



Upper Columbia 2024 Annual Implementation Report

Prepared for:

National Oceanic and Atmospheric Administration
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Introduction

The *Annual Report* summarizes work accomplished in the Upper Columbia Region and documents progress toward recovery of ESA-listed steelhead and Chinook salmon stocks. The 2007 *Upper Columbia Spring Chinook Salmon and Steelhead Recovery Plan (Recovery Plan)* establishes an approach to the recovery of Upper Columbia spring Chinook salmon and steelhead populations. This requires comprehensive efforts across geographic boundaries and the four management sectors, often referred to as the “Four H’s” of salmon recovery. These efforts include 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.

This *2024 Annual Implementation Report* includes information on environmental conditions in ESA-listed Upper Columbia salmon and steelhead habitats and provides a general overview of hydropower, hatchery, and harvest, and how these factors are affecting listed populations. The annual summary of actions taken to restore and protect habitat in the Upper Columbia highlights the local efforts made toward the recovery of viable Upper Columbia steelhead and spring Chinook salmon populations.

Adult Returns

Spawner escapement estimates describe the number of adult Chinook salmon and steelhead returning to the Upper Columbia region. Specific methods used to generate these estimates differ among populations. Depending on available data for individual 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. 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. 2025).

Spring Chinook

An estimated 707 natural-origin Upper Columbia spring Chinook salmon returned to spawning grounds in 2024. This is the lowest number of natural-origin spring Chinook spawners since 2020 and the third year in a row of decreasing natural-origin spawners. However, 707 is still slightly elevated above the low spawner escapement in 2017-2020 which ranged from 429 to 615. The current 12-year geometric mean of 934 is the lowest since 2009 and remains well below the delisting abundance target of 4,500 naturally produced spawners.

The estimated return of hatchery-origin spawners was 2,019, for a combined total of 2,721 spring Chinook spawners in the region. This is slightly below last year’s total spring Chinook spawners in the region (Figure 1). Total estimates of returning spawners varied among subbasins. In the Wenatchee and Methow subbasins, natural-origin spawner numbers decreased while hatchery-origin numbers increased. As a result of the increase in hatchery-origin spawners, total spring Chinook numbers were higher in 2024 than in 2023 in the Wenatchee and Methow subbasins. In contrast, in the Entiat subbasin, natural-origin spawner numbers increased, and hatchery-origin numbers decreased, leading to a decline in total spawners in 2024 compared to 2023. Estimated numbers of natural-origin spawners were 127 (144 total including hatchery-origin fish) in the Entiat River, 152 (946 total) in the Methow River, and 428 (1,631 total) in the Wenatchee River.

Steelhead

Estimated natural-origin, hatchery-origin, and total steelhead spawners increased in 2024 compared to 2023 in all subbasins except the Entiat. Upper Columbia steelhead natural-origin spawners totaled 1,819, which was the largest wild return since 2016. This total exceeded the 12-year geometric mean of 1,598 but remained well below the delisting abundance target of 3,000 naturally produced spawners. Hatchery-origin return spawners was estimated at 2,456, equaling 4,274 total spawners in the region. All four sub-basins saw increases in natural-origin spawners, and all but the Entiat saw increases in total numbers relative to 2023 (Figure 1). In 2024, estimated natural-origin returns were 245 (331

total including hatchery-origin spawners) in the Entiat River, 809 (2,299 total) in the Methow River, 589 (829 total) in the Wenatchee River, and 176 (815 total) in the Okanogan River.

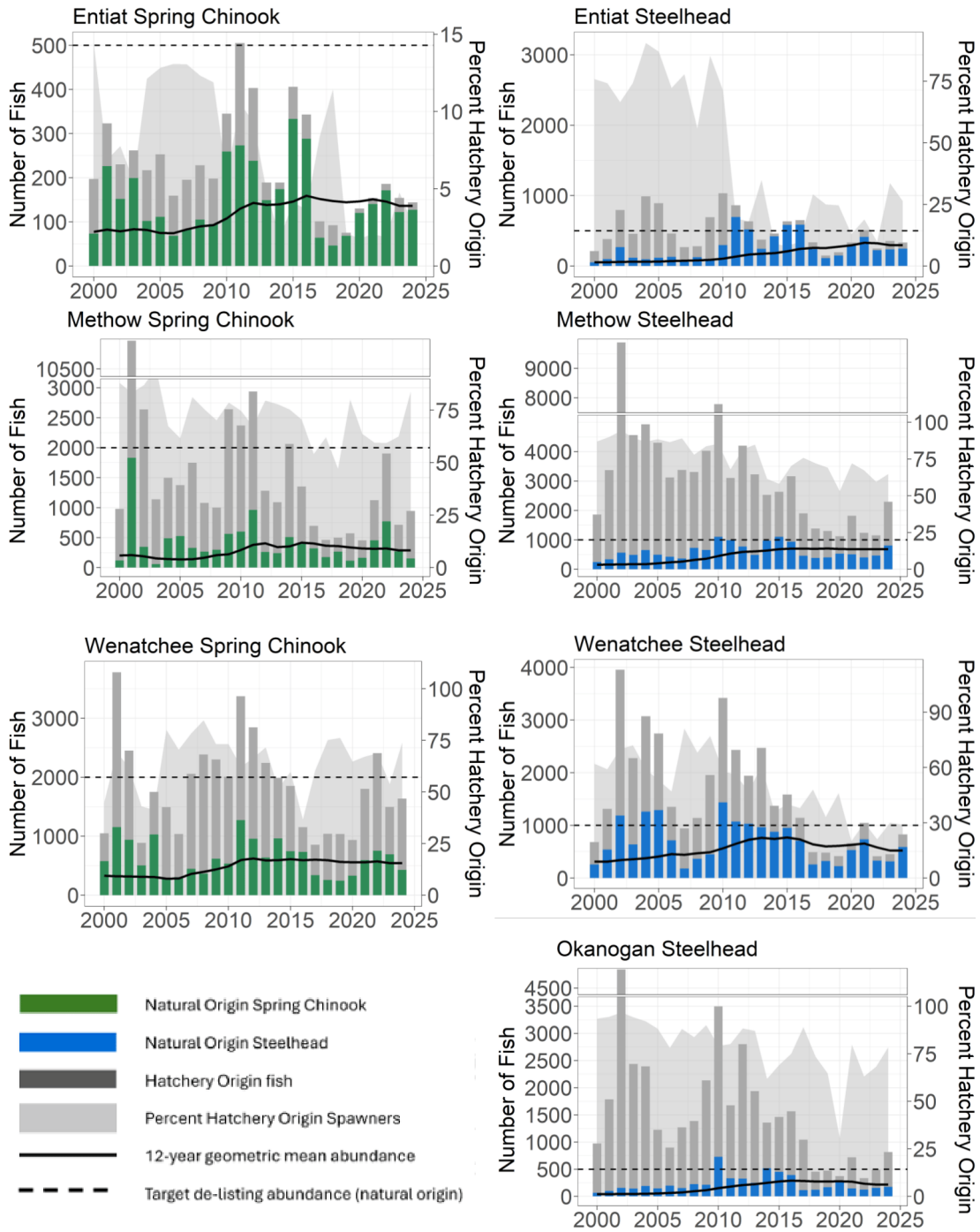


Figure 1. Upper Columbia spring Chinook salmon and steelhead return spawners (left axis) between 2000-2024 for natural-origin (colored bars) and hatchery-origin (gray bars) fish, and percent hatchery-origin spawners (right axis; light gray fill) by year. The black line indicates the 12-year geometric 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 and steelhead and Okanogan steelhead.

Source: WDFW 2024 SPI data, Hillman et al. 2025, Snow et al 2025.

