-year average of 31 projects per year and an average of 19 projects completed annually in the past five years. The scope and scale of current projects is significant based on the cost of recently completed projects. The total project cost for all 31 projects completed in 2021 was \$21.3 million (Figure 6), with one project exceeding \$9 million, and four projects over \$1 million each. The average funding per project in 2021 was approximately \$690,000, which is the highest average project cost per year other than 2017. A complete list of projects completed in 2021 is provided in Attachment 1. Two of these projects were implemented in 2020 but final reporting was completed in 2021 (projects implemented in 2020 are indicated by an asterisk in Table 1).

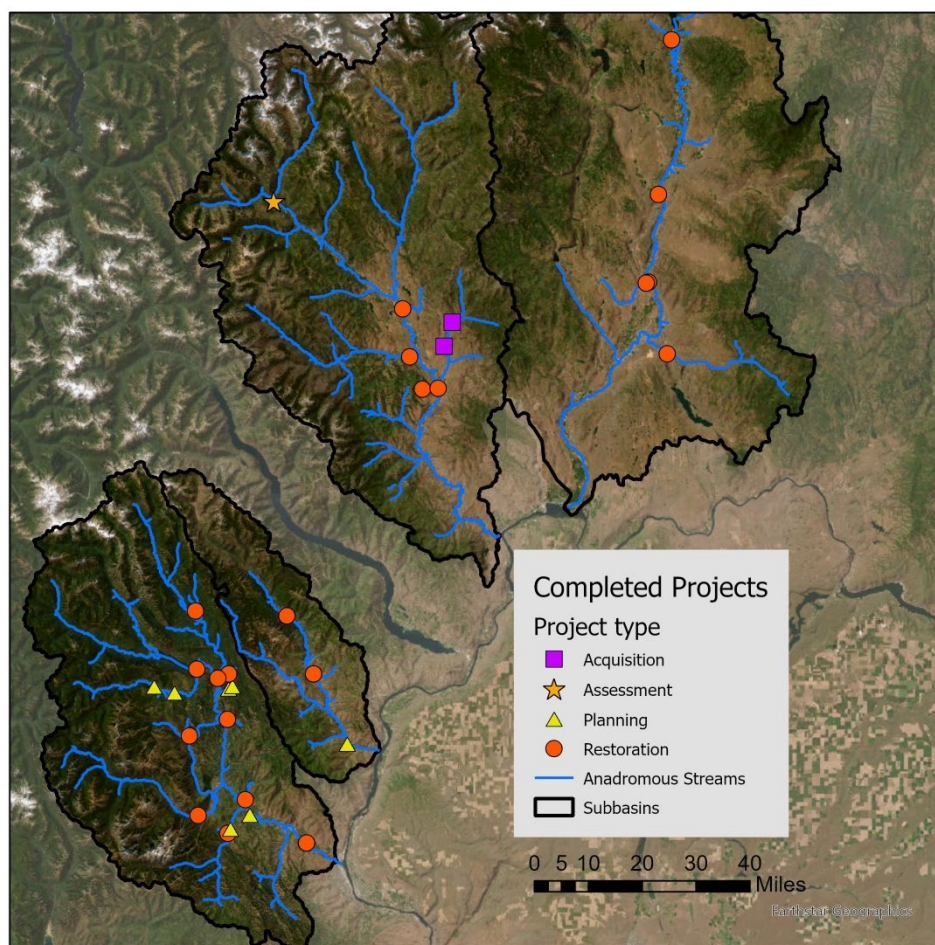


Figure 5. Map of the Upper Columbia region showing the location and type of projects completed in 2021 within each of the four major subbasins.

