Fish and Wildlife Program Categorical Assessment: Artificial Production

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This is a staff product and has not been reviewed or approved by the Council. This working draft functions as supplementary documentation for the Categorical Assessment presentations and contains information to inform the upcoming amendment process. While elements within this document were developed in collaboration with the region's state and federal fish and wildlife agencies and tribes, the document itself has not been reviewed by anyone other than Council staff and should be considered preliminary. We welcome feedback and/or corrections for future drafts of this documentation.

Northwest **Power** and **Conservation** Council

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Purpose and scope

The objective of this assessment is to describe the status of artificial production under the Council's Columbia River Basin Fish and Wildlife Program (Program) over the last 40 years. Here, we compile the components of the Program's current artificial production implementation (acknowledging that programs are dynamic and additional facilities and programs are still in development), which demonstrates alignment of implementation with the Program's measures over time, and with context to how the Program fits within the broader context of hatchery mitigation in the Columbia River Basin. This assessment is intended to be a resource for the Council and region to consider as we approach the next Program amendment cycle in 2025.

Approach to mitigation

The Northwest Power Act specifies that mitigation occur through a combination of (1) onsite (in-kind and in-place) actions related to the hydrosystem, and (2) offsite actions to protect, mitigate, and enhance populations of fish and wildlife affected by the hydrosystem [4(h)(1)(A); 4(h)(5); 4(h)(8)(A)]. These were designed to function in tandem, with different actions being implemented collectively to achieve goals.

Offsite mitigation covers all efforts not directly located in the mainstem or near a dam. This includes habitat restoration and protection, and artificial production, but also Research, Monitoring and Evaluation, which ultimately contributes to more effective implementation. Offsite mitigation, and in particular habitat restoration, has been a substantial part of the Program. Artificial production facilities and programs were developed under the Program to complement habitat restoration actions.

Program measures over time

Artificial production measures have been part of the Program, beginning with the first Program in 1982. The Programs called for several large production facilities in interior regions of the Basin (above Bonneville Dam), along with measures describing the detailed process for master plans. These included information on release sites, brood source, harvest plans, and numerous other details required to take a facility from a design phase to reaching full production over many years. In addition, Programs also called for development of decentralized, low-capital salmon and steelhead production facilities (i.e., satellite sites where juveniles could acclimate to local environments). These satellite sites could be used to supplement populations in subbasins with low abundance by acclimating hatchery juveniles to natural areas where they were meant to return and spawn in river to bolster natural abundance. Hydrosystem operations do not just affect salmon and steelhead, but also naturally producing resident and other native fish populations. Measures supporting facilities and production programs for resident and other native fish were also part of the Program. These measures focused on areas of the basin where anadromous fish are no longer present due to dams that blocked fish passage, and other areas where native fish species are impacted by the hydrosystem.

There are two major themes of the nearly 300 individual artificial production-related measures across the Programs over time summarized in the following tables:

1. Facility planning and construction in specific interior regions of the basin (Table 1) and
2. Artificial production programs managed to serve dual objectives – fisheries and conservation (i.e., supplementation, reintroduction, native fish conservation), while managing and balancing risk to natural populations and meeting Tribal trust and mitigation obligations. Measures associated with production programs include robust monitoring

and evaluation, adaptive management, and contribution to regional data sharing and coordination (Table 2).

Table 1. Facility planning and construction, select measures in the Council's Fish and Wildlife Program and other external agreements guiding hatchery development for salmon and steelhead and resident and other native fish, 1982 – 2020

Program	Fish propagation (anadromous)	Resident and other native fish mitigation
1982	**Hatchery in the Yakima Basin to be run by Yakama Nation** – BPA to fund the design, construction, and O&M with Council approval. **Acclimation pond at John Day Dam.** **Juvenile release and adult holding facilities on the Confederated Tribes of the Umatilla Reservation** • Compatible with natural propagation and harvest management (focused on upriver stocks). *Basinwide studies to be completed by spring 1984 with plans to adopt comprehensive reprogramming plan for lower river hatcheries by fall 1984.*	**Clark Fork River hatchery to achieve fish restoration** – BPA to fund the design, construction, O&M with Council approval.
1984	**Temporary acclimation ponds for juvenile salmon.** • Agencies and tribes to jointly develop a plan for design, construction, and evaluation. **Decision on which stocks produced at Yakima Basin hatchery to supplement natural runs and harvestable fish.** **Low-capital propagation facilities on the Nez Perce Reservation** – Fund, design, and construct. **Fund study to compile all available information on existing and potential sites for hatcheries in basin.** **Hatchery to enhance the fishery for Yakama Nation and all other harvesters (central outplanting facility to supplement natural runs)** – BPA to fund the design, construction, O&M *Basinwide studies to be completed by spring 1984 with plans to adopt comprehensive reprogramming plan for lower river hatcheries by fall 1984.*	**Resident trout hatchery on the Colville Indian Reservation to partially mitigate for anadromous and other fish losses** – BPA to fund the design, construction, and O&M with Council approval. State-of-the-art technologies specifically called for in the design of the hatchery.
1987	**Facilities to raise Chinook salmon and steelhead for enhancement in the Hood, Umatilla, Walla Walla, Grande Ronde, and Imnaha Rivers and elsewhere** – BPA to fund the design, construction, operations, maintenance, and evaluation.	

	Fund the Confederated Tribes of the Umatilla Reservation to operate and maintain the Bonifer and Minthorn juvenile release and adult collection and holding facilities on the reservation. **Fund the construction of a facility to produce approximately 160,000 pounds of summer steelhead and Chinook salmon smolts for release in the Umatilla River to enhance natural and hatchery production.** *Council to review a comprehensive plan developed by the fish and wildlife agencies and tribes for reprogramming lower river hatcheries.*	
1991	**Fund planning, design and construction of the facilities determined to be necessary to improve existing production. Council for approval before proceeding.** **In cases where there is not a NEPA document in place to effectively evaluate new artificial production projects, detailed master plans must be submitted to the Council with required elements.** **Prepare master plan for public review including genetic and species interactions risks.** • All future supplementation master plans should be developed in consultation with the Council's genetics teams	
1993		**Warm water low capital bass hatchery on the Kalispel Indian reservation** – Design, construction, maintenance. **Acquire or construct a trout production facility for stocking on the Duck Valley Indian Reservation and elsewhere** – Operation and maintenance required. **Develop, maintain and manage trout ponds within the Nez Perce Indian Reservation.** • Improve, maintain, and monitor fish stocking of two existing trout ponds. • ID additional sites suitable for fish pond construction. • Construct and maintain 6 to 12 additional fish ponds. **Resident trout hatchery on the Fort Hall Reservation** – Design, construction, maintenance.

1994	**Temporary acclimation ponds to assess the effectiveness of using these ponds to improve survival of fish released in upriver habitat.** If not possible above McNary Dam, then John Day Pool should be considered – plan for design, construction, and evaluation. **Facilities to raise chinook salmon and steelhead for enhancement in the Hood, Umatilla, Walla Walla, Grande Ronde and Imnaha rivers and elsewhere to supplement natural production in these rivers** – Fund planning, design, construction, operation, maintenance and evaluation. **Propagation of salmon and/or steelhead smolts in the 2.8-mile-long fish ladder located at Pelton Dam on the Deschutes River in Oregon**. **Permanent John Day acclimation ponds used to imprint fall chinook** – Design, construction, operation and maintenance. **Hatchery program, including satellite facilities for Rock Island Project** – Design, construction, operation and maintenance. **Bonifer and Minthorn juvenile release and adult collection and holding facilities on the Confederated Tribes of the Umatilla Reservation of Oregon reservation** – Operate and maintain the Bonifer and Minthorn. **Support Umatilla Hatchery to demonstrate use of oxygen supplementation hatchery techniques, and to produce summer steelhead and chinook salmon smolts for release in the Umatilla River**. **Reprogramming lower river hatcheries:** Review a comprehensive plan developed by the fish and wildlife agencies and tribes. Where knowledge is sufficient, stocks may be moved to particular upriver streams/the Upper Columbia River system. • Assist in restoring naturally spawning stocks, rebuild upriver runs, and support tribal fisheries as described in the reprogramming plan. **Construction and operation of planned juvenile release and adult collection and holding facilities for outplanting in the upper Umatilla River (natural and hatchery production).** **Trout production facility for the production of trout for stocking on the Fort Hall Indian Reservation and elsewhere** – Assess opportunities for joint production strategies with the Shoshone-Paiute Tribe, including the training of tribal members in fish culture.	**Low-capital sturgeon hatchery on the Kootenai Indian Reservation** – Operate and maintain and explore alternative ways to make effective use of the facility year-round. **Trout ponds within the Nez Perce Indian Reservation** • Improve, maintain, and monitor fish stocking of two existing trout ponds. • ID additional sites suitable for fish pond construction. • Construct 6 to 12 additional fish ponds and maintain and monitor.

1995		**Yellow perch aquaculture facility on the Kalispel Indian Reservation** – Design, construct, operate and maintain for two years. **Improvements to Phalon Lake wild rainbow trout trapping facility** – Plan, engineer, design, construct, operate and maintain improvements to allow the continuation and possible expansion of the Kettle River wild rainbow stocking program into other upper Columbia River Basin waters. **Spokane Tribal Kokanee Hatchery new production well to allow 500,000 kokanee** – To be reared to residualized smolt size before release into Lake Roosevelt. **Review Duck Valley Indian Reservation surface water and groundwater suitability for resident fish production facilities.** • Genetic sampling program of redband trout in Owyhee Basin to protect wild redband trout populations from potential impacts caused by hatchery programs. **Evaluation of facilities to enhance white sturgeon production by supplementation for depressed populations in the impounded portions of the Columbia and Snake rivers.** **Construct and operate 20 net pens for rearing kokanee salmon (25,000 fish/pen) to post-smolt size in Lake Roosevelt following evidence that kokanee released as residualized smolts return at higher rates.**
2014/ 2020	**Salmon and steelhead in blocked areas** – Bonneville shall locate and operate hatcheries to re-establish salmon and steelhead where they have been extirpated, and substitute for extirpated stocks.	**Lamprey – Collaboratively evaluate the potential role of lamprey propagation and translocation as a way to mitigate for lost lamprey production when passage and habitat improvements alone are insufficient to restore populations.** **Sturgeon – Consider hatcheries as a mitigation strategy to supplement populations where natural recruitment is currently severely limited.** Strategy to be implemented through the Council's step-review process.

Rows in italics describe external agreements and associated measures that have been incorporated into the Program. The year listed is the first time a measure appears in a Fish and Wildlife Program.