Habitat Conditions in 2024

Snowpack

The winter of 2024 (November 2023 through March 2024) delivered slightly colder than average temperatures and average precipitation across the Upper Columbia region, producing a strong El Niño period with an Oceanic Niño Index (ONI) anomaly of +3.0 °F (NOAA 2025b). El Niño years typically produce warmer and drier winters in the Pacific Northwest. The 2024 winter was indeed warmer than average, and precipitation was a mix of snow and rain with mostly below average snow conditions. In Chelan, Douglas, and Okanogan counties, the overall November through March temperatures were between 2.4 to 3.3 °F above normal (NOAA 2025a) and winter temperatures at snow measurement sites were on average 0.5 °F above normal (NRCS 2024). Winter precipitation was 17% and 14% below normal in Chelan and Okanogan Counties respectively, and 3% above normal in Douglas County (NOAA 2025a).

Relative to an average year, the 2024 snowpack was 28% below normal (NRCS 2024, Figure 2) across the seven representative USDA SNOTEL sites. In comparison, peak snowpack was 11% above average in 2023. Due to decreased snowfall in 2024, peak snowpack was reached eight days earlier than normal. Spring 2024 (April and May) temperatures were average across Chelan and Okanogan counties, resulting in an average snow disappearance date of May 21st, five days earlier than average. In contrast, Chelan and Okanogan counties experienced record warm temperatures in May 2023, with an average snow disappearance date of May 19th.

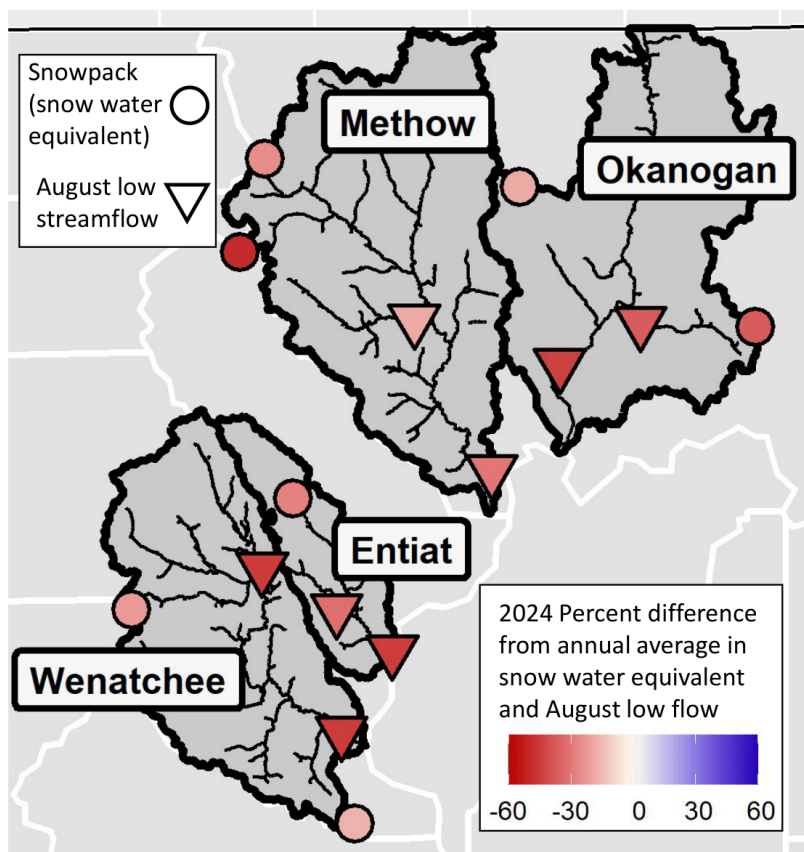


Figure 2. Map of the four major Upper Columbia River subbasins showing the location of SNOTEL sites where snow-water equivalent is assessed (circles) and USGS stream gages where flow is measured (triangles). The color ramp indicates the percent difference in 2024 from annual average for each of the two measurements. Source: USGS 2025, NRCS 2024.

Summer 2024 brought warmer than average temperatures and below average precipitation, with June through August temperatures ranging from 2.8 °F to 3.3 °F above normal across all three counties. Although the Upper Columbia region receives most of its precipitation outside of the summer months, 2024 was particularly dry with June through August precipitation at 3% and 6% below normal in Chelan and Okanogan counties respectively, and 63% below normal in Douglas County. For the calendar year of 2024, precipitation was 11% and 2% below normal in Chelan and Okanogan Counties respectively, and 6% above normal in Douglas County ([NOAA 2025a](#)). Finally, due to warmer conditions within the Upper Columbia region, the average air temperature was 2.0 °F to 2.5 °F above normal across the entire 2024 calendar year.

Streamflow

Peak streamflow across the Upper Columbia was on average 36% below normal due to both lower than average snowpack and mild May temperatures ([USGS 2025](#)). This was most noticeable at Omak Creek, where peak flows were 47% below normal. Overall, total streamflow was 24% below normal across the region. Average August low flow ranged from 55% below average in the Chiwawa River to 29% below normal in the Twisp River, with the average August low flow being 37% below normal ([USGS 2025](#)). This below average streamflow corresponds to the lower than average snowpack, lower than average precipitation, and higher than average air temperatures in 2024.

Four of the five Upper Columbia USGS stream temperature monitoring sites measured above average peak 7-day water temperatures, with recordings ranging from 0.97 °F to 2.04 °F above the historic 7-day maximum water temperature ([USGS 2025](#)). The one exception was the Okanogan River site, which recorded a 7-day maximum water temperature of 1.79 °F below average. This is likely due to management of water releases from reservoirs in Canada. Four of the five USGS sites (except Andrews Creek) recorded water temperatures above 70.9 °F, with the highest being the Okanogan River at 76.0 °F. Similarly, Columbia River mainstem summer water temperatures in the Wells Dam, Rocky Reach, and Rock Island forebay all peaked above 68 °F, the temperature considered lethal to salmonid species ([Columbia River DART 2024](#)).

Wildfire

Wildfire is a major driver of aquatic habitat in the Upper Columbia. It has the potential to both degrade habitat through creating large amounts of fine sediment and loss of riparian shading, or to improve habitat by increasing streamflow and large wood additions from downed trees. According to the [NWCC \(2024\) annual report](#), the 2024 wildfire season was mild. The largest fire in the region was the Pioneer Fire, that burned approximately 38,735 acres within the Lake Chelan drainage, which is not a focus watershed for ESA-listed species. Of the multiple other small and mostly low intensity wildfires in 2024, the only one to burn in a floodplain or along the water of a salmon-bearing stream was the Balsam Root wildfire. This wildfire burned approximately 300 acres of grass along the edge of the Wenatchee River. The Salmon Creek fire burned 831 acres, Gold Creek fire burned 280 acres, and the Little Wenatchee fire burned 150 acres, but all were outside of their respective floodplains. Overall, the 2024 wildfire season had no major impact on steelhead or spring Chinook habitat.

Ocean Conditions

Ocean conditions for salmonid species deteriorated in 2024, compared to 2023, and were the worst ocean indicator conditions recorded since 2019. Across the 16 ocean ecosystem indicators used by [NOAA to summarize ocean conditions](#) for juvenile salmonid survival in the ocean, [2024 conditions ranked as the tenth worst](#) in the 27-year time series (Figure 3). Pacific Decadal Oscillation (PDO) was in a negative or cool phase, while Ocean Niño Index (ONI) conditions were in a positive or warm phase. Cool phases for PDO and ONI typically bring cooler ocean temperatures, more upwelling, and better ocean conditions for salmonid productivity. Strong winter storms in the Pacific produced stronger-than-average downwelling during the winter of 2024. This resulted in warmer water at both the surface and in deep water. With stronger-than-normal downwelling, the upwelling index was negative, indicating reduced transport of nutrient-rich deep ocean water and, consequently, lower copepod and ichthyoplankton productivity. As a result, the southern copepod and

ichthyoplankton biomass remained average to below average throughout the year. Specifically, the coastal ichthyoplankton prey biomass and ichthyoplankton community composition index both ranked lowest on record. The only above average zooplankton indicator was Northern copepod biomass, due to more upwelling during summer months. These zooplankton species are critical for salmonid survival in the ocean, and rely on strong upwelling to supply cool water and nutrients to enhance productivity. Lastly, as in 2023, Chinook salmon juvenile catch was again slightly below average.