Total Number of Projects and Money Spent by Year

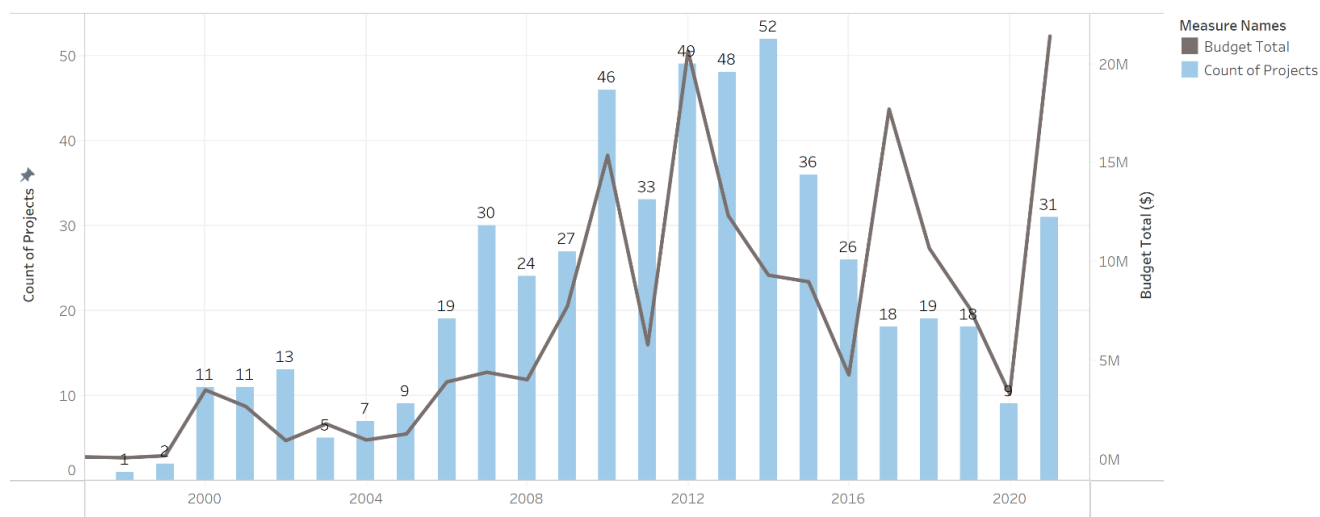


Figure 6. Total number of habitat projects completed (blue bars; left axis) and money spent in millions (gray line; right axis) annually from 1998 through 2021.

In 2021, the Upper Columbia Regional Technical Team (UCRTT) completed a prioritization process for habitat restoration and protection (see <https://www.ucsr.org/science-resources/prioritization/>). The updated 2021 [UCRTT Biological Strategy](#) defined priority areas and limiting factors for all three listed species. Because there are three listed fish species in the Upper Columbia, including critically endangered spring Chinook salmon, it is important to track the amount of habitat work benefitting each species (Figure 7). Most projects targeted ESA-listed spring Chinook (25 of 31) as the primary species of interest and bull trout (25 of 31) as a secondary species, while all 31 projects listed steelhead as either a primary or secondary species benefitting. Several projects also listed benefits to unlisted species and stocks such as lamprey, and summer Chinook, coho, and sockeye salmon.

See more information on habitat in the UCSRB [Habitat Background Summary](#).

Number of Projects by Priority Ranking (Species and Watershed)

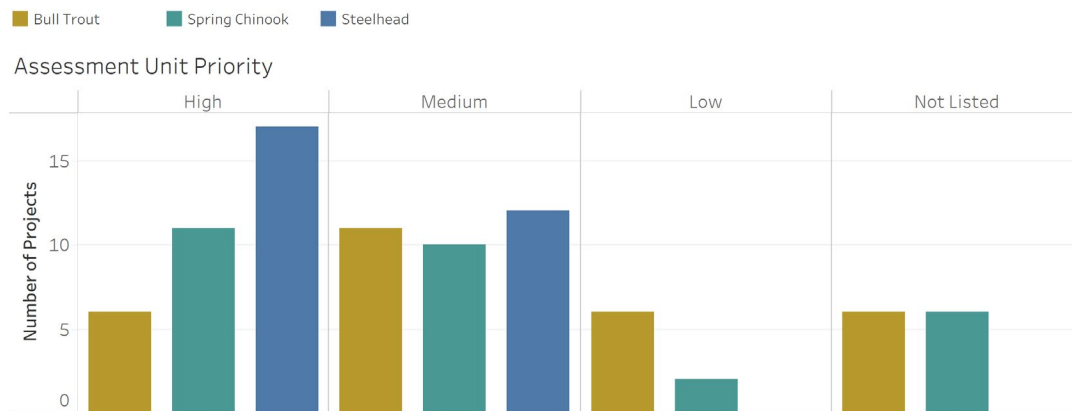


Figure 7. The number of projects completed in 2021 in each Assessment Unit (HUC 12 watershed) summarized by priority rankings as defined in the *UCRTT Biological Strategy* for each of the three ESA-listed species.

Featured Projects

The following section briefly discusses the subbasins where projects occurred and features projects that address the identified ecological concerns in those areas. These projects demonstrate the region's commitment to habitat projects that benefit key species and their habitat needs.

Entiat Subbasin

Partners completed three projects in the Entiat subbasin in 2021 (see Attachment 1).