Table 2. Fish production and hatchery research, monitoring, and evaluation (RM&E), select measures in the Council's Fish and Wildlife Program and other external agreements guiding hatchery development for salmon and steelhead and resident and other native fish, 1982 – 2020

Program*	Fish propagation (anadromous)	Resident and other native fish mitigation
1982		**Continue the existing program for fish stocking at Dworshak Reservoir.** **IDFG to provide further evidence that increased levels of stocking with hatchery fish will mitigate the effects of construction and operation of Cascade Reservoir.** **Determine the potential for artificial propagation of white sturgeon** – This study shall be coordinated with similar investigations being conducted by the Montana FWP.
1984		**Increase the number of rainbow trout in the Kootenai River by planting fingerling trout of a suitable stock for the river habitat, and to restore sturgeon and ling (burbot) populations in that river.**
1987	**Propagation of salmon and/or steelhead smolts in the 2.8-mile-long fish ladder located at Pelton Dam on the Deschutes River.** **Reporting and information sharing: Fund the development of a hatchery database.**	**Fund resident fish substitution actions in the blocked area above Hells Canyon Dam.**
1991	**Protect and rebuild Snake River sockeye with a conservation hatchery program** – Shoshone-Bannock Tribes (SBT) and IDFG. **Fund evaluations, including biological risk assessments, of priority supplementation projects proposed by the fishery managers.**	
1993		**Annually propagate and release 400,000 kokanee fry into Lucky Peak Reservoir; and construct and operate a kokanee spawning trap at Lucky Peak Reservoir to take approximately 500,000 eggs annually.** **Duck Valley Indian Reservation –** **stock catchable and fingerling trout in reservation lakes and streams.** **Rainbow trout net pen rearing program in Lake Roosevelt.** • O&M of 26 existing net pens and procurement, O&M of 10 additional net pens and associated research and monitoring.

		Fund fish stocking activities in Dworshak Reservoir and in the North Fork of the Clearwater River upstream from the reservoir consistent with the MOU between the IDFG and the USACOE. • Monitoring to determine the effects of the resident fish mitigation program on endemic fish populations, particularly westslope cutthroat trout upstream from Dworshak Dam. **Consult on resident fish substitution above Pelton Dam (90 days).** To partially mitigate for salmon and steelhead losses above this blocked area as a result of the construction and operation of hydropower projects. **Consult on resident fish substitution projects above Hells Canyon Dam.**
1994	**Implement high priority supplementation projects including design, construction, O&M, M&E.** • Provide progress reports on the implementation of the projects. • Consistent with the accepted genetics and natural production framework. **Fund the program to protect and rebuild Snake River sockeye.** **Upon approval by the Council and in consultation with NMFS, implement supplementation and/or captive brood stock programs developed by the fishery managers.** **Snake River fall chinook:** develop an experimental design for implementing, monitoring and evaluating supplementation of and, if appropriate, a captive brood stock program for, Snake River fall chinook with NMFS. **Complete the environmental analysis required by NEPA to aid the Nez Perce Tribe in deciding on the scope of the supplementation program, facilities needed and the adequacy of the M & E program.** **Reintroduction of sockeye salmon into appropriate production areas:** • To consider all historical production areas like Wallowa and Warm lakes. • Aim to foster natural production.	**Bass nursery slough** • Design, construct, operate and maintain water control structures and repair dikes on the Pend Oreille wetlands wildlife mitigation project with WDFW. • Stock a portion of the bass production from the Kalispel Tribal hatchery into this slough to cut hatchery production costs because fry can prey on natural foods. • Screen the water control structures to prevent access by predators. **Operate and maintain the resident trout hatchery on the Colville Indian Reservation.** **Above Pelton Dam: fund resident fish substitution projects on an equal-share basis.** **Develop and implement the subregional process for the area above Hells Canyon Dam by 12/31/94.** Immediately meet to identify an approach for developing the subregional process, as well as identify funding responsibilities (BPA/ID Power/BOR/other) for developing the process. • Additional resident fish substitution projects may include propagation and release of kokanee and coho stocks into Lucky Peak and Cascade reservoirs.

	• Consider creating anadromous populations by managing kokanee, like in Pelton Reservoir, to allow access to the ocean. • Consistent with NMFS recovery plan for sockeye in the Snake River. **Select Area Fisheries: terminal fisheries operations able to meet all operating costs and repay a portion of capital invested from assessments on increases in fishers' harvest income.**	
1995		**Ford Hatchery: improve water supply to rear 35,000 pounds of resident trout and kokanee for stocking into Banks Lake and other northeastern Washington Lakes.** **Sturgeon – Hells Canyon and Oxbow Reservoirs: evaluation of a put-and-take consumptive fishery.** In consultation with the NPT, IDFG, ODFW, and others. **Kokanee salmon hatcheries at Galbraith Springs and Sherman Creek.** • Sherman Creek hatchery to be imprinting site and egg collection facility to provide kokanee fry for transfer to Galbraith Springs hatchery for rearing to the residualized smolt stage before planting into Lake Roosevelt. **Stocking of rainbow trout in the Clearwater River.**
2014/2020	**Continued Council support for PIT tagging and detection, coded wire tagging and recovery, acoustic and radio tagging and tracking, and genetic tagging and recovery throughout fish life cycles and across various fish environments.** **Compliance monitoring and data sharing: agencies and tribes will monitor hatchery programs for compliance with federal, state, and other relevant requirements and will make this information readily available.** **Annual juvenile fish release reports; the number of adults that contribute to harvest, broodstock, and present on the spawning grounds for all hatchery programs that receive Bonneville funding.** • Provide support so all managers have the capacity to collect this data and support regional processes that standardize data,	**Goals, objectives, timelines, benchmarks and experimental framework for reintroduced populations will be developed by the agencies and tribes and submitted to the Council.** **Sturgeon – Continue to support the Kootenai Tribe Integrated Fish and Wildlife Program as interim measures to avoid extinction of endangered Kootenai white sturgeon.** **Sturgeon – Continue interim hatchery production, including PIT-tagging of all hatchery sturgeon and PIT-tagging and sonic tagging of all broodstock collected in the upper Columbia River.**

	facilitate reporting, and make data publicly accessible. **The Council intends to use available reporting mechanisms where possible.**	

Rows in italics describe external agreements and associated measures that have been incorporated into the Program. The year listed is the first time a measure appears in a Fish and Wildlife Program.

2014/2020 Fish and Wildlife Program strategies associated with assessment

Table 3. Fish and Wildlife Program strategies and strategy performance indicators (SPIs; NPCC 2020) associated with the Artificial Production Category Assessment.

Strategy	Description
Fish propagation including hatchery programs	Use hatchery programs as tools to help meet the mitigation requirements of the Northwest Power Act.
S1-2	Progress toward the regionally agreed-upon targets for salmon and steelhead hatchery production, as identified Phase 2 Report of the Columbia Basin Partnership Task Force to the NOAA Fisheries Marine Fisheries Advisory Committee, July 16, 2020 version.
S6-1	All program-funded hatcheries have a final management plan and a reviewed and approved master plan, with specific objectives to track performance.
S6-2	Salmon and steelhead indicators for Bonneville-funded hatcheries tracked and compared to management goals as described in hatchery management plans and HGMPs.
R2-1	Cutthroat Trout hatchery objectives are tracked and compared to the management plan and a reviewed and approved master plan.
WS1-3	Sturgeon hatchery objectives are tracked and compared to the hatchery management plan and a reviewed and approved master plan.
L1-1, L2-1	Pacific lamprey hatchery objectives are tracked and compared to a reviewed and approved master plan.
The use of hatcheries for reintroduction	Return lost salmon and steelhead into blocked areas, or re-establish populations in watersheds accessible for anadromy but where the native population had been extirpated or the risk of extirpation is very high.

S1-2	Progress toward the regionally agreed-upon targets for salmon and steelhead hatchery production, as identified Phase 2 Report of the Columbia Basin Partnership Task Force to the NOAA Fisheries Marine Fisheries Advisory Committee, July 16, 2020 version.
S6-1	All program-funded hatcheries have a final management plan and a reviewed and approved master plan, with specific objectives to track performance.
S6-2	Salmon and steelhead indicators for Bonneville-funded hatcheries tracked and compared to management goals as described in hatchery management plans and HGMPs.
Anadromous fish mitigation in blocked areas	Implement actions that may include passage investigation, reintroduction of anadromous fish, habitat improvements, and harvest opportunities for the loss of salmon and in blocked areas of the Columbia Basin that historically had runs of anadromous fish.
S6-1	All program-funded hatcheries have a final management plan and a reviewed and approved master plan, with specific objectives to track performance.
Resident fish mitigation	For resident fish and other aquatic species impacted by the hydrosystem, protect and mitigate freshwater and associated terrestrial habitat, and native fish populations.
S6-1	All Program-funded hatcheries have a final management plan and a reviewed and approved master plan, with specific objectives to track performance.
NF-1	Burbot hatchery objectives are tracked and compared to the management plan and a reviewed and approved master plan.
R2-1	Cutthroat Trout hatchery objectives are tracked and compared to the management plan and a reviewed and approved master plan.
R4-1	Redband Trout populations' genetic integrity is protected from non-native hatchery trout by program-funded hatchery actions.
Sturgeon and Lamprey	Implement actions that result in increased abundance and survival for Columbia River Basin green and white sturgeon, including habitat actions, dam operations and passage, hatchery considerations (sturgeon), monitoring populations, and research to improve understanding of how the development and operation the FCRPS has on survival and growth of sturgeon and lamprey.
WS1-3	Sturgeon hatchery objectives are tracked and compared to the hatchery management plan and a reviewed and approved master plan.

L1-1, L2-1 Pacific lamprey hatchery objectives are tracked and compared to a reviewed and approved master plan.

Summary of implementation

Significant investment in hatchery production had occurred prior to the 1980 NW Power Act. As early as 1932, federal legislation guided the development of hatcheries and production programs throughout the Columbia River Basin, with the explicit purpose of mitigation for impacts to fish from development of the basin, or construction and operation of specific dams, or the hydrosystem (Table 4, Figure 1 and map).

Table 4. Eleven hatchery mitigation funding programs in the Columbia River Basin, and their associated mitigation purpose, authorization, and number of main hatchery facilities

Hatchery mitigation program	Mitigation purpose	Federal legislation or authorization	# main hatchery facilities built/established by authorization (not including satellites)
Bureau of Reclamation	Grand Coulee Dam	Grand Coulee Dam Project, 49 Statute 1028 – 1935	3
		Reauthorized, Columbia Basin Project Act, 57 Statute 14 – 1943	
		Reauthorized, Fish & Wildlife Coordination Act, 60 Statute 1080 - 1946	
Mitchell Act	Columbia River Development	Mitchell Act (Public Law 75-502) - 1938	21
U.S. Army Corps of Engineers	John Day Dam	Rivers and Harbors and Flood Control Act – 1950	1
		P.L. 81-516, 64 Stat. 163, 179. 81st Congress, 2nd Session - 1950	
	13 Willamette basin dams	Act Authorizing the Construction of Public Works on Rivers and Harbors for Flood Control, and for Other Purposes - 1938	5
		(52 Stat. 1215) and Flood Control Act of 1950 (P.L. No. 516-81) - 1950	
	Dworshak Dam	Flood Control Act of 1962, P.L. No. 87-874, 76 Sat. 1180 - 1962	1