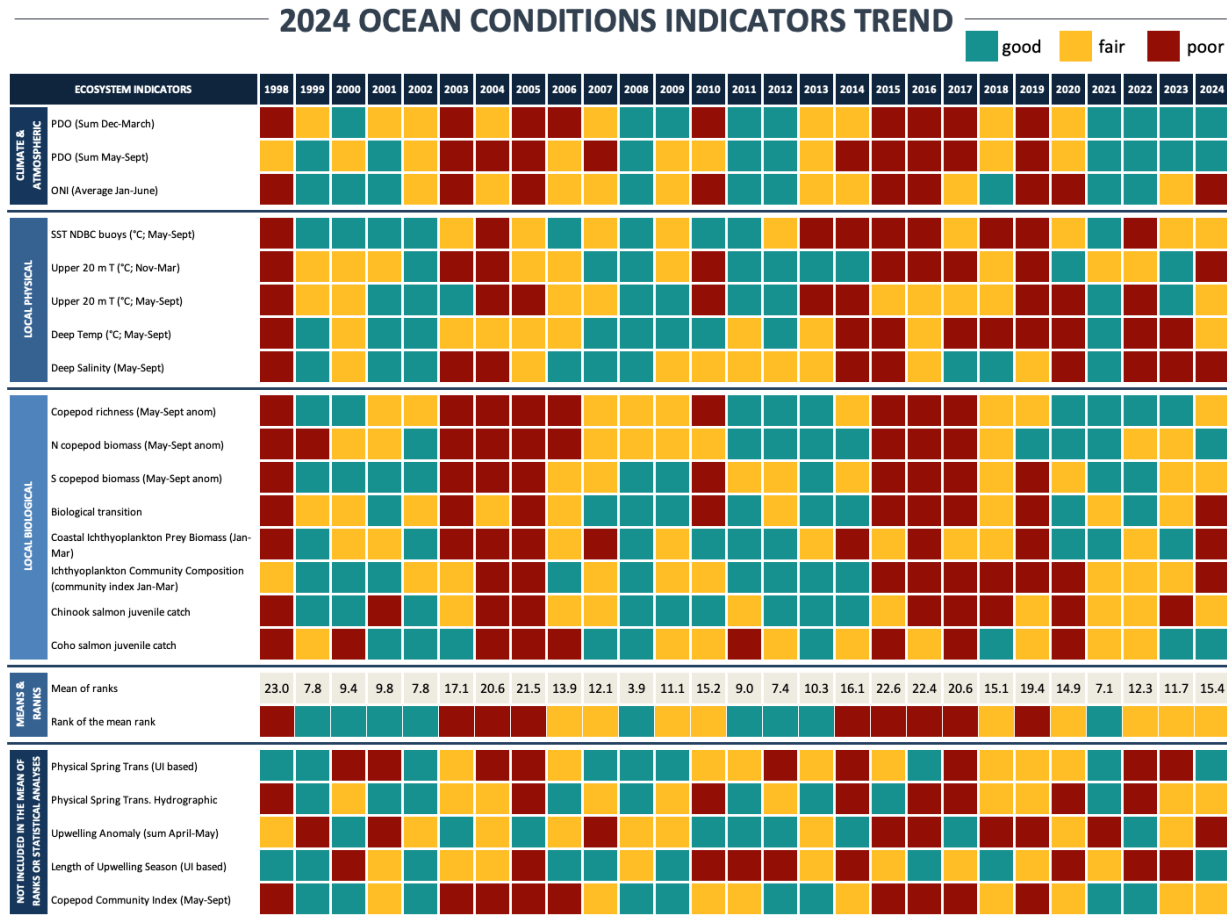


Figure 3. Ocean ecosystem indicators of the Northern California Current from 1998 - 2024. Colored squares indicate either positive (green), neutral (yellow), or negative (red) conditions for salmonids entering the ocean. Source: NOAA 2025c.

Science indicates that salmonids are most impacted by ocean conditions during their first year in the ocean. Because the number of years spent in the ocean varies among species, populations, and individual fish, observation of impacts on returning adult salmonids may be delayed for several years. The poor ocean conditions recorded in 2015-2019 likely contributed to lower numbers of salmon and steelhead returning to the Upper Columbia in recent years. Conversely, the uptick in spring Chinook and steelhead adult returns in the last three or four years may reflect improved ocean conditions in 2020-2022. 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. This is one likely cause for elevated spring Chinook returns in 2020-2024 compared to 2015-2019. In contrast, 2021 offshore sea surface temperatures were less favorable, which may have contributed to steelhead returns not rebounding as strongly as spring Chinook after 2019 (Figure 1).

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

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 2024, 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 2025](#)). Additionally, there was a limited spring Chinook salmon fishery on Icicle Creek in 2024 targeting unlisted, hatchery-origin fish.

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 2024, an estimated 1,609 wild spring Chinook entered the Columbia River destined for the Upper Columbia, along with an additional 16,615 hatchery fish, including fish from the Chief Joseph hatchery. The estimated number of wild fish taken by non-treaty wild harvest was 12 (0.7% of the wild run) and treaty harvest through ceremonial and subsistence (C&S) fisheries accounted for 97 fish (6.0% of the run). An estimated 205 (12.7%) Upper Columbia wild spring Chinook salmon died from various causes during migration or failed to pass Rock Island Dam, for an estimated escapement of 1,296 (81% of initial wild run) at Rock Island Dam (ODFW & WDFW, 2025). Data for 2024 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. Similar to 2023, the 2024 water year had below average streamflow on the mainstem Columbia River, resulting in a runoff volume of 24% below average (1991-2020) at both Grand Coulee and The Dalles Dam (DeHart 2025). Seasonal spring migration flow targets were not met at Priest Rapids dam, McNary Dam, and Chief Joseph Dam, due to lower-than-average total flow. Indeed, water transit times were slower for each two-week spring and summer block. Juvenile salmon and steelhead encounters with powerhouses are detrimental to their survival. Increasing the portion of flow through spill reduces juvenile encounters with powerhouses, however, due to below average flow, portion of total streamflow as spill (April 15 – June 30) was the lowest since 2015 at Wells Dam and Rocky Reach Dam (DeHart 2025). The percentage of April 15 through May 31 spill in the four Lower Columbia River dams has risen steadily since the early 2000s, but in 2024 spill was slightly below the peak of 54% of flow in 2022 (DeHart 2025).

Despite the improved spill since the early 2000s, fish travel times and overall salmon and steelhead survival have not distinctly increased but have, instead, markedly decreased for some species and sections of the river. This is based on juvenile survival estimates through the hydrosystem by the National Marine Fisheries Service for hatchery-origin Upper Columbia spring Chinook and steelhead. Since these fish are all hatchery origin, Upper Columbia release sites include Leavenworth National Fish Hatchery, Chief Joseph Fish Hatchery, Wells Hatchery, Methow Hatchery, Winthrop National Fish Hatchery, Chiwawa Hatchery, Entiat Hatchery, and several other acclimation sites in the Upper Columbia. The 2024 Fish Passage Center annual report did not include updated 2024 travel time estimates. In 2023, spring Chinook travel time estimates from Leavenworth and Winthrop to McNary dam were one day slower and two days faster, respectively (DeHart 2025). The survival of natural-origin Upper Columbia spring Chinook and steelhead is not assessed.