Featured Project: Upper Burns and Angle Point Areas Habitat Enhancement



The Upper Burns and Angle Point Project, completed in 2021, reconnected a network of relict side-channels and installed large wood and engineered log structures between Entiat river miles 25.8-26.8.

Sponsor: Yakama Nation Fisheries

Location: Lake Creek Assessment Unit – Entiat River

Funding: Total project cost: \$1,070,500; \$404,000 from WA Recreation and Conservation Office Salmon Recovery Funding Board (SRFB); \$189,000 Rock Island HCP Tributary Fund; \$477,500 federal match

Outcomes: 0.47 miles of off-channel stream created or connected; 5 acres of channel/off-channel connected or added; 1.5 miles of stream treated for channel structure placement; 20 structures placed in channel; 9 acres planted in riparian; 0.75 miles of streambank planted

The goal of this project was to create peripheral and transitional habitat, as well as instream complexity and diversity, which were lacking in this reach of the Entiat River. Floodplain, alcove, and side-channel inundation was created and connected to establish perennial habitat, compared with pre-restoration conditions that were only accessible during high flow conditions. In the mainstem, wood was positioned to emulate natural accumulations to provide fish cover and habitat complexity at various locations. All disturbed areas and any riparian areas lacking in density were replanted with native vegetation. This project, coupled with work already completed in previous years creates eight miles of contiguous restored habitat in a high priority area for spring Chinook salmon and bull trout.

Methow Subbasin

Partners completed seven projects in the Methow subbasin in 2021 (see Attachment 1).

Featured Project: Barkley Irrigation Company: Under Pressure

Sponsor: Trout Unlimited

Location: Methow River-Thompson Creek AU

Funding: Total project cost: \$9,282,007; \$1,279,300 from WA Recreation and Conservation Office; \$328,636 match from Priest Rapids Coordinating Committee, Rock Island HCP Tributary Fund, BPA, and Washington State Conservation Commission; \$7,674,071 of joined funds from other Methow Valley Irrigation District projects

Outcomes: 26 cubic feet per second of water conserved

The objective of this project was to decrease mortality of listed species in the mainstem Methow and Barkley Diversion side-channel caused by annual excavation of the riverbed to create a push up dam for irrigators on the Barkley ditch. The project improved survival of ESA-listed juvenile spring Chinook salmon, steelhead, and bull trout, as well as Pacific lamprey and west slope cutthroat trout by eliminating stranding that occurs annually in the upper 1/2 mile of the



Barkley ditch upstream of the fish screen. Trout Unlimited (TU) along with the Barkley Irrigation Company (Barkley/BIC), the Methow Conservancy (MC) and the Bureau of Reclamation (Reclamation) accomplished this by building a permanent pressurized system approximately 2 miles downstream of the current diversion to serve all Barkley Irrigation users. The perpetual water saving from this project is 26 cubic feet per second (cfs). The project eliminated the need for a push-up dam and modified the Barkley Diversion to reconnect Bear Creek directly to the Methow River, rather than flowing into the Barkley Canal. Restoration of natural channel alignment allows direct fish passage into this important Methow River tributary.

The finished pressurized pump system along the Methow River, which replaced a push-up dam.

Okanogan Subbasin

Partners completed six projects in the Okanogan subbasin in 2021 (see Attachment 1).

Featured Project: Omak Creek – St. Mary’s Mission Small Wood Project



Sponsor: Confederated Tribes of the Colville Reservation

Location: Omak Creek – Okanogan Subbasin

Funding: \$30,000 BPA Columbia Basin Fish Accords

Outcomes: 13 structures placed in channel; 1.1 miles of stream treated

Low-tech restoration approaches were used in the Omak Creek – St. Mary’s Mission Small Wood Project to address primary limiting factors that included summer base flow, riparian-disturbance, and stream temperatures that exceeded those recommended for steelhead rearing. Utilizing beaver dam analogs (BDAs) and post assist log structures (PALS), 13 small wood structures were installed in Omak Creek near the St. Mary’s Mission to provide instream complexity, mimic beaver dam activity, and promote sediment and wood accumulation. Restoration took place along 1.1 miles of stream to benefit steelhead, summer Chinook salmon, and Pacific lamprey.

Top: Staff operate a hydraulic post driver to install BDAs on Omak Creek.

Bottom: View looking upstream of a completed BDA on Omak Creek.

Wenatchee Subbasin

Partners completed 15 projects in the Wenatchee subbasin in 2021 (see Attachment 1).

Featured Project: Wenatchee River-Monitor Side Channel Construction



Chelan County Natural Resources staff lead a post-construction project tour to the recently completed Monitor side channel on the Wenatchee River in October 2021. Multiple engineered log jams can be seen on both banks of the side channel.