U.S. Fish and Wildlife Service	Columbia River Development	Congressional Appropriation 1961 - 75 Statute 255 - 1961	2
Tacoma Power	Mossyrock Dam	Federal Energy Regulatory Commission license	2
PacifiCorps & Cowlitz Public Utility District	Lewis River Dams	Federal Energy Regulatory Commission license	3
Portland General Electric	Pelton & Round Butte Dam complex	Federal Energy Regulatory Commission license	1
Mid-Columbia Public Utility Districts (Grant, Chelan, and Douglas counties)	Priest Rapids, Wanapum, Rock Island, Rocky Reach, and Wells Dams	Federal Energy Regulatory Commission license	4
Idaho Power Company	Hells Canyon Dam complex	Federal Energy Regulatory Commission license	4
Lower Snake River Compensation Plan	Lower Granite, Little Goose, Lower Monumental, and Ice Harbor Dams	Water Resource Development Act (90 Stat. 2917) - 1976	11
NW Power & Conservation Council's Columbia River Basin Fish & Wildlife Program	Federal Columbia River Power System	Northwest Power Act (Public Law 96-501) - 1980	16

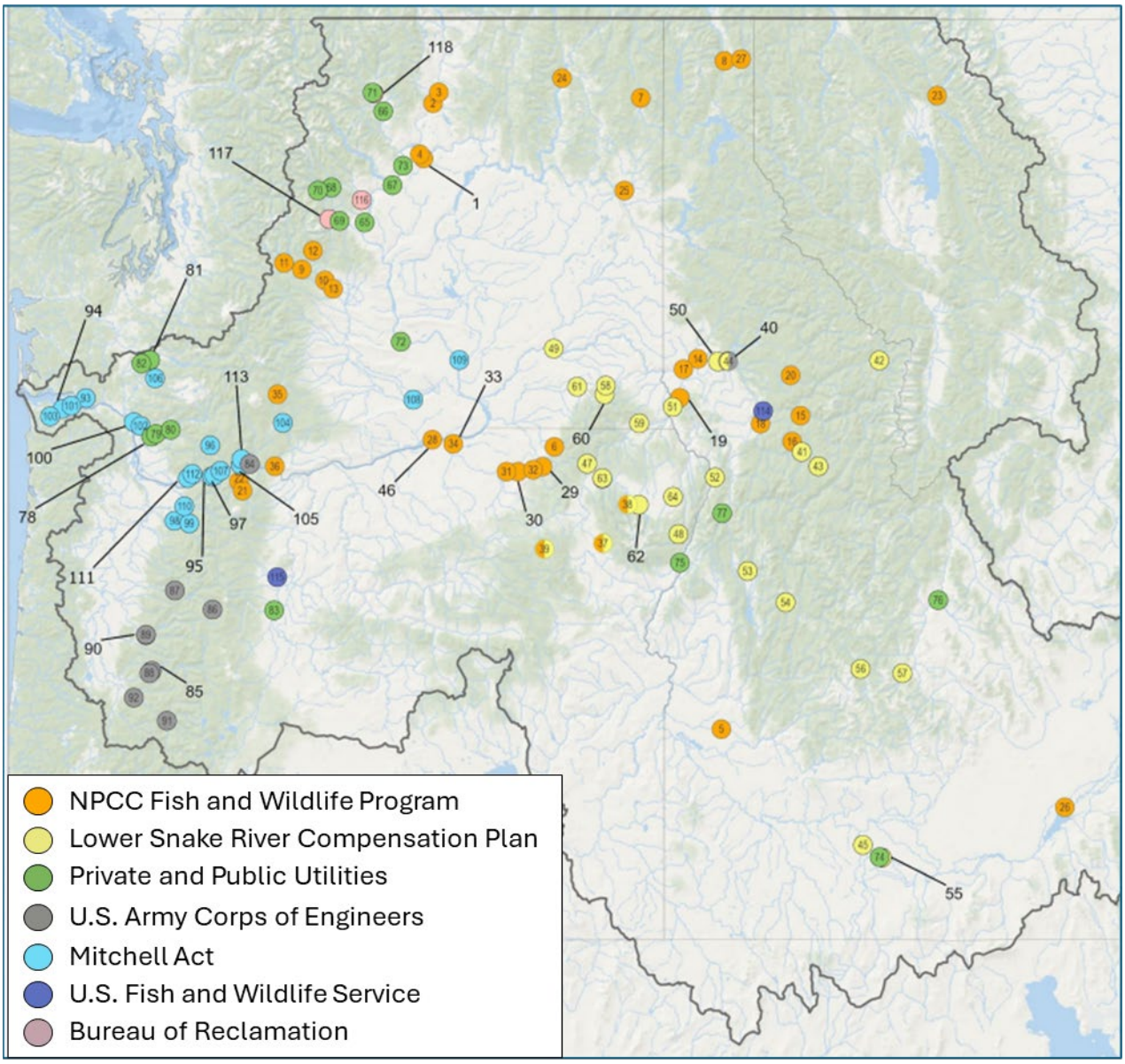

Figure 1. Artificial production facilities (n=118) built and/or established as mitigation for effects of dams and development on fish in the Columbia River Basin. Additional details and printable map here.

The majority of fish losses occurred in the interior portions of the basin (i.e., above Bonneville Dam). Despite this, hatcheries and fish production were concentrated in the lower Columbia River, below Bonneville Dam, to support commercial fisheries in the lower river and the ocean. Following the *U.S. v. Oregon* court decision in 1969, an emphasis on distributing hatchery production in the interior basin became a priority.

The Council's Program is one part of the large comprehensive hatchery mitigation landscape in the basin. The Program promotes locating hatchery production to interior portions of the basin, recognizes the dual management objectives of hatcheries to support both fisheries and

conservation, and emphasizes research, monitoring, and evaluation and best available science to adaptively manage hatchery programs. In addition to large production facilities, the Program also called for the development of decentralized, low-capital salmon and steelhead production facilities (i.e., acclimation sites or other satellite locations). These were meant to supplement natural salmon and steelhead production in subbasins with low abundance, and promote adaptation of fish to interior, local spawning tributaries. The Program also called for preventing and restoring extirpated populations, blocked area mitigation to support and enhance interim resident fish fisheries and rebuild resident and other native fish populations affected by the hydrosystem.

While the Program is one component of many hatchery mitigation programs in the Columbia Basin, the basin's hatchery facilities operate as a system. Today, there are 39 hatchery facilities (16 main hatcheries and 23 satellites) that are authorized under the NW Power Act and 49 additional facilities authorized outside the NW Power Act (e.g., Lower Snake River Compensation Plan, Mitchell Act) that are used to support hatchery production programs that are part of the Program (Figure 2; also see Program Tracker hatchery tool for detailed information on facilities and production programs). These hatchery facilities support the artificial production of 5 species of anadromous salmon and steelhead, 5 species of resident fish, and other native fish species such as white sturgeon and Pacific lamprey.

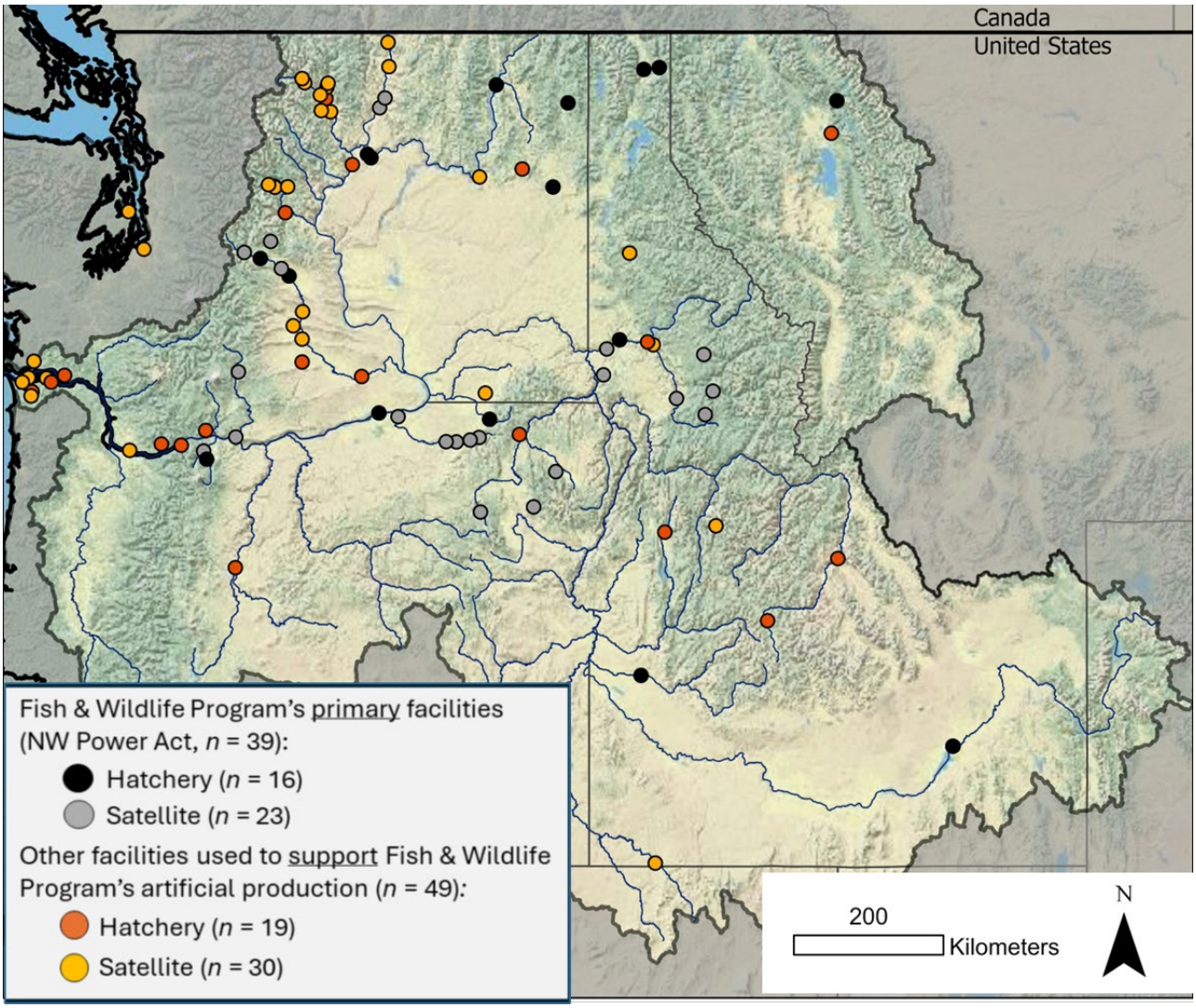

Figure 2. Artificial production facilities that support hatchery production programs associated with the NW Power Act. Additional facility and program details: Program Tracker hatchery.

Currently, there are 47 hatchery production programs for 12 species, supporting both fisheries and conservation. These production programs are implemented and managed by eleven tribes (Coeur d'Alene Tribe, Confederated Tribes of the Coville Reservation, Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of Warm Springs, Kalispel Tribe, Kootenai Tribe of Idaho, Nez Perce Tribe, Shoshone Bannock Tribe, Shoshone Paiute Tribes, Spokane Tribe of Indians, and Yakama Nation), four states (Idaho, Montana, Oregon, and Washington), and two federal agencies (National Marine Fisheries Service and U.S. Fish and Wildlife Service).

Anadromous Salmon and Steelhead

Overview of facilities and production programs

For anadromous salmon and steelhead, there are currently 9 main hatchery facilities, and 23 satellites authorized under the NW Power Act, established to mitigate the effects of the Federal Columbia River Power System on fish populations (Table 5).