The computed survival estimate for hatchery yearling Chinook salmon from release sites to Bonneville Dam was 38%. Although higher than 2023, it is the fourth lowest estimate since ESA listing in 1999 (Figure 4, Widener et al. 2025). In 2024, survival from release to McNary dam was near average at 55%. Survival from McNary dam to Bonneville dam, 69%,

was the lowest recorded in three years and the fifth lowest estimate since ESA listing in 1999. In contrast, estimated survival of hatchery steelhead from release to Bonneville dam plummeted to 14%, compared to 32% in 2023 (Figure 4, Widener et al. 2025). This is the lowest estimated survival for this section of the river since ESA listing. The decreased survival rate for steelhead across the hydrosystem is due to below average survival both in the upper release to McNary dam and lower McNary to Bonneville dam. Estimated survival from release sites to McNary dam was 21%, the lowest since ESA listing. Across the entire time series of steelhead from release to McNary dam, the downward trend is statistically significant ($p < 0.01$). While survival from McNary to Bonneville dam was 66% and only the lowest in three years, this was still below the average since ESA listing in 1999.

The Comparative Survival Study (CSS) evaluates hydropower survival over time and includes estimates of survival for wild spring Chinook and steelhead (McCann et al. 2025). The most recent smolt-to-adult return (SAR) survival estimate for wild spring Chinook (combining the Entiat and Methow populations) is from the 2023 migration year. It shows a survival rate of 0.39% from Rocky Reach Dam to Bonneville Dam, which is the lowest recorded since 2017, slightly below the average of 0.83%, and well below the minimum SAR of 2% for a sustainable population (McCann et al. 2025). The estimate for wild steelhead (Okanogan River or Columbia Mainstem above Wells Dam) at the same points for the 2022 juvenile migration year was 1.08% (12-year geometric mean = 1.54%), which was higher than 2021 but below average. Each of these SAR estimates fell below the target rate of 2%-6% defined by the Northwest Power and Conservation Council (McCann et al. 2025).

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

Hatcheries

In 2024, hatchery programs in the Upper Columbia released nearly 3.4 million spring Chinook and 759,000 steelhead (DeHart 2025), both a slight increase from 2023. These hatchery 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 2024, pHOS for spring Chinook across the region increased from 54% in 2023 to 74%. Conversely, steelhead pHOS decreased from 52% in 2023 to 57% in 2024. The pHOS trends vary across individual subbasins. The spring Chinook pHOS in the Wenatchee and Methow between 2023 and 2024 increased by 20% and 21% respectively, but decreased in the Entiat by 9% over the same time period. The Entiat maintains a lower average pHOS compared to the Methow and Wenatchee for spring Chinook, due to the spring Chinook hatchery closing in 2008. Steelhead pHOS changes were less drastic across sub-basins with Methow and Okanogan steelhead pHOS decreasing between 2023 and 2024 by 5% and 10%, respectively. Wenatchee and Entiat steelhead pHOS increased by 1% and 7%, respectively, between 2023 and 2024. Steelhead pHOS remains high in the Methow and Okanogan, both at or above 65%, but lower in the Wenatchee and Entiat, both below 30%.

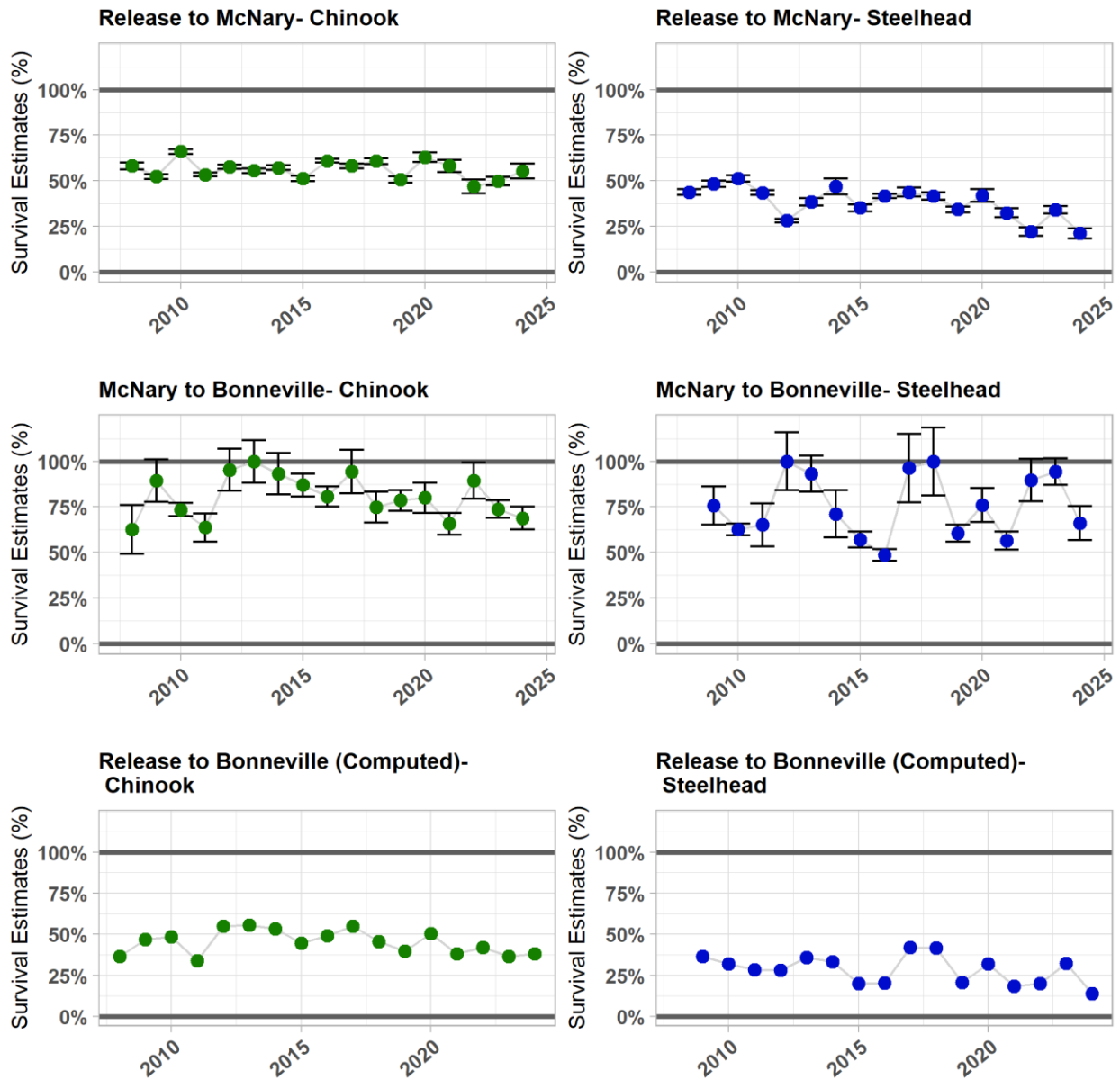


Figure 4. Estimated rates of survival (points) and standard errors (small black lines with cross bars) through the Columbia River hydropower system for hatchery-origin yearling Chinook salmon (left column, green dots) and steelhead (right column, blue dots) originating in the upper Columbia River, 2008–2024. Solid black horizontal lines are at 0% and 100%. Source: Widener et al. 2025.

A composite metric called the Proportionate Natural Influence (PNI) combines pNOB and pHOS to assess genetic risk for a salmonid 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 for the Wenatchee River subbasin were 0.50 above Tumwater Dam, 0.59 for Chiwawa River spring Chinook, and 0.41 for Nason Creek spring Chinook (Hillman et al. 2025). The PNI for Chiwawa spring Chinook dropped considerably from 0.8 in 2023 and is the lowest since 2020. The spring Chinook PNI was the lowest since 2020 for the Wenatchee River above Tumwater Dam, and the lowest since 2021 for Nason Creek spring Chinook. In the Methow River, the spring Chinook PNI estimate was 0.46, a decrease from 2023 but still higher than the 21-year mean of 0.29 (Snow et al. 2025). For Wenatchee River steelhead, PNI estimates were

0.66 which is higher than the average since 2000 but lower than the 5-year average. The Methow steelhead PNI slightly declined to 0.53, which is near the average for the last 11 years since data has been collected. A PNI of 0.67 or greater is recommended for conservation programs, as defined by the Hatchery Scientific Review Group (2009). However, several populations were below the 0.50 threshold considered necessary for the natural environment to dominate selection (Paquet 2011). In 2024, the Wenatchee spring Chinook (Chiwawa) and Wenatchee River steelhead were the only populations with a PNI above this cut-off, but other subbasins and the long-term average of most populations still fall below recommended levels.