Sponsor: Chelan County Natural Resources Department

Location: Wenatchee River near Monitor, WA

Funding: Total project cost: \$448,707; \$231,853 from WA State Recreation and Conservation Office, \$216,854 in match from Rock Island HCP Tributary Funds

Outcomes: 0.4 miles of stream treated for channel structure placement; 9 structures placed in channel; 0.4 acres planted in riparian; 0.4 miles of streambank planted

CCCNRD completed final design and implementation of the Wenatchee River-Monitor Side Channel project in 2021, which included construction of large wood structures, boulder clusters, and riparian vegetation installments along the 2,200 ft. side channel near Monitor. These structures created pools and channel complexity and improved summer and winter rearing habitat for steelhead, coho, and spring Chinook salmon in the Lower Wenatchee River. In total, 6 large wood structures, 3 small apex and bank structures, 3 weir logs, 7 boulder clusters and 17 willow trenches were placed at strategic locations to improve channel complexity. Coho salmon were seen spawning in the side channel within weeks of project completion.

Out-year Planning

Data in the Salmon Recovery Portal (SRP) database can be used to assess the status of identified projects in the region. There are currently 147 planned, 39 proposed, and 132 active projects in the SRP database (SRP November 2022). Based on recently collected data for the 2022 Implementation Schedule, the total funding request for planned projects (based on budget) over the next four years is \$136.5 million and the total for proposed projects in SRP is \$46.5 million, although not all planned and proposed projects included cost estimates. The UCSRB will continue working with partners in 2023 to build out the capability of using the Salmon Recovery Portal to capture out-year needs of sponsors. The full list of projects in the region can be found in the Implementation Schedule at <https://www.ucsr.org/mdocuments-library/reports/>.

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Attachment 1

Table of Information for Projects Completed in 2020

List of projects completed in 2021. Source: Salmon Recovery Portal database (September 2022). CCD = Cascadia Conservation District; CCNRD= Chelan Country Natural Resources Department; CF= Cascade Fisheries; CTCR = Confederated Tribes of the Colville Reservation; MSRF= Methow Salmon Recovery Foundation, OCD= Okanogan Conservation District; TU = Trout Unlimited; YN = Yakama Nation.

PROJECT ID	SUBBASIN	PROJECT NAME	PROJECT TYPE	START YEAR	END YEAR	BUDGET	SPONSOR
18-1797	Entiat	Entiat Fish Passage & Screening Assessment	Planning	2018	2021	\$82,642	CF
19-1491	Entiat	Entiat Restoration - Upper Burns & Angle Point	Restoration	2021	2021	\$1,232,500	YN
18-1762	Entiat	Middle Entiat Restoration - Area F (RM 16.2-16.7)	Restoration	2018	2021	\$819,437	CCNRD
14-1737	Methow	Barkley Irrigation Company: Under Pressure	Restoration	2014	2021	\$9,282,007	TU
17-86460	Methow	CCT Beaver Creek acquisition	Acquisition	2017	2020*	\$250,000	CTCR
20-1460	Methow	Chewuch RM 4.25	Restoration	2017	2021	\$590,774	YN
19-82196	Methow	Golden Doe	Restoration	2021	2021	\$600,000	YN
17-1226	Methow	Methow Bull Trout Population Assessment	Assessment	2021	2021	\$127,473	MSRF
19-82388	Methow	MSRF Twisp Ponds Intake Construction	Restoration	2019	2021	\$119,670	MSRF
21-89226	Methow	Upper Beaver Creek Acquisition	Acquisition	2021	2021	\$35,000	MSRF
20-89227	Okanogan	Aeneas Creek - Aeneas confluence small wood project (BDAs and PALS)	Restoration	2020	2021	\$30,000	CTCR
19-82047	Okanogan	CCT Similkameen Klein Site - Floodplain Activation	Restoration	2019	2021	\$450,000	CTCR
17-1425	Okanogan	Johnson Creek Fish Passage Project - Cooper Street (Site ID 114JC001)	Restoration	2018	2021	\$851,248	TU
19-1594	Okanogan	Johnson Creek Fish Passage Project - State Street (site ID 992055)	Restoration	2019	2021	\$827,467	TU