Table 5. Anadromous fish hatchery facilities established to mitigate for the effects of the Federal Columbia River Power System on fish populations (NW Power Act). Main facilities in bold, with associated satellites

Facility Group	Facility Name	Species	Year in Service	Facility Operator	Type
Chief Joseph Hatchery and satellites	**Chief Joseph Hatchery**	Spring Chinook, Summer Chinook	2013	Confederated Tribes of the Colville Reservation	Hatchery
	Omak Acclimation Pond	Summer Chinook	2010	Confederated Tribes of the Colville Reservation	Satellite
	Riverside Acclimation Pond	Spring Chinook	2010	Confederated Tribes of the Colville Reservation	Satellite
Grande Ronde Supplementation	Catherine Creek Adult Weir and Acclimation	Spring Chinook	2000	Confederated Tribes of the Umatilla Indian Reservation	Satellite
	Lostine River Adult Weir and Acclimation	Spring Chinook	1997	Nez Perce Tribe	Satellite
	Upper Grande Ronde Adult Weir and Acclimation	Spring Chinook	2000	Confederated Tribes of the Umatilla Indian Reservation	Satellite
Hood River Production	**Parkdale Fish Hatchery**	Spring Chinook	1998	Confederated Tribes of Warm Springs; Oregon Department of Fish and Wildlife	Hatchery

	Moving Falls Fish Facility	Spring Chinook	2013	Confederated Tribes of Warm Springs	Satellite
ʔImtwaha Fish Hatchery	**ʔImtwaha Fish Hatchery**	Spring Chinook	2021	Confederated Tribes of the Umatilla Indian Reservation	Hatchery
Klickitat River O&M	Castile Falls Fishway and Adult Enumeration Facility	na	2011	Yakama Nation	Satellite
	Lyle Falls Fishway and Research Facility	na	2011	Yakama Nation	Satellite
Nez Perce Tribal Hatchery and satellites	**Nez Perce Tribal Hatchery**	Spring Chinook, Fall Chinook, Summer Steelhead (reconditioned kelts), Coho	2003	Nez Perce Tribe	Hatchery
	Cedar Flats Acclimation	Fall Chinook	2003	Nez Perce Tribe	Satellite
	Luke's Gulch Acclimation Pond	Fall Chinook	2003	Nez Perce Tribe	Satellite
	Newsome Creek Acclimation Pond	Spring Chinook	2003	Nez Perce Tribe	Satellite
	North Lapwai Valley Acclimation Pond	Fall Chinook	2003	Nez Perce Tribe	Satellite
	Sweetwater Springs	Spring Chinook, Fall Chinook	2003	Nez Perce Tribe	Satellite
	Yoosa Creek Mission Acclimation Pond	Spring Chinook	2003	Nez Perce Tribe	Satellite
Snake River Sockeye	**Eagle Fish Hatchery**	Sockeye	1991	Idaho Department of Fish and Game	Hatchery
	Springfield Fish Hatchery	Sockeye	2013	Idaho Department of Fish and Game	Hatchery
Umatilla Hatchery and satellites	**Umatilla Hatchery**	Spring Chinook, Fall Chinook, Summer Steelhead	1992	Oregon Department of Fish and Wildlife	Hatchery
	Imeques Acclimation Pond	Spring Chinook	1994	Confederated Tribes of the	Satellite

				Umatilla Indian Reservation	
	Minthorn Adult Holding	Summer Steelhead	1985	Confederated Tribes of the Umatilla Indian Reservation	Satellite
	Pendleton Acclimation Facility	Fall Chinook, Summer Steelhead, Coho	1999	Confederated Tribes of the Umatilla Indian Reservation	Satellite
	Thornhollow Acclimation Pond	Spring Chinook	1995	Confederated Tribes of the Umatilla Indian Reservation	Satellite
	Three Mile Dam Fish Facility	Fall Chinook, Spring Chinook, Coho, Summer Steelhead	1996	Confederated Tribes of the Umatilla Indian Reservation	Satellite
	Westland Irrigation District Sampling Facility	Spring Chinook, Fall Chinook, Summer Steelhead, Coho	1998	Westland Irrigation District	Satellite
Melvin R. Sampson Hatchery	**Melvin R. Sampson Hatchery**	Coho	2020	Yakama Nation	Hatchery
Levi George Spring Chinook Hatchery and satellites	**Levi George Spring Chinook Hatchery**	Spring Chinook	1998	Yakama Nation	Hatchery
	Clark Flat Acclimation Pond	Spring Chinook	1999	Yakama Nation	Satellite
	Easton Acclimation Pond	Spring Chinook	1999	Yakama Nation	Satellite
	Jack Creek Acclimation Pond	Spring Chinook	1999	Yakama Nation	Satellite

The Program's hatchery facilities are distributed in interior regions of the basin, located within subbasins between Bonneville and McNary Dams (i.e., Hood, Klickitat, Umatilla), above McNary Dam in the Columbia River (i.e., Walla Walla, Yakima, Upper Middle Columbia, Okanogan), and in the Snake River (i.e., Grande Ronde, Clearwater, Boise, Upper Snake). The facilities in Table 5 support the majority (19) of the 31 total anadromous fish artificial production programs authorized under the NW Power Act (Table 6). Twelve of the Program's production programs are

supported at other facilities authorized through the Lower Snake River Compensation Plan, the Mid-Columbia Public Utility Districts, and the Mitchell Act.

Table 6. Artificial production programs for anadromous salmon and steelhead, authorized under the NW Power Act

Release region	Species	Release subbasin	Hatchery Program Name	Hatchery Facilities used by program (NW Power Act authorization in bold)	Management objective	Council's CRB F&W Program production - BPA funded release target portion estimate	Hatchery program total release target (all funding programs combined)	Life stage at release
Below Bonneville	Spring Chinook	Columbia Estuary; Grays	Select Area Fisheries Enhancement (SAFE) - Spring Chinook	Gnat Creek Hatchery, Klaskanine Hatchery, South Fork Klaskanine Site, Big Creek Hatchery, Clackamas Hatchery, Minto Fish Facility, Marion Forks Hatchery, South Santiam Hatchery, Kalama Falls Hatchery, Deep River Net Pen Site	Fishery	2,039,109[a]	3,700,000[g]	Yearling
	Coho	Columbia Estuary; Grays	Select Area Fisheries Enhancement (SAFE) - Coho	Klaskanine Hatchery, Eagle Creek National Fish Hatchery, Cascade Hatchery, Sandy Hatchery, Oxbow Fish Hatchery (Oregon), Beaver Creek Hatchery, Bonneville Hatchery, Big Creek Hatchery, South Fork Klaskanine Site, Blind Slough Net Pen Site, Tongue Point Net Pen Site, Deep River Net Pen Site, Youngs Bay Net Pen Site	Fishery	2,893,330[a]	5,250,000[g]	Smolt

	Chum	Washougal	Duncan Creek Chum	Washougal Hatchery, Vancouver Hatchery Pond	Reintroduction and Supplementation	111,397	111,397[h]	Fry
		Elochoman	Grays River Chum	Beaver Creek Hatchery	Reintroduction and Supplementation	184,098	184,098[h]	Fry
Bonneville to McNary	Spring Chinook	Hood	Hood River Spring Chinook	**Parkdale Fish Hatchery, Moving Falls Fish Facility,** Round Butte Hatchery	Fishery and Reintroduction	250,000	250,000[i]	Yearling
		Umatilla	Umatilla River Spring Chinook	**Umatilla Hatchery, Imeques Acclimation Pond, Thornhollow Acclimation Pond, Three Mile Dam Fish Facility**	Fishery and Supplementation	810,000	810,000[i]	Yearling
	Fall Chinook	Umatilla	Umatilla River Fall Chinook - Subyearlings	**Umatilla Hatchery, Three Mile Dam Fish Facility**	Fishery and Supplementation	600,000	600,000[i]	Subyearling
	Coho	Umatilla	Umatilla River Coho	**Pendleton Acclimation Facility, Three Mile Dam Fish Facility,** Cascade Hatchery**,** Irrigon Hatchery	Fishery and Supplementation	125,000[b]	500,000[i]	Smolt
	Steelhead	Umatilla	Umatilla River Steelhead	**Umatilla Hatchery, Three Mile Dam Fish Facility, Minthorn Adult Holding**	Fishery and Supplementation	150,000	150,000[i]	Smolt
Above McNary	Spring Chinook	Upper Middle Columbia	Chief Joseph Hatchery Spring Chinook	**Chief Joseph Hatchery, Omak Acclimation Pond, Riverside Acclimation Pond**	Fishery	441,700[c]	700,000[i]	Yearling

		Okanogen	Chief Joseph Hatchery Spring Chinook - 10j reintroduction	**Chief Joseph Hatchery, Riverside Acclimation Pond,** Winthrop National Fish Hatchery	Fishery and Supplementation	200,000	200,000[i]	Yearling
		Walla Walla	ʔImtwaha Fish Hatchery Spring Chinook	**ʔImtwaha Fish Hatchery**	Supplementation	500,000	500,000[i]	Yearling
		Yakima	Levi George Spring Chinook	**Levi George Spring Chinook Hatchery, Clark Flat Acclimation Pond, Easton Acclimation Pond, Jack Creek Acclimation Pond**	Supplementation	810,000	810,000[i]	Yearling
	Summer Chinook	Upper Middle Columbia; Okanogen	Chief Joseph Hatchery Summer Chinook	**Chief Joseph Hatchery**, Similkameen Acclimation Pond	Fishery and Supplementation	1,363,761[d]	2,000,000[i]	Subyearling, Yearling
		Yakima	Prosser Hatchery Summer Chinook	Prosser Hatchery, Marion Drain, Nelson Springs Acclimation, Roza Acclimation Pond, Wapatox Acclimation	Reintroduction	1,000,000	1,000,000[i]	Subyearling
	Fall Chinook	Yakima	Prosser Hatchery Fall Chinook - local program	Prosser Hatchery	Fishery and Supplementation	500,000	500,000[i]	Subyearling
	Coho	Methow	Mid-Columbia Coho Reintroduction - Methow Basin	Winthrop National Fish Hatchery, Willard National Fish Hatchery, Wells Hatchery, Cascade Hatchery, Chewuch Acclimation, Early Winters Acclimation, Eightmile	Supplementation	385,000[e]	700,000[i]	Smolt

				Ranch Acclimation, Goat Wall Acclimation, Lower Twisp Ponds, Mid-Valley Pond, Twisp Weir Site				
		Wenatchee	Mid-Columbia Coho Reintroduction - Wenatchee Basin	Leavenworth National Fish Hatchery, Willard National Fish Hatchery, Cascade Hatchery, Beaver Creek Acclimation, Butcher Creek Acclimation Pond, Coulter Creek Acclimation Pond, Rohlfing's Acclimation Pond	Supplementation	550,000[e]	1,000,000[i]	Smolt
		Yakima	Yakima River Coho	**Melvin R. Sampson Hatchery**, Prosser Hatchery	Fishery and Supplementation	1,000,000	1,000,000[i]	Smolt
	Steelhead	Yakima	Prosser Hatchery Reconditioned Steelhead Kelts	Prosser Hatchery	Supplementation	300-500	300-500[i]	Adult
		Methow	Upper Columbia Reconditioned Steelhead Kelts	Methow Steelhead Kelt Facility (Winthrop National Fish Hatchery)	Supplementation	50 - 100	50 - 100[i]	Adult
Snake River	Spring Chinook	Grande Ronde	Catherine Creek Spring Chinook	**Catherine Creek Adult Weir and Acclimation**, Lookingglass Hatchery	Fishery and Supplementation	60,000[f]	150,000[i]	Smolt
		Grande Ronde	Lostine River Spring Chinook	**Lostine River Adult Weir and Acclimation**, Lookingglass Hatchery	Fishery and Supplementation	100,000[f]	250,000[i]	Smolt