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

Habitat

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

In 2024, partners completed 37 projects across all four major subbasins (Figure 5), with nine projects implemented in the Methow, 17 in the Wenatchee, four in the Entiat, six in the Okanogan, and one project that was a combination of the Wenatchee and Entiat subbasins. In comparison, the number of projects completed in 2023 was 47. Of the completed 2024 projects, 25 were restoration, seven were design/planning, two were assessments, and three were protection, or acquisition. Of the 37 completed projects, five were primarily funded by the BPA Upper Columbia Programmatic, which are reported annually to the Bonneville Power Administration.

2024 ACCOMPLISHMENTS

- 37 projects completed
- 12 miles of stream treated
- 10 barriers removed
- 33 miles of stream made accessible
- 12 beavers relocated
- 5.6 acres of off-channel or floodplain connected or added
- 219 structures placed in channel
- 39 acres acquired for protection or restoration
- 1.6 acres of riparian area treated
- 3.75 miles of fencing along streams

In addition, there were two projects completed in the Moses Coulee watershed. These projects were included in the completed projects table (Table 1) but were not included in any of the calculations presented in this report.

Since 1998, there have been 764 projects completed in the region, most of which (57%) were implemented within the last 12 years. The total projects completed in 2024 is similar to the 10-year average of 33 projects per year. Over the past five years, an average of 36 projects have been completed annually. As noted in previous annual reports, the scope and scale of current projects is significant based on the cost of recently completed projects. In 2024, the combined cost of all 37 projects totaled about \$13.8 million (Figure 6), with four projects each costing \$1 million or more. The average funding per project was approximately \$370,000. A complete list of projects completed in 2024 is provided in Table 1 (page 17).

Of the 28 total restoration and protection projects in 2024, most targeted a combination of ESA-listed fish species, with seven primarily focused on spring Chinook and steelhead, and another eight focused on spring Chinook, steelhead, and bull trout. Steelhead alone was listed as the primary species of interest in an additional nine projects. One project, in Upper Bonaparte Creek, was primarily focused on rainbow trout. Of the projects that benefited steelhead, the majority (15 of 25) were completed in a high priority assessment unit, with an additional ten completed in a medium

priority area (Figure 7). Similarly, of the 16 projects benefiting spring Chinook, ten were completed in a high, five in a medium, and one in a low priority assessment unit (Figure 7). While bull trout were a primary species of interest in only eight projects, most of these were completed in a high priority assessment unit as well.

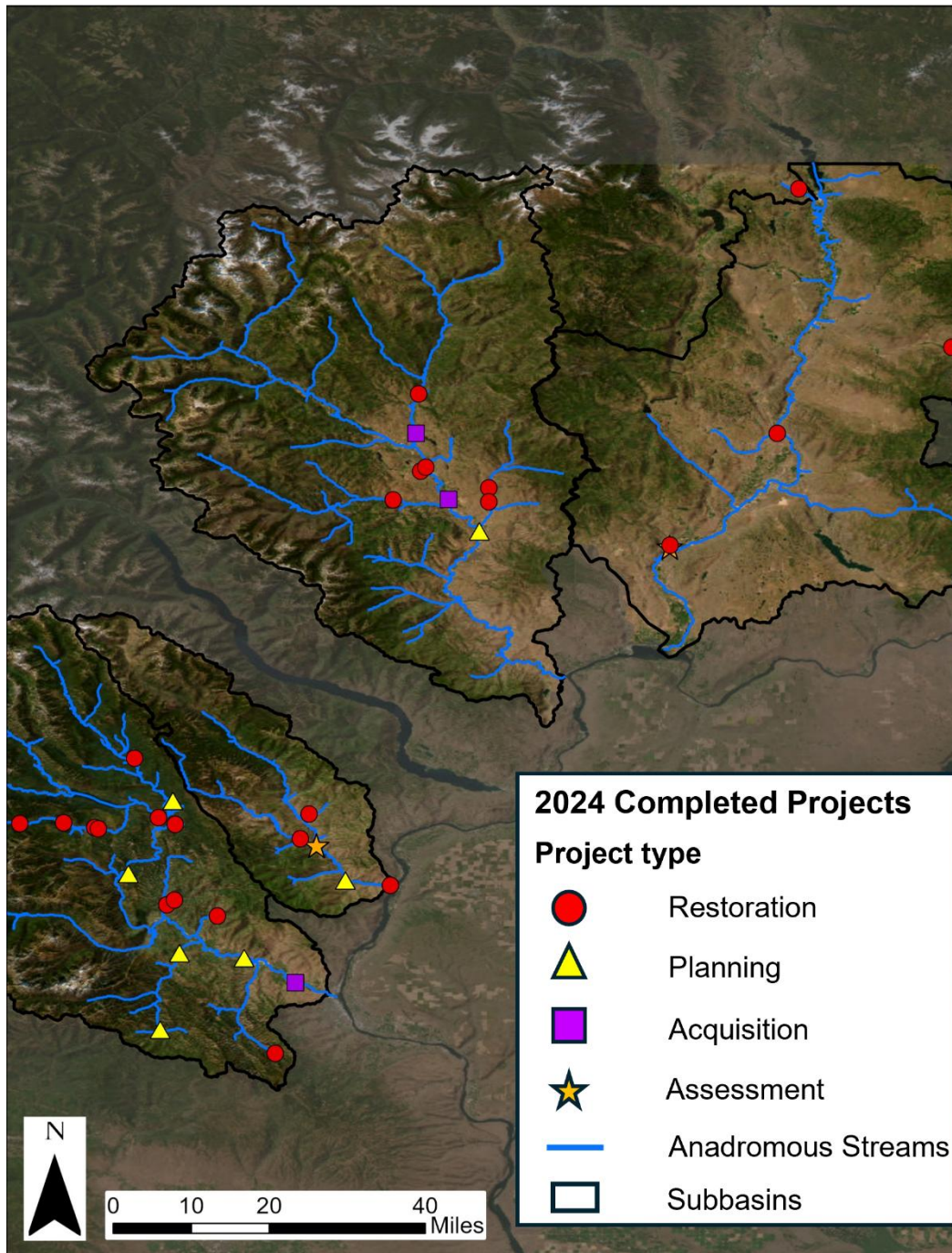


Figure 5. Map of the Upper Columbia region showing the location and type of projects completed in 2024 within each of the four major subbasins.