PROJECT ID	SUBBASIN	PROJECT NAME	PROJECT TYPE	START YEAR	END YEAR	BUDGET	SPONSOR
20-89228	Okanogan	Ninemile Creek - Edar Ranch small wood project (BDAs and PALS)	Restoration	2020	2021	\$30,000	CTCR
20-86461	Okanogan	Omak Creek - St Mary's Mission small wood project (BDAs and PALS)	Restoration	2020	2021	\$30,000	CTCR
21-1461	Wenatchee	Beaver Creek Barriers Replacement/Removal (Barrier ID's - 603181 and 603183)	Planning	2020	2021	\$86,000	CCNRD
18-89230	Wenatchee	CF - Minnow Creek Barrier	Restoration	2018	2021	\$265,000	CF
17-1192	Wenatchee	Clear Creek Fish Passage Restoration	Restoration	2018	2021	\$22,948	TU
15-1219	Wenatchee	Icicle Creek-Boulder Field-Wild Fish to Wilderness	Restoration	2016	2021	\$2,294,471	TU
20-89229	Wenatchee	Little Chumstick BDAs 2020	Restoration	2020	2020*	\$9,650	CCD
17-1228	Wenatchee	Lower Derby Creek Fish Passage	Restoration	2017	2021	\$250,389	CF
18-1804	Wenatchee	Merritt Oxbow Preliminary Design	Planning	2021	2021	\$80,469	CF
18-1824	Wenatchee	Mill Creek Fish Passage Improvement	Restoration	2018	2021	\$614,980	CCNRD
19-1475	Wenatchee	Monitor Side Channel Design and Construction	Restoration	2019	2021	\$448,707	CCNRD
17-1243	Wenatchee	Nason Creek - Kahler Reach Preliminary Design	Planning	2018	2021	\$169,863	CCNRD
19-1492	Wenatchee	Nason Creek Confluence Habitat Enhancement	Restoration	2019	2021	\$360,005	YN
16-1787	Wenatchee	Peshastin Irrigation Pump Exchange Design	Planning	2010	2021	\$199,393	CCNRD
19-1477	Wenatchee	Peshastin RM 4.3 Side Channel Preliminary Design	Planning	2019	2021	\$99,010	CCNRD
15-80924	Wenatchee	Skinney Creek	Restoration	2021	2021	\$1,000,000	YN
17-1195	Wenatchee	Wenatchee-Entiat Beaver Restoration	Restoration	2017	2021	\$122,574	TU

* Projects implemented in 2020 but closed out and reported in 2021.

Attachment 2

Annual Implementation Schedule Update Process

The 2021 Implementation Schedule was generated directly from the [Salmon Recovery Portal](#) (SRP) online database. Summarized below are the steps the Upper Columbia region takes to build science, best available information, and public input into the Implementation Schedule updates. The process is based on guidance from NMFS (*Interim Endangered and Threatened Species Recovery Planning Guidance*, July 2006) that outlines the following three types of *Recovery Plan* revisions, and required public process:

“Updates” – do not require formal public process. A memo to NMFS outlining the updates will complete the record.

“Revisions” – require a formal *Federal Register Notice*. These have an associated comment period.

“Addenda” – are communicated by attaching information updates as an addendum in a memo to NMFS. This process may require formal public input are derived from PNAMP, PCSRF and the SRP. The Implementation Team (IT) Leader will engage the Regional Technical Team in a review of those terms.

Upper Columbia Process for Implementation Schedule Updates

Using NMFS guidance, the UCSRB uses the following process for annual updates to the Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan Implementation Schedule.

Step 1 – In the fall (October/November) the Implementation Team Leader will assemble all updates in reporting terminology. The sources for reporting codes are derived from PNAMP, PCSRF and the SRP. The IT Leader will engage the Regional Technical Team in a review of those terms.

Step 2 – The table of terms will be presented at the winter Implementation Team meeting for discussion and revision. The Implementation Team will also confirm the process for engaging the Watershed Action Teams in updating the Implementation Schedule.

Step 3 – The Implementation Team Leader will work with the 5 Watershed Action Teams to update the Implementation Schedule with (a) any revised reporting codes; and (b) all relevant information regarding actions implemented and actions planned for the future. The Watershed Action Teams will work with their constituents and respective stakeholders to engage them in the update process, which may include additional public meetings.

Step 4 – The Implementation Team Leader will consolidate all updates into the *Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan Implementation Schedule*. The IT Leader will also use this information to update the three-to-five-year work plan for implementation.

Step 5 – The updated Implementation Schedule will be presented to the UCSRB Directors for discussion. Following the presentation of the updated Implementation Schedule, the Board will hold a formal public comment period during one of its regularly scheduled meetings. Upon approval by the Board, the updated Implementation Schedule will be sent as an attachment to a memo to NMFS advising the agency of the updates.