		Grande Ronde	Upper Grande Ronde Spring Chinook	**Upper Grande Ronde Adult Weir and Acclimation**, Lookingglass Hatchery	Fishery and Supplementation	100,000[f]	250,000[i]	Smolt
		Salmon	Johnson Creek Spring/Summer Chinook	McCall Fish Hatchery, Johnson Creek Adult Weir	Supplementation	150,000	150,000[i]	Smolt
		Salmon	Panther Creek Spring/Summer Chinook Egg Box Program	Pahsimeroi Fish Hatchery, Sawtooth Fish Hatchery	Supplementation	800,000	800,000[i]	Eyed-eggs
		Clearwater	Nez Perce Tribal Hatchery - Clearwater Spring Chinook	**Nez Perce Tribal Hatchery, Newsome Creek Acclimation Pond, Sweetwater Springs, Yoosa Creek Mission Acclimation Pond**	Fishery and Supplementation	825,000	825,000[i]	Parr, Pre-smolt, Smolt
	Fall Chinook	Clearwater	Snake River Fall Chinook - Nez Perce Tribal Hatchery	**Nez Perce Tribal Hatchery, Cedar Flats Acclimation, Luke's Gulch Acclimation Pond, North Lapwai Valley Acclimation Pond, Sweetwater Springs**	Fishery and Supplementation	1,400,000	1,400,000[i]	Subyearling
	Steelhead	Clearwater	Nez Perce Tribal Hatchery - Reconditioned Kelts	**Nez Perce Tribal Hatchery**	Supplementation	38 - 75	38 - 75[i]	Adult
	Sockeye	Salmon	Snake River Sockeye - Juvenile releases	**Eagle Fish Hatchery, Springfield Fish Hatchery**, Burley Creek	Supplementation	1,000,000	1,000,000[i]	Egg, Pre-smolt, Smolt

				Hatchery, Manchester Research Station				
		Salmon	Snake River Sockeye - Adult releases	**Eagle Fish Hatchery**, Burley Creek Hatchery, Manchester Research Station	Supplementation	1,063	1,063 [h]	Adult

[a] Jointly funded by Mitchell Act (~18% total production, allocated across all 4 SAFE species releases), BPA (34% total production, allocated proportionally to Spring Chinook and Coho releases only), and state cost share funded (remaining 48% of production needs across all four species after BPA and Mitchell act funds have been applied) - estimated from FY20 budget information compiled by ODFW.

[b] Jointly funded by BPA (25%) and Mitchell Act (75%).

[c] Jointly funded by BPA (441,700 juveniles) and Mid-Columbia Public Utility Districts (258,300 juveniles).

[d] Jointly funded by BPA (1,363,761 juveniles) and Mid-Columbia Public Utility Districts (636,239 juveniles).

[e] Jointly funded by BPA (55%), Mid-Columbia Public Utility Districts (35%), and Mitchell Act (10%).

[f] Jointly funded by BPA (40%) and Lower Snake River Compensation Plan (60%).

[g] Slide 5: https://nwcouncil.app.box.com/file/829028718176?s=pwqbwvxhpap677kc6y4uhviblrzvxlgo

[h] Estimated from average annual release (2019 – 2023): https://projects.nwcouncil.org/programtracker/modules/data/hatcheries

[i] Identified in the *U.S. v. Oregon* Management Agreement – 2020 production tables.

Juvenile hatchery release targets associated with the Program total around 18 million Salmon and Steelhead annually, representing approximately 13% of total annual hatchery releases in the Columbia River Basin (MAFAC Table A-5, Phase 2 Report). Annual juvenile release targets by species are composed of Chinook Salmon (65%), Coho Salmon (27%), Sockeye Salmon (5%), Chum Salmon (2%), and Steelhead (1%) (Figure 3). Most Program juveniles are released in locations above Bonneville Dam (72%, ~13 million), across the regions of the Columbia River – Bonneville Dam to McNary Dam (11%, ~2 million), Columbia River - Above McNary Dam (34%, ~7 million), and in the Snake River (24%, ~4 million). Approximately 5 million juveniles (28%, ~5 million) are released in regions below Bonneville Dam (Figure 4).

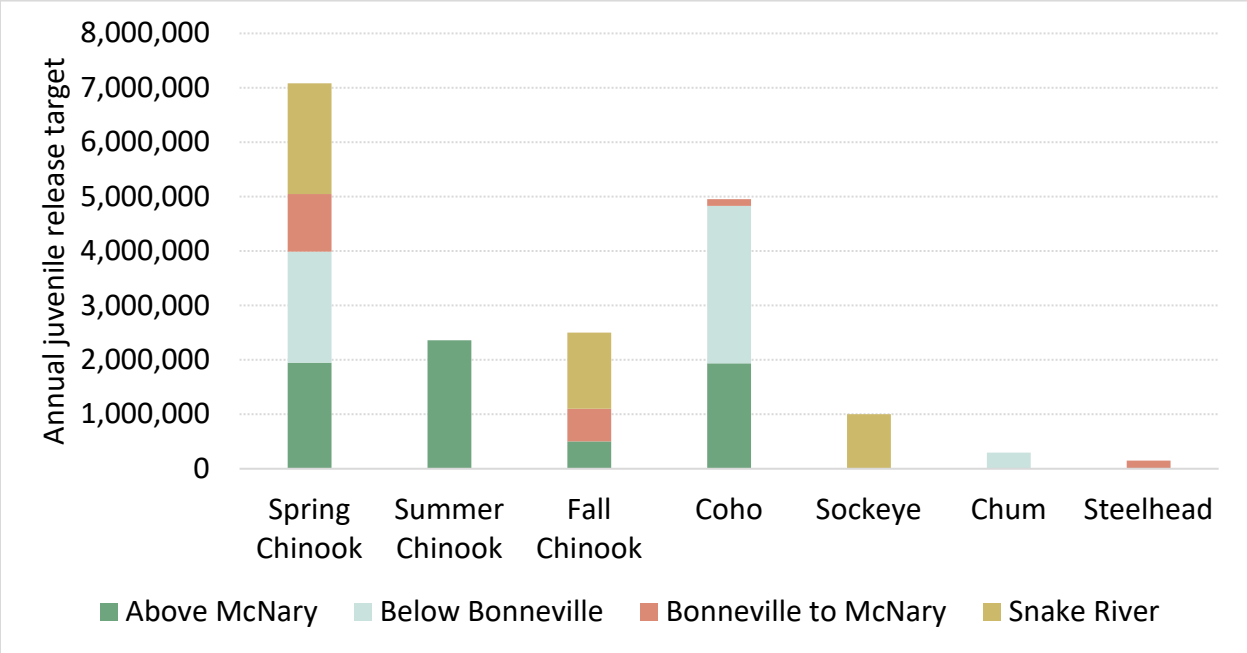

Figure 3. Annual juvenile salmon and steelhead release targets summarized by species

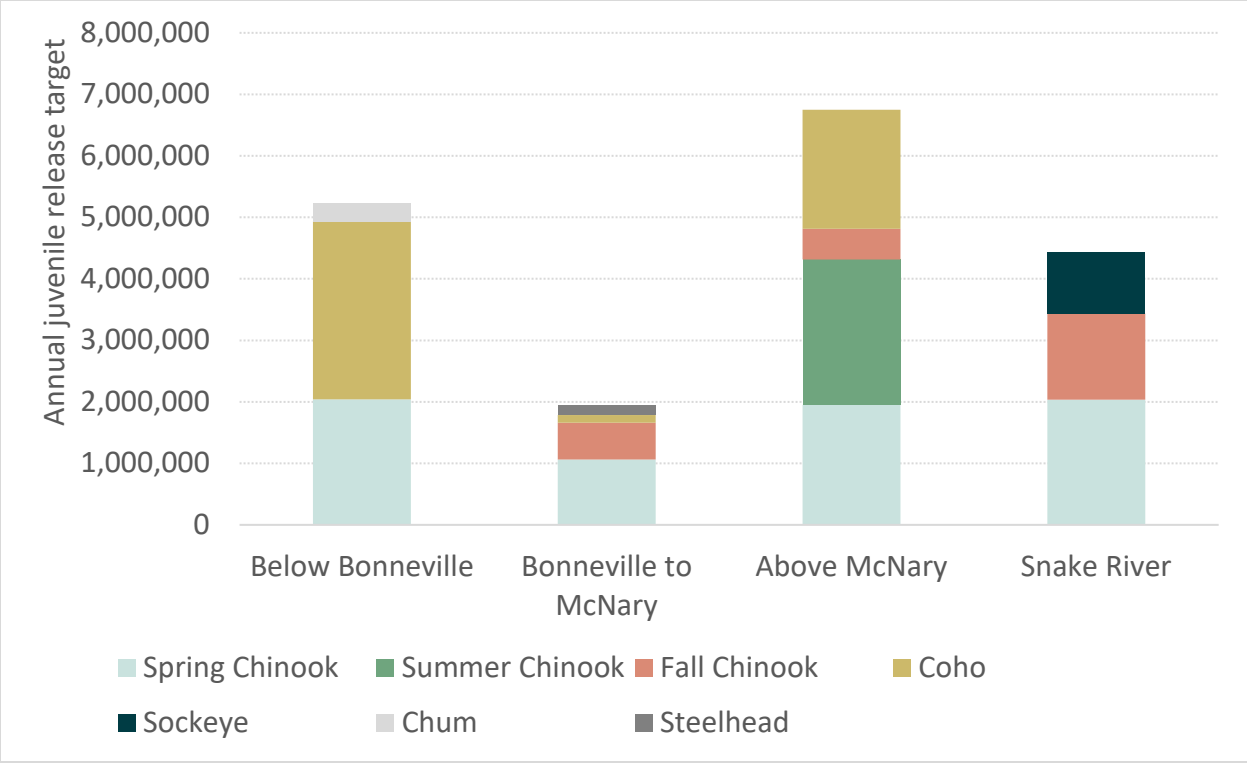

Figure 4. Annual juvenile Salmon and Steelhead release targets summarized by river reach

While the primary purpose of these production programs is to mitigate impacts on fish caused by the construction and operation of the Columbia River Power System, individual programs are managed to serve fisheries and/or conservation (i.e., supplementation, reintroduction) objectives. Most juvenile release programs have a conservation objective (~70%), the majority of which also include a fishery objective. There are only three programs that are managed to support fisheries only - two select area fisheries production programs below Bonneville Dam, and the Chief Joseph Hatchery Spring Chinook program in the Columbia River – above McNary Dam (Table 6, Figure 5).