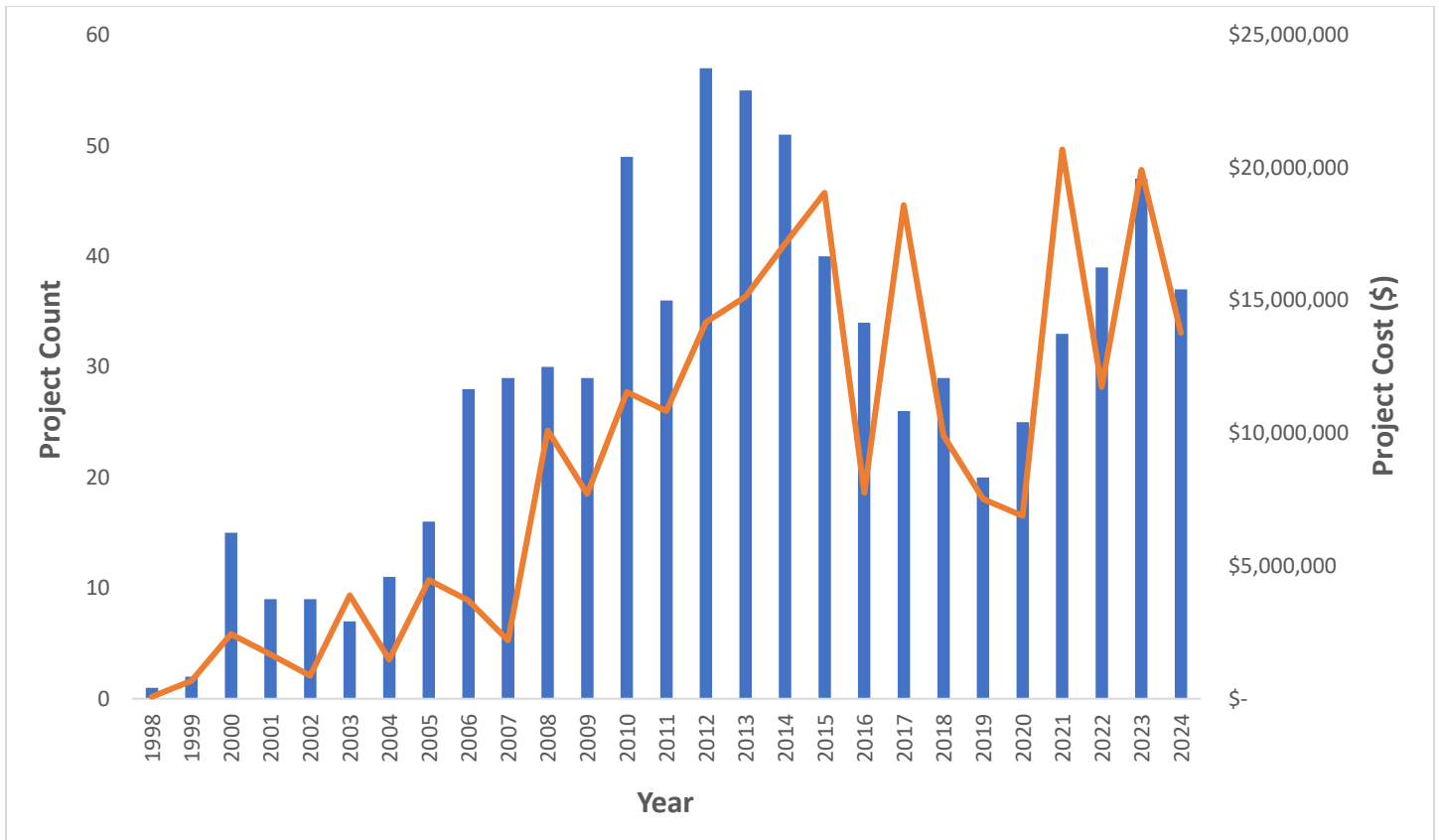


Figure 6. Total number of habitat projects completed (blue bars; left axis) and money spent in millions (orange line; right axis) annually from 1998 through 2024.

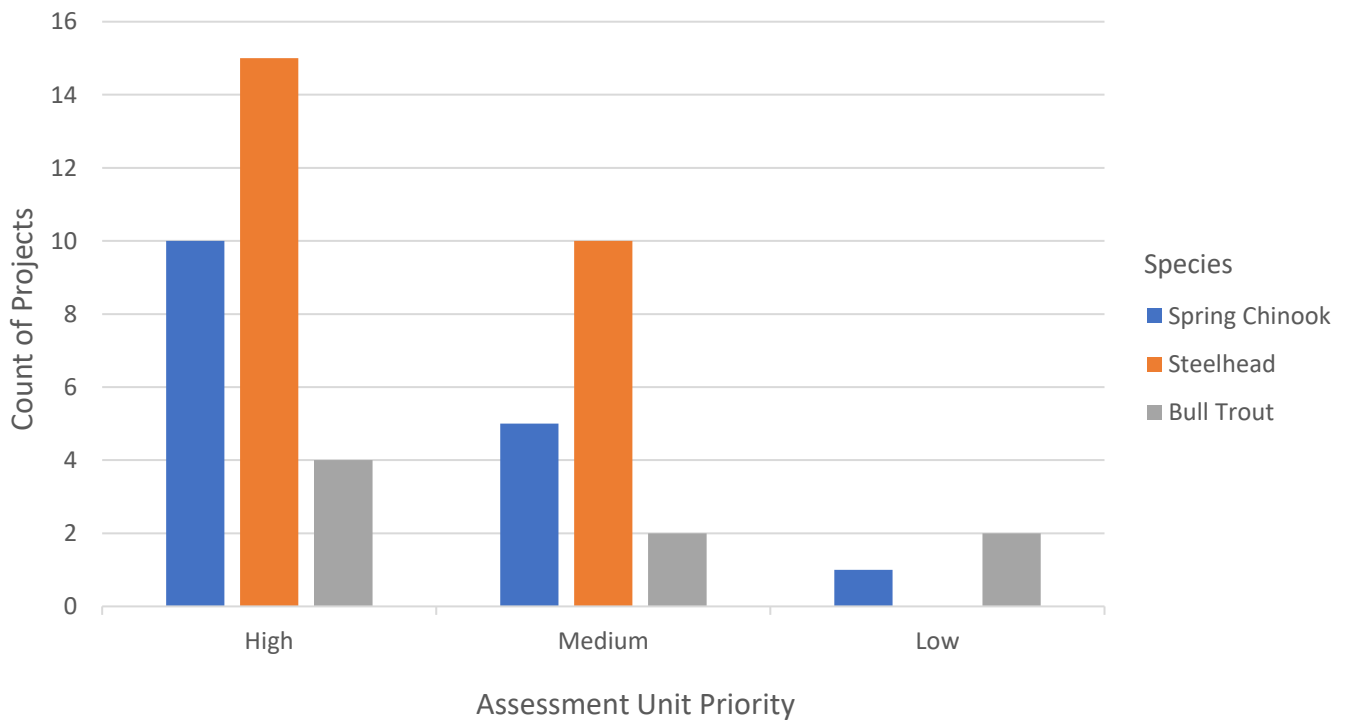


Figure 7. Number of completed restoration and acquisition projects by assessment unit (HUC 12 watershed) priority rankings as defined in the *UCRTT Biological Strategy* for each of three ESA-listed species.

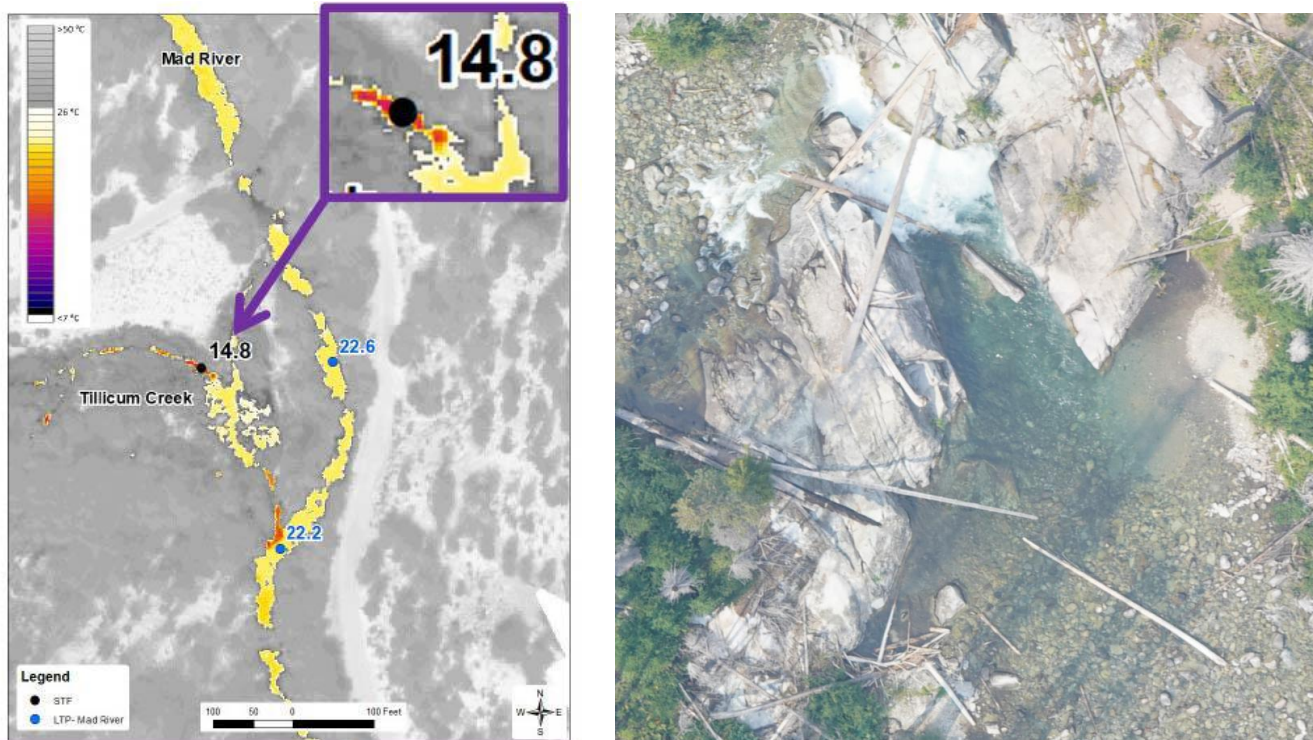
Featured Projects

The following section summarizes the projects completed in each of the region's subbasins in 2024 and highlights four projects that address the identified ecological concerns in those areas. These projects demonstrate the region's commitment to projects that benefit key species and their habitat needs.

Entiat Subbasin

Partners completed 4 projects in the Entiat subbasin in 2024 (Table 1).

Featured Project: Entiat and Mad River Comprehensive Thermal IR Survey (SRP-22-92469)



(left) Thermal mosaic map of the Mad River and a tributary, Tillicum Creek, where a significant cold-water feature was identified. (right) Entiat Falls – upper end of the thermal imagery mapping.

Sponsor: Cascadia Conservation District

Location: Entiat and Mad Rivers

Funding: Total project cost: \$205,000; US Bureau of Reclamation funding

Outcomes: Thermal infrared mapping of 66 miles on the Entiat and Mad Rivers, 36 significant thermal features identified

The Entiat and Mad River Comprehensive Thermal Infrared Survey was an assessment project completed by the Cascadia Conservation District in 2024 on the Entiat and Mad Rivers. The project produced detailed thermal mapping across 66 miles of river, identifying 36 significant thermal features. Because temperature is a primary limiting factor in the Entiat subbasin, this information will enable future project implementers to better plan around, preserve, and enhance the critical cold-water features present throughout the watershed.

This project utilized a helicopter-mounted FLIR SC6000 system to collect high-resolution surface water temperature data across the full extent of the surveyed reaches. In addition to the thermal mosaic, the imagery provides detailed visual information that allows implementers to assess riparian conditions, large wood presence, and overall habitat quality. Overall, this climate-forward project delivers critical data that will be widely used by sponsors throughout the Entiat subbasin to protect and enhance cold-water features for the benefit of ESA-listed, cold-water species.

Okanogan Subbasin

Partners completed five projects in the Okanogan subbasin in 2024 (Table 1).

Featured Project: Johnson Creek Fish Passage (19-1595)

Sponsor: Trout Unlimited – WA Water Project

Location: Johnson Creek AU

Funding: Total project cost: \$1,524,908; \$1,294,908 from Brian Abbott Fish Barrier Removal Board, and \$230,000 from Wells Habitat Conservation Plan Tributary Committee

Outcomes: 1 fish passage blockage removed; 1.01 miles of stream made accessible



Completed Highway 97 crossing at Johnson Creek. The undersized culvert and upstream trash barrier were replaced with a large box culvert.

Trout Unlimited (TU) completed a fish passage improvement project at the Johnson Creek-Highway 97 crossing in Okanogan County. The project replaced an undersized culvert and removed a trash rack at the highway crossing that had created a passage barrier for both resident and anadromous fishes. With this barrier corrected, steelhead and resident trout now have unimpeded access to approximately one mile of high-quality upstream spawning and rearing habitat. The Johnson Creek Assessment Unit is ranked as a high priority for both steelhead adult migration and spawning, making this a very important location for restoration work.

Methow Subbasin

Partners completed nine projects in the Methow subbasin in 2024 (Table 1).

Featured Project: Upper Beaver Creek Final Design and Restoration (20-1450)



(left) Barrier culvert outlet. (right) Existing roughened channel.

Sponsor: Methow Salmon Recovery Foundation

Location: Lower Beaver Creek 07

Funding: Total project cost: \$469,088.12; \$398,718.80 from Salmon Recovery Funding Board, \$46,912.96 Wells Tributary Committee, \$7,654.68 Department of Ecology, \$8,352.05 Bureau of Reclamation, \$7,500 MSRF

Outcomes: 1 fish passage barrier removed; 0.41 miles of stream treated for channel reconfiguration and connectivity; 1.5 acres of wetland restored; 0.35 miles of stream made accessible

Methow Salmon Recovery Foundation implemented an instream and fish passage restoration project in Beaver Creek, a tributary to the Methow River, benefiting both spring Chinook and steelhead. Beaver Creek is ranked as a level 2 Assessment Unit and is considered a medium- to high-priority reach for multiple life stages, including summer rearing, adult migration, and fry colonization.

The project replaced an undersized culvert, restoring fish passage to a 1.5-acre wetland habitat on the east side of the project site. This wetland area is particularly important for juvenile steelhead, providing critical refuge and rearing habitat. Additional passage improvements were achieved by reconstructing existing irrigation diversions using a roughened channel design. Together, these actions restore access to more than 17 miles of upstream habitat in Beaver Creek, including a significant restoration project completed by the Yakama Nation in 2019.

Floodplain connectivity was further enhanced through floodplain grading and habitat structure placements throughout the site. Overall, this project increased flood capacity and floodplain connectivity, improving channel resilience to high flows and sediment transport under changing flow conditions.

Wenatchee Subbasin

Partners completed 17 projects in the Wenatchee subbasin in 2024 (Table 1).

Featured Project: Merritt Oxbow Reconnection (20-1447)

Sponsor: Cascade Fisheries

Location: Lower Nason Creek 10

Funding: Total project cost: \$1,088,739.13; \$711,236 from BPA Upper Columbia Programmatic, and \$376,977.31 from Salmon Recovery Funding Board,