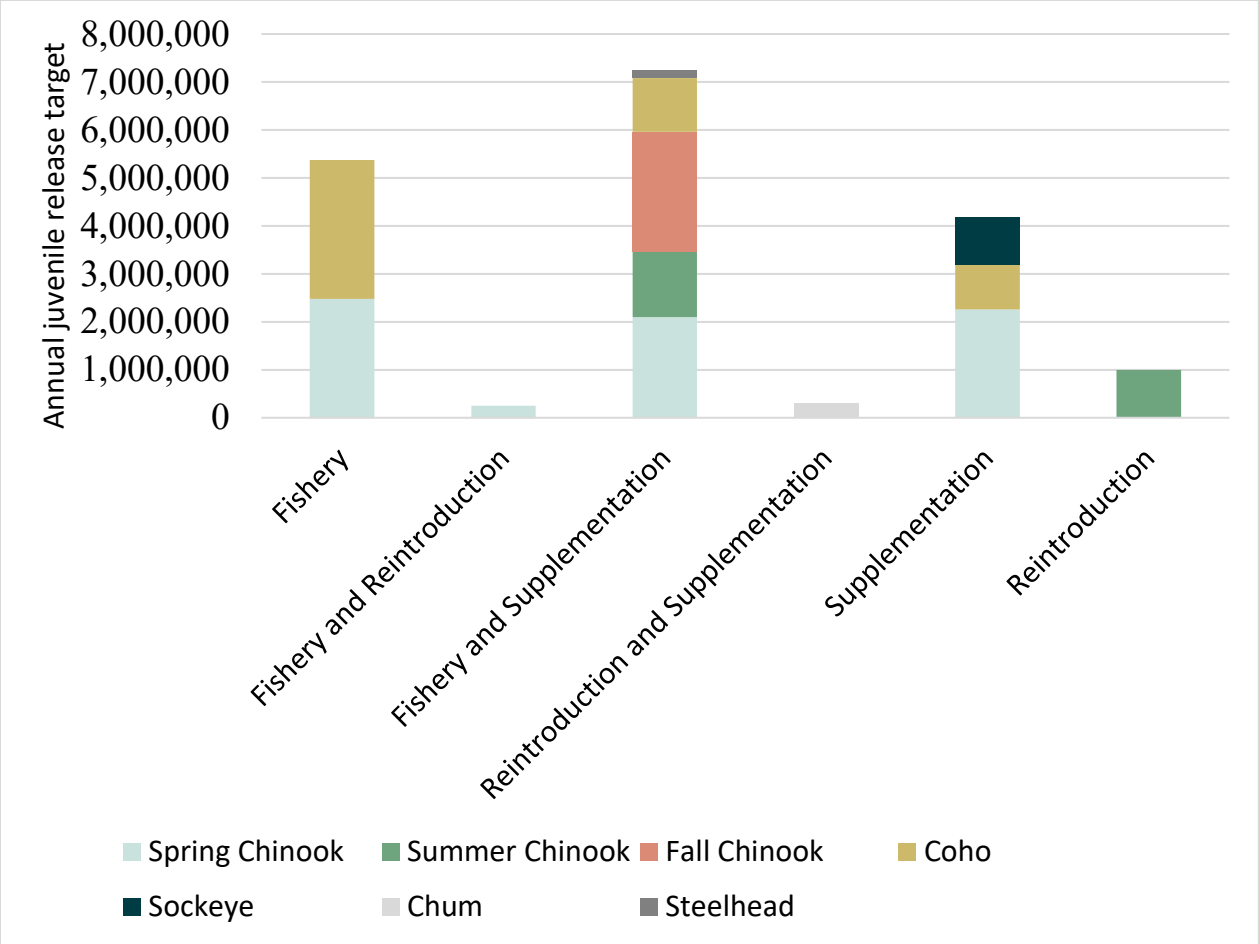

Figure 5. Annual juvenile salmon and steelhead release targets summarized by management objective and species

Production program details summarized by river reach

Below Bonneville Dam

- Select Area Fisheries Enhancement (SAFE) - Spring Chinook

  The SAFE program provides terminal fishery harvest opportunities on salmon in the lower Columbia River while minimizing impacts to non-target stocks, particularly the upriver stocks under federal protection by the Endangered Species Act (ESA). The SAFE program is jointly funded through Bonneville Power Administration, Mitchell Act, and Clatsop County Fisheries. Bonneville Power Administration provides partial funding per the Council's F&W Program for the Spring Chinook that are released at Gnat Creek (all SAFE spring Chinook from Willamette basin are reared here) and in the SAFE net pen sites. While several other hatcheries (i.e., Clackamas, Minto Fish Facility, Marion Forks, South Santiam, Big Creek, Klaskanine, SF Klaskanine, Kalama) contribute to and support the SAFE Spring Chinook program, the details

of the program and juvenile releases are summarized here for the comprehensive program for SAFE Spring Chinook.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
    - Mitigation – Development impacts in the Columbia River Basin
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (1993-060-00)
    - Mitchell Act (congressional appropriation through Department of Commerce)
  - Operator: Oregon Department of Fish and Wildlife, Washington Department of Fish and Wildlife, Clatsop County Fisheries
  - Management objective: Fishery
  - Life stage at release: Yearling
  - ESA listing status: Threatened
  - Columbia Basin Partnership stock: Lower Columbia R Spring Chinook
  - Link to annual hatchery releases: Select Area Fisheries Enhancement (SAFE) - Spring Chinook (see Gnat Creek Hatchery)

- Select Area Fisheries Enhancement (SAFE) - Coho

  The SAFE program provides terminal fishery harvest opportunities on salmon in the Lower Columbia River while minimizing impacts to non-target stocks, particularly the upriver stocks under federal protection by the Endangered Species Act (ESA). The SAFE program is jointly funded through Bonneville Power Administration, Mitchell Act, and Clatsop County Fisheries. Bonneville Power Administration provides partial funding per the Council's F&W Program for the SAFE Coho that are released at this site and net pen sites. While several hatcheries (i.e., Big Creek, Klaskanine, South Fork Klaskanine, Bonneville, Eagle Creek NFH, Cascade, Beaver Creek) contribute to and support the SAFE Coho program, the details of the program and juvenile releases are summarized here for the comprehensive program for SAFE Coho.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
    - Mitigation – Development impacts in the Columbia River Basin
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (1993-060-00)

        - Mitchell Act (congressional appropriation through Department of Commerce)
    - Operator: Oregon Department of Fish and Wildlife, Washington Department of Fish and Wildlife, Clatsop County Fisheries
    - Management objective: Fishery
    - Life stage at release: Smolt
    - ESA listing status: Threatened
    - Columbia Basin Partnership stock: Lower Columbia R Coho
    - Link to annual hatchery releases: Select Area Fisheries Enhancement (SAFE) – Coho (see Klaskanine Hatchery)

- Duncan Creek Chum

  The Duncan Creek Chum program was established to mitigate for the effects of the Federal Columbia River Power System on fish populations. The hatchery program is managed to serve conservation objectives to provide a source of Chum Salmon for reintroduction efforts, preserve genetic diversity in the Lower Gorge population, and reduce extinction risk.

    - Program purpose:
        - Mitigation – Federal Columbia River Power System
    - Funding source & mitigation responsibility:
        - Bonneville Power Administration through the NPCC Fish & Wildlife Program (2008-710-00)
    - Washington Department of Fish and Wildlife
    - Management objective: Reintroduction and Supplementation
    - Life stage at release: Fry
    - ESA listing status: Threatened
    - Columbia Basin Partnership stock: Columbia R Chum
    - Link to annual hatchery releases: Duncan Creek Chum (see Washougal Hatchery)

- Grays River Chum

  The Gray River chum recovery program was initiated 1998 by Washington State with funding associated with the Endangered Species Act. In 2009, the program funding was transitioned and is now established to mitigate for the effects of the Federal Columbia River Power System on fish populations. The hatchery program is managed to preserve genetic diversity within the Coast strata of the Lower Columbia River Chum ESU, provide a source for other Coast strata populations when needed, and provide escapement to the watershed. The

program was supported by the Grays River Hatchery facility until it closed in 2019 and is now supported at the Beaver Creek Hatchery. Releases continue to occur in the Grays River.

- Program purpose:
  - Mitigation – Federal Columbia River Power System
- Funding source & mitigation responsibility:
  - Bonneville Power Administration through the NPCC Fish & Wildlife Program (2008-710-00)
- Washington Department of Fish and Wildlife
- Management objective: Reintroduction and Supplementation
- Life stage at release: Fry
- ESA listing status: Threatened
- Columbia Basin Partnership stock: Columbia R Chum
- Link to annual hatchery releases: Grays River Chum (see Beaver Creek Hatchery)

Columbia River - Bonneville Dam to McNary Dam

- Hood River Spring Chinook

  The goals of the Hood River Spring Chinook program are to reintroduce and restablish Spring Chinook in the Hood River, enhance and maintain natural production, and restore and maintain fisheries. The source of fish to use for reintroduction originally began using Carson stock, transitioned to Deschutes River stock from Round Butte Hatchery, and currently adult Spring Chinook sourced from local returns to the Hood River are used for broodstock. The Round Butte Hatchery continues to support rearing a portion of juveniles for this program.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (O&M: 1988-053-07 and 1988-053-08,M&E: 1988-053-03)
  - Operator: Confederated Tribes of the Warm Springs
  - Management objective: Fishery and Reintroduction
  - Life stage at release: Yearling
  - ESA listing status: Non-listed (Extirpated)
  - Columbia Basin Partnership stock: M Columbia R Spring Chinook

- Link to annual hatchery releases: Hood River Spring Chinook (see Parkdale Fish Hatchery)

- Umatilla River Spring Chinook

  The goals of the Umatilla River Spring Chinook program are to reintroduce and restablish Spring Chinook in the Umatilla River, enhance and maintain natural production, and restore and maintain fisheries. Spring Chinook adult broodstock are spawned at the ʔImtwaha Fish Hatchery (previously the South Fork Walla Walla adult holding and spawning facility, 1997-2020), eggs are provided to Umatilla Hatchery for rearing, and yearlings are released in the Umatilla River at the Thornhollow and Imeques Acclimation Ponds.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (O&M projects: 1983-435-00, 1983-436-00, 1988-022-00, 1989-035-00, RM&E projects: 1989-024-01, 1990-005-00,1990-005-01)
  - Operator: Confederated Tribes of the Umatilla Indian Reservation and Oregon Department of Fish and Wildlife
  - Management objective: Fishery and Supplementation
  - Life stage at release: Yearling
  - ESA listing status: Non-listed (Extirpated)
  - Columbia Basin Partnership stock: M Columbia R Spring Chinook
  - Link to annual hatchery releases: Umatilla River Spring Chinook (see Umatilla Hatchery)

- Umatilla River Fall Chinook – Subyearlings

  The goals of the Umatilla River Fall Chinook – Subyearlings program are to reintroduce and restablish Fall Chinook in the Umatilla River, enhance and maintain natural production, and restore and maintain fisheries. Fall Chinook adult broodstock are collected and spawned at the Three Mile Dam Fish Facility, and juveniles are reared at the Umatilla Hatchery. Subyearlings are direct released in the Umatilla River at Reith Bridge (RM 48.5) in late May.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
  - Funding source & mitigation responsibility:

        - Bonneville Power Administration through the NPCC Fish & Wildlife Program (O&M projects: 1983-435-00, 1983-436-00, 1988-022-00, 1989-035-00, RM&E projects: 1989-024-01, 1990-005-00,1990-005-01)
    - Operator: Confederated Tribes of the Umatilla Indian Reservation and Oregon Department of Fish and Wildlife
    - Management objective: Fishery and Supplementation
    - Life stage at release: Subyearling
    - ESA listing status: Non-listed (Extirpated)
    - Columbia Basin Partnership stock: M Columbia R Sum/Fall Chinook (Upriver Bright)
    - Link to annual hatchery releases: Umatilla River Fall Chinook – Subyearlings (see Umatilla Hatchery)
- Umatilla River Coho

  The goals of the Umatilla River Coho program are to reintroduce and restablish Coho in the Umatilla River, enhance and maintain natural production, and restore and maintain fisheries. Coho adult broodstock are collected and spawned at the Three Mile Dam Fish Facility, and juveniles are reared at the Cascade Hatchery. Smolts are transferred to the Pendleton Acclimation Pond for acclimation and release in the Umatilla River in April.

    - Program purpose:
        - Mitigation – Federal Columbia River Power System
        - Mitigation - Development impacts in the Columbia River Basin
    - Funding source & mitigation responsibility:
        - Bonneville Power Administration through the NPCC Fish & Wildlife Program (O&M projects: 1983-435-00, 1983-436-00, 1988-022-00, 1989-035-00, RM&E projects: 1989-024-01, 1990-005-00,1990-005-01)
        - Mitchell Act (Congressional appropriation through the Department of Commerce)
    - Operator: Confederated Tribes of the Umatilla Indian Reservation and Oregon Department of Fish and Wildlife
    - Management objective: Fishery and Supplementation
    - Life stage at release: Smolt
    - ESA listing status: Non-listed (Extirpated)
    - Columbia Basin Partnership stock: Upriver Coho

- Link to annual hatchery releases: Umatilla River Coho (see Pendleton Acclimation Facility)

- Umatilla River Steelhead

  The goals of the Umatilla River Steelhead program are to prevent extirpation, enhance, and maintain Steelhead in the Umatilla River, and restore and maintain fisheries. Steelhead adult broodstock are collected at the Three Mile Dam Fish Facility and transferred to Minthorn Adult Holding for spawning. Steelhead are reared at the Umatilla Hatchery, and smolts are released in the Umatilla River at the Pendleton Acclimation Pond.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (O&M projects: 1983-435-00, 1983-436-00, 1988-022-00, 1989-035-00, RM&E projects: 1989-024-01, 1990-005-00,1990-005-01)
  - Operator: Confederated Tribes of the Umatilla Indian Reservation and Oregon Department of Fish and Wildlife
  - Management objective: Fishery and Supplementation
  - Life stage at release: Smolt
  - ESA listing status: Threatened
  - Columbia Basin Partnership stock: Mid-Columbia R Steelhead
  - Link to annual hatchery releases: Umatilla River Steelhead (see Umatilla Hatchery)

Columbia River - Above McNary Dam

- Chief Joseph Hatchery Spring Chinook

  The Chief Joseph Hatchery Spring Chinook program is managed as a segregated hatchery program to provide harvest opportunity with acceptable risks to extant ESA-listed populations.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
    - Mitigation - Wells, Rocky Reach, Rock Island, Priest Rapids, and Wanapum dams
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (2003-023-00)

        - Mid-Columbia Public Utility Districts
    - Operator: Confederated Tribes of the Colville Reservation
    - Management objective: Fishery
    - Life stage at release: Yearling
    - ESA listing status: Non-listed
    - Columbia Basin Partnership stock: U Columbia R Spring Chinook
    - Link to annual hatchery releases: Chief Joseph Hatchery Spring Chinook (see Chief Joseph Hatchery)

- Chief Joseph Hatchery Spring Chinook - 10j reintroduction

  The management goal of the Chief Joseph Hatchery Spring Chinook - 10j reintroduction program is to reintroduce and establish a naturally spawning Spring Chinook population to its historical habitat. Adults are spawned at Winthrop NFH and eyed-eggs are provided to the Colville Tribes for rearing at Chief Joseph Hatchery and acclimation and release of 200,000 juveniles to the Okanogan River at the Riverside Acclimation Pond.

    - Program purpose:
        - Mitigation – Federal Columbia River Power System
    - Funding source & mitigation responsibility:
        - Bonneville Power Administration through the NPCC Fish & Wildlife Program (2003-023-00)
    - Operator: Confederated Tribes of the Colville Reservation
    - Management objective: Fishery and Supplementation
    - Life stage at release: Yearling
    - ESA listing status: Endangered
    - Columbia Basin Partnership stock: U Columbia R Spring Chinook
    - Link to annual hatchery releases: Chief Joseph Hatchery Spring Chinook - 10j reintroduction (see Chief Joseph Hatchery)

- ʔImtwaha Fish Hatchery Spring Chinook

  The goals of the Spring Chinook program at ʔImtwaha Fish Hatchery are to reintroduce and restablish Spring Chinook in the Walla Walla River, enhance and maintain natural production, and restore and maintain fisheries. From 2000 - 2020, the interim Spring Chinook program in the Walla Walla River was supported by Mitchell Act funding and other hatchery facilities (e.g., Carson National Fish Hatchery) until the construction of the

ʔImtwaha Fish Hatchery Hatchery in 2021, which is anticipated to achieve the goal of developing a locally adapted and in-basin source of broodstock to support the reintroduction efforts.

- Program purpose:
  - Mitigation – Federal Columbia River Power System
- Funding source & mitigation responsibility:
  - Bonneville Power Administration through the NPCC Fish & Wildlife Program (O&M: 2000-038-02,2000-039-00)
- Operator: Confederated Tribes of the Umatilla Indian Reservation
- Management objective: Supplementation
- Life stage at release: Yearling
- ESA listing status: Non-listed (Extirpated)
- Columbia Basin Partnership stock: M Columbia Spring Chinook
- Link to annual hatchery releases: ʔImtwaha Fish Hatchery Spring Chinook (see ʔImtwaha Fish Hatchery)

- Levi George Spring Chinook

  The goals of the Levi George Spring Chinook program are to enhance and maintain natural production of Spring Chinook in the Yakima River, and restore and maintain fisheries.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (O&M: 1997-013-25, RM&E: 1995-063-25)
  - Operator: Yakama Nation
  - Management objective: Supplementation
  - Life stage at release: Yearling
  - ESA listing status: Non-listed
  - Columbia Basin Partnership stock: M Columbia R Spring Chinook
  - Link to annual hatchery releases: Levi George Spring Chinook (see Levi George Spring Chinook Hatchery)

- Chief Joseph Hatchery Summer Chinook

  The goals of the Chief Joseph Hatchery Summer Chinook program are to enhance and maintain natural production of Summer Chinook in the Okanogan subbasin, and restore and maintain fisheries. The program is comprised of two primary components: a 900K segregated harvest program utilizing yearling and subyearling releases directly from the hatchery, and a 1.1M integrated supplementation program utilizing yearling and subyearling progeny from natural origin adults released from multiple acclimation facilities within the Okanogan subbasin.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
    - Mitigation - Wells, Rocky Reach, Rock Island, Priest Rapids, and Wanapum dams
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (2003-023-00)
    - Mid-Columbia Public Utility Districts
  - Operator: Confederated Tribes of the Colville Reservation
  - Management objective: Fishery and Supplementation
  - Life stage at release: Subyearling and Yearling
  - ESA listing status: Non-listed
  - Columbia Basin Partnership stock: U Columbia R Summer Chinook
  - Link to annual hatchery releases: Chief Joseph Hatchery Summer Chinook (see Chief Joseph Hatchery)

- Prosser Hatchery Summer Chinook

  The goals of the Prosser Hatchery Summer Chinook program are to reintroduce, enhance and maintain natural production of Summer Chinook in the Yakima River, and restore and maintain fisheries. Current smolt releases are dependent on transfers of surplus fish from upper Columbia Basin Hatcheries (e.g., Wells, Eastbank) because present infrastructure for collection of local broodstock for reintroduction is insufficient. Fertilization, incubation, and rearing occurs at the Marion Drain facility. Prosser Hatchery is also used for rearing. The long-term goal of the program is to phase into an integrated production program using potential new facilities in the middle reaches of the Yakima River Basin.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System

- Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (O&M: 1997-013-25,RM&E: 1995-063-25)
- Operator: Yakama Nation
- Management objective: Reintroduction
- Life stage at release: Subyearling
- ESA listing status: Non-listed
- Columbia Basin Partnership stock: U Col R Summer Chinook
- Link to annual hatchery releases: Prosser Hatchery Summer Chinook (see Prosser Hatchery)

- Prosser Hatchery Fall Chinook - local program

  The goals of the Prosser Hatchery Fall Chinook - local program are to enhance and maintain natural production of Fall Chinook in the Yakima River, and restore and maintain fisheries.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (O&M: 1997-013-25,RM&E: 1995-063-25)
  - Operator: Yakama Nation
  - Management objective: Fishery and Supplementation
  - Life stage at release: Subyearling
  - ESA listing status: Non-listed
  - Columbia Basin Partnership stock: U Columbia R Fall Chinook (Upriver Bright)
  - Link to annual hatchery releases: Prosser Hatchery Fall Chinook - local program (see Prosser Hatchery)

- Mid-Columbia Coho Reintroduction - Methow Basin

  The goal of the Mid-Columbia Coho Reintroduction program is to re-establish naturally spawning Coho populations to the mid and upper Columbia tributaries to biologically sustainable levels, which provides harvest in most years.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System

        - Mitigation - Wells, Rocky Reach, Rock Island, Priest Rapids, and Wanapum dams
        - Mitigation - Development impacts in the Columbia River Basin
    - Funding source & mitigation responsibility:
        - Bonneville Power Administration through the NPCC Fish & Wildlife Program (1996-040-00)
        - Mid-Columbia Public Utility Districts
        - Mitchell Act
    - Operator: Yakama Nation
    - Management objective: Supplementation
    - Life stage at release: Smolt
    - ESA listing status: Non-listed (Extirpated)
    - Columbia Basin Partnership stock: Upriver Coho
    - Link to annual hatchery releases: Mid-Columbia Coho Reintroduction - Methow Basin (see Winthrop National Fish Hatchery)

- Mid-Columbia Coho Reintroduction - Wenatchee Basin

  The goal of the Mid-Columbia Coho Reintroduction program is to re-establish naturally spawning Coho populations to the mid and upper Columbia tributaries to biologically sustainable levels, which provides harvest in most years.

    - Program purpose:
        - Mitigation – Federal Columbia River Power System
        - Mitigation - Wells, Rocky Reach, Rock Island, Priest Rapids, and Wanapum dams
        - Mitigation - Development impacts in the Columbia River Basin
    - Funding source & mitigation responsibility:
        - Bonneville Power Administration through the NPCC Fish & Wildlife Program (1996-040-00)
        - Mid-Columbia Public Utility Districts
        - Mitchell Act
    - Operator: Yakama Nation
    - Management objective: Supplementation
    - Life stage at release: Smolt

- ESA listing status: Non-listed (Extirpated)
- Columbia Basin Partnership stock: Upriver Coho
- Link to annual hatchery releases: Mid-Columbia Coho Reintroduction - Wenatchee Basin (see Winthrop National Fish Hatchery)

- Yakima River Coho

  The Yakima River Coho program was initiated to restore natural spawning populations to historical spawning habitats in the upper Columbia Basin using 3 life-stage at release strategies: adult outplants, smolt releases, and parr releases. The program is supported by both Prosser Hatchery and Melvin R. Sampson Hatchery to achieve an annual 1,000,000 smolt equivalent release target of which, 500,000 smolt-equivalents are for reintroduction and natural spawning restoration in Upper Yakima/Naches (reared at Melvin R. Sampson Hatchery - BPA funding) and 500,000 smolt-equivalents reared and released from Prosser Hatchery for harvest augmentation (BPA and Mitchell Act funding).

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
    - Mitigation - Development impacts in the Columbia River Basin
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (O&M: 1997-013-25,RM&E: 1995-063-25)
    - Mitchell Act
  - Operator: Yakama Nation
  - Management objective: Fishery and Supplementation
  - Life stage at release: Prosser: Smolts; Melvin R. Sampson: Smolts and Parr
  - ESA listing status: Non-listed (Extirpated)
  - Columbia Basin Partnership stock: Upriver Coho
  - Link to annual hatchery releases: Yakima River Coho (see Melvin R. Sampson Hatchery)

- Prosser Hatchery Reconditioned Steelhead Kelts

  Steelhead kelt reconditioning is a strategy to convert abundance of kelts into increased numbers of natural-origin repeat spawners. The steelhead kelt reconditioning program at Prosser Hatchery collects up to 1,500 post-spawned, adult natural-origin steelhead kelts annually, holds them for about 6 months to be reconditioned in artificial rearing tanks, and then released to spawn naturally in the Yakima River.

- Program purpose:
    - Mitigation – Federal Columbia River Power System
- Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (O&M: 1997-013-25, RM&E: 2007-401-00,2010-030-00)
- Operator: Yakama Nation
- Management objective: Supplementation
- Life stage at release: Reconditioned Kelt
- ESA listing status: Threatened
- Columbia Basin Partnership stock: Mid-Columbia R Steelhead
- Link to annual hatchery releases: Prosser Hatchery Reconditioned Steelhead Kelts (see Prosser Hatchery)

- Upper Columbia Reconditioned Steelhead Kelts

  Steelhead kelt reconditioning is a strategy to convert abundance of kelts into increased numbers of natural-origin repeat spawners. The steelhead kelt reconditioning program in the Upper Columbia River is operated by Yakama Nation at the Methow Steelhead Kelt Facility located at Winthrop National fish Hatchery. The program aims to preserve life history diversity, increase natural abundance, and document reproductive success.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (1996-040-00)
  - Operator: Yakama Nation
  - Management objective: Supplementation
  - Life stage at release: Reconditioned Kelt
  - ESA listing status: Threatened
  - Columbia Basin Partnership stock: Mid-Columbia R Steelhead
  - Link to annual hatchery releases: Upper Columbia Reconditioned Steelhead Kelts (see Winthrop National Fish Hatchery)

Snake River

- Catherine Creek Spring Chinook

  The goals of the Catherine Creek Spring Chinook program are to prevent extirpation, enhance and maintain natural production, and restore and maintain fisheries by rearing and releasing 150,000 smolts annually.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
    - Mitigation - Ice Harbor Dam, Lower Monumental Dam, Little Goose Dam, Lower Granite Dam
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (1998-007-03, 2007-083-00)
    - Lower Snake River Compensation Plan
  - Operator: Confederated Tribes of the Umatilla Indian Reservation
  - Management objective: Fishery and Supplementation
  - Life stage at release: Smolt
  - ESA listing status: Threatened
  - Columbia Basin Partnership stock: Snake R Spring/Sum Chinook
  - Link to annual hatchery releases: Catherine Creek Spring Chinook (see Lookingglass Hatchery)

- Lostine River Spring Chinook

  The goals of the Lostine River Spring Chinook program are to prevent extirpation, enhance and maintain natural production, and restore and maintain fisheries by rearing and releasing 250,000 smolts annually.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
    - Mitigation - Ice Harbor Dam, Lower Monumental Dam, Little Goose Dam, Lower Granite Dam
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (1998-007-02)

        - Lower Snake River Compensation Plan
    - Operator: Nez Perce Tribe
    - Management objective: Fishery and Supplementation
    - Life stage at release: Smolt
    - ESA listing status: Threatened
    - Columbia Basin Partnership stock: Snake R Spring/Sum Chinook
    - Link to annual hatchery releases: Lostine River Spring Chinook (see Lookingglass Hatchery)

- Upper Grande Ronde Spring Chinook

  The goals of the Upper Grande Ronde Spring Chinook program are to prevent extirpation, enhance and maintain natural production, and restore and maintain fisheries by rearing and releasing 250,000 smolts annually.

    - Program purpose:
        - Mitigation – Federal Columbia River Power System
        - Mitigation - Ice Harbor Dam, Lower Monumental Dam, Little Goose Dam, Lower Granite Dam
    - Funding source & mitigation responsibility:
        - Bonneville Power Administration through the NPCC Fish & Wildlife Program (1998-007-03,2007-083-00)
        - Lower Snake River Compensation Plan
    - Operator: Confederated Tribes of the Umatilla Indian Reservation
    - Management objective: Fishery and Supplementation
    - Life stage at release: Smolt
    - ESA listing status: Threatened
    - Columbia Basin Partnership stock: Snake R Spring/Sum Chinook
    - Link to annual hatchery releases: Upper Grande Ronde Spring Chinook (see Lookingglass Hatchery)

- Johnson Creek Spring/Summer Chinook

  The Johnson Creek Spring/Summer Chinook program goal is to prevent extirpation of the population in Johnson Creek and enhance natural-origin abundance through supplementation. The project utilizes only natural-origin returns for broodstock that are

collected at the Johnson Creek adult weir. Fish are spawned and juveniles reared at McCall Hatchery, and then smolts are released to Johnson Creek. Both natural-origin adults and hatchery-origin adults are released above the weir for natural spawning.

- Program purpose:
  - Mitigation – Federal Columbia River Power System
- Funding source & mitigation responsibility:
  - Bonneville Power Administration through the NPCC Fish & Wildlife Program (1996-043-00)
- Operator: Nez Perce Tribe
- Management objective: Supplementation
- Life stage at release: Smolt
- ESA listing status: Threatened
- Columbia Basin Partnership stock: Snake R Spring/Sum Chinook
- Link to annual hatchery releases: Johnson Creek Spring/Summer Chinook (see McCall Fish Hatchery)

- Panther Creek Spring/Summer Chinook Egg Box Program

  Snake River Spring/Summer Chinook salmon in the Panther Creek watershed were extirpated. Beginning in 2014, when surplus eggs are available from the Pahsimeroi Spring/Summer Chinook program, the Shoshone Bannock Tribes outplant eyed-eggs to contribute to juvenile production in Panther Creek. Broodstock may also be collected at the Panther Creek weir, transported and spawned at Pahsimeroi Fish Hatchery. Incubation occurs at Pahsimeroi or Sawtooth Fish Hatcheries and transferred to the Tribes for transport to Panther Creek where they will be outplanted in remote site incubators.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (2008-905-00)
  - Operator: Shoshone Bannock Tribes
  - Management objective: Supplementation
  - Life stage at release: Eyed-Eggs
  - ESA listing status: Threatened
  - Columbia Basin Partnership stock: Snake R Spring/Sum Chinook

- Link to annual hatchery releases: Panther Creek Spring/Summer Chinook Egg Box Program (see Pahsimeroi Fish Hatchery)

- Nez Perce Tribal Hatchery - Clearwater Spring Chinook

  The construction of Lewiston Dam in 1927 on the Clearwater River virtually eliminated natural populations of Chinook salmon. After the removal of Lewiston Dam in the 1970s, spring Chinook were reintroduced in the Clearwater River through hatchery programs.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (1983-350-00,1983-350-03)
  - Operator: Nez Perce Tribe
  - Management objective: Fishery and Supplementation
  - Life stage at release: Parr, Pre-smolt, Smolt
  - ESA listing status: Non-listed (Extirpated)
  - Columbia Basin Partnership stock: Snake R Spring/Sum Chinook
  - Link to annual hatchery releases: Nez Perce Tribal Hatchery - Clearwater Spring Chinook (see Nez Perce Tribal Hatchery)

- Snake River Fall Chinook - Nez Perce Tribal Hatchery

  The Nez Perce Tribal Hatchery is the main facility supporting the Clearwater River component of the Snake River Fall Chinook program, a co-management effort to bring these fish back from the brink of extinction in the Snake River Basin.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (1983-350-00,1983-350-03)
  - Operator: Nez Perce Tribe
  - Management objective: Fishery and Supplementation
  - Life stage at release: Threatened
  - ESA listing status: Subyearling

- Columbia Basin Partnership stock: Snake R Fall Chinook
- Link to annual hatchery releases: Snake River Fall Chinook - Nez Perce Tribal Hatchery (see Nez Perce Tribal Hatchery)

- Nez Perce Tribal Hatchery - Reconditioned Kelts

  The goal of the program is to increase natural-origin steelhead spawners by intercepting post spawn natural-origin kelt steelhead, holding and applying innovative fish culture (termed Reconditioning) and releasing these fish to spawn in the streams again. In the Snake River, natural-origin kelts are collected at juvenile bypass screens at Lower Granite and Little Goose Dams, and then trucked to Dworshak National Fish Hatchery for reconditioning. A dedicated permanent kelt reconditioning facility is currently being constructed at the Nez Perce Tribal Hatchery and is expected to be operational in 2026.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (2007-401-00,1983-350-00)
  - Operator: Nez Perce Tribe
  - Management objective: Supplementation with natural-origin reconditioned kelts
  - Life stage at release: Threatened
  - ESA listing status: Reconditioned Kelts
  - Columbia Basin Partnership stock: Snake R Steelhead
  - Link to annual hatchery releases: Nez Perce Tribal Hatchery - Reconditioned Kelts (see Nez Perce Tribal Hatchery)

- Snake River Sockeye - Juvenile releases

  The goal of the program is to reestablish self-sustaining populations of Sockeye Salmon in the Sawtooth Valley lakes that are of sufficient size to allow delisting from the US Endangered Species Act (ESA) and provide treaty and sport harvest opportunities. Captive broodstocks are maintained to reduce risk of catastrophic loss of the entire population (see Eagle Fish Hatchery, Burley Creek Hatchery, Manchester Research Station). In 2013, efforts shifted to the recovery phase of the program, including construction of a new hatchery facility and expansion of the hatchery program. Construction of Springfield Fish Hatchery was completed in 2013 and the first smolts from the facility were released in 2015 (prior releases were from other sources - e.g., Sawtooth Fish Hatchery). Since then, releases have been systematically ramped up towards the release target of 1.0M yearling smolts. Additionally, eyed-eggs and

pre-smolts have been released by the program in the past and may be released again in the future to adjust inventory at Springfield Hatchery to meet the smolt release target.

- Program purpose:
  - Mitigation – Federal Columbia River Power System
- Funding source & mitigation responsibility:
  - Bonneville Power Administration through the NPCC Fish & Wildlife Program (2007-402-00)
- Operator: Idaho Department of Fish and Game