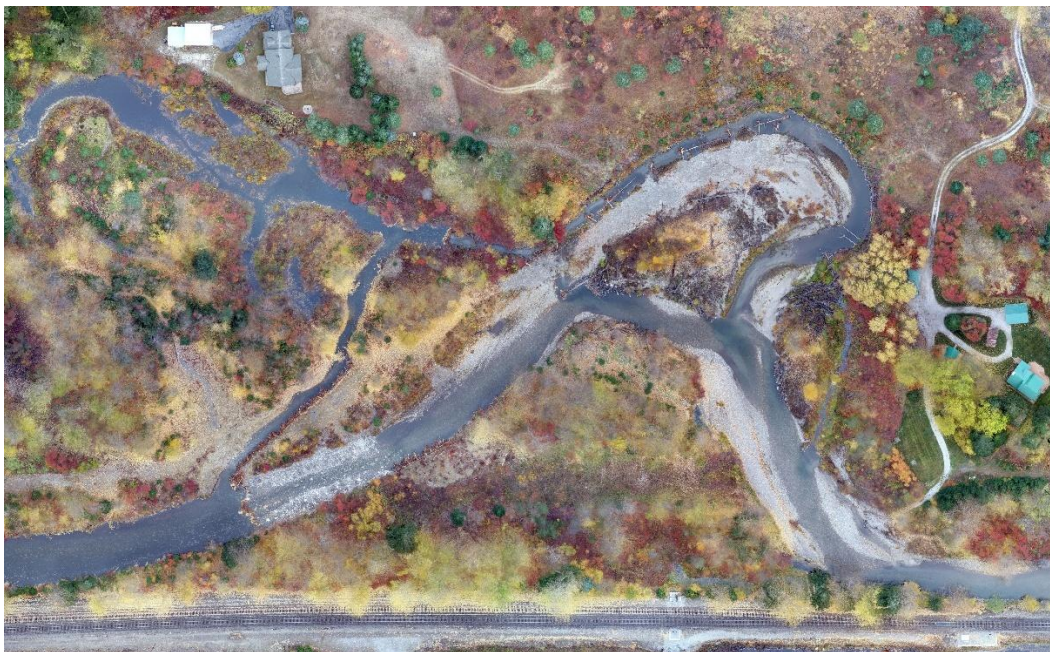
Outcomes: 0.28 miles of instream habitat treated, 9 pools created, 1.1 acres of riparian area treated

Cascade Fisheries completed the Merritt Oxbow Reconnection restoration project at river mile 10.8-11

on Nason Creek, which is in the Lower Nason Creek Assessment Unit of the Wenatchee River subbasin. This Assessment Unit is ranked Tier 1 for spring Chinook and steelhead restoration. The project included the excavation of a new side channel that created a connection between the oxbows and mainstem channel. Constructed riffles were placed in the side channel and the mainstem channel to improve side channel longevity and provide fish passage at all flow ranges. Instream complexity and floodplain connection was enhanced at the site through large woody debris installations. Finally, just over one acre of riparian vegetation was restored with native vegetation. Collectively, these actions will address multiple rank 1 limiting factors in the reach, including side channel and floodplain connectivity, bank stability, riparian cover, and temperature. Additionally, this project will benefit multiple life stages of listed spring Chinook, steelhead, and bull trout, as well as non-listed species such as lamprey.



New side channel, adding 0.43 miles of off-channel habitat.



Aerial view of the Merritt Oxbow project site, including the excavated channel and reconnection to the oxbow.

Table 1. Upper Columbia projects completed in 2024. Source: Salmon Recovery Portal database (January 2026). Projects are shaded by subbasin. 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; WDFW = Washington Dept of Fish and Wildlife; YN = Yakama Nation.

2024 Completed Projects							
Project ID	Subbasin	Project name	Project Type	Start Year	End Year	Total Budget	Project Sponsor
SRP-23-88324	Methow	Black Pine Creek AOP Culverts (1 of 2)	Planning & Restoration	2023	2024	\$192,000	CF
SRP-23-92415	Methow	Twisp to Carlton Reach Side Channel	Planning	2023	2024	\$62,816	CF
20-1450	Methow	Upper Beaver Creek Final Design and Restoration	Planning & Restoration	2020	2024	\$469,088	MSRF
23-1275	Methow	Chewuch Acquisition RM 2.8-3.1	Acquisition	2023	2024	\$441,322	MSRF
SRP-22-92417	Methow	Sage Acquisition Sugar Reach	Acquisition	2022	2024	\$60,810	MSRF
BPA-P-84042REL53	Methow	UC WDFW Fish Screen Programmatic B	Restoration	2023	2024	\$780,000	WDFW
BPA-A-93495	Methow	CCT Beaver Creek Wood Enhancement	Restoration	2024	2024	\$800,000	CTCR
SRP-23-18797	Methow	OCD D Irrigation Project	Restoration	2023	2024	\$78,029	OCD
SRP-24-19718	Methow	OCD Bluebird Planting Project	Restoration	2024	2024	\$24,101	OCD
22-2543	Okanogan	Stoddard Trust Bonaparte Creek R21	Restoration	2023	2024	\$200,422	CF
SRP-24-91326	Okanogan	CCT Larson Road Culvert	Restoration	2024	2024	\$500,000	CTCR
19-1595	Okanogan	Johnson Creek Fish Passage	Restoration	2019	2024	\$1,524,908	TU
20-1469	Okanogan	Loup Loup Creek Restoration Design	Assessment	2020	2024	\$156,108	OCD
SRP-22-19618	Okanogan	OCD DD Fencing Project	Restoration	2022	2024	\$229,852	OCD
15-1274	Wenatchee	Stroud - Derby Creek R13	Restoration	2020	2024	\$127,035	CF
20-1447	Wenatchee	Merritt Oxbow Reconnection	Restoration	2020	2024	\$1,088,739	CF
SRP-22-91428	Wenatchee	Peshastin RM 2.5 30% Design	Planning	2022	2024	\$118,825	CF
BPA-P-93299	Wenatchee	Chiwawa 13 Culverts 2024	Planning	2023	2024	\$68,000	CF
BPA-P-93203	Wenatchee	Goodwin Side Channel Design B	Planning	2023	2024	\$120,000	CF
BPA-A-91365	Wenatchee	Upper Nason Creek Habitat Restoration Project Phase 2	Restoration	2024	2024	\$600,000	YN
BPA-A-91369	Wenatchee	Chiwawa River Area G Phase 1	Restoration	2024	2024	\$423,000	YN
BPA-A-89486	Wenatchee	Chiwawa River Outlet	Restoration	2024	2024	\$276,000	YN
19-1512	Wenatchee	Hansen Eagle Cr R17	Restoration	2020	2024	\$341,327	CCNRD

21-1461	Wenatchee	Beaver Creek Barriers 603181 and 603183	Restoration	2023	2024	\$78,406	CCNRD
22-1501	Wenatchee	Upper Peshastin Stream and Road Restoration	Planning	2022	2024	\$95,988	CCNRD
BPA-P-91590	Wenatchee	Upper Wenatchee Floodplain 60% to Final Design B	Planning	2023	2024	\$152,810	CCNRD
SRP-21-85860	Wenatchee	East Fork Mission Creek Floodplain Restoration	Restoration	2021	2024	\$1,000,000	CCNRD
SRP-24-71017	Wenatchee	Monitor Park WSDOT Parcel Acquisition	Acquisition	2024	2024	\$500,000	CCNRD
20-1468	Wenatchee	Nason Kahler Instream Complexity Restoration	Restoration	2020	2024	\$718,208	CCNRD
21-1180	Wenatchee	Nason Kahler Instream Complexity Restoration PH 2	Restoration	2021	2024	\$640,636	CCNRD
22-89467	Wenatchee	Lower Eagle Creek Restoration Phase 1 RM 1.2	Restoration	2023	2024	\$50,000	CCD
BPA-A-89483	Entiat	Mad River 1.1-4.3 Restoration	Restoration	2024	2024	\$1,000,000	YN
22-1502	Entiat	Entiat 4.6 (1D Reach) Preliminary Design	Planning	2022	2024	\$134,895	CCNRD
SRP-24-71021	Entiat	Low-Tech Restoration of Potato Creek	Restoration	2023	2024	\$80,000	TU
SRP-22-92469	Entiat	Entiat and Mad River Comprehensive Thermal IR Survey	Assessment	2022	2024	\$205,000	CCD
SRP-23-91460	Entiat, Wenatchee & Moses Coulee	Beaver Coexistence and Relocation 1	Restoration	2023	2024	\$70,000	TU
SRP-23-91458	Moses Coulee	Rock Island Crk Beaver Powered Restoration Phase 2	Restoration	2023	2024	\$100,000	TU
SRP-24-91328	Moses Coulee	Rock Island Crk Beaver Powered Restoration Phase 3	Restoration	2024	2024	\$100,000	TU

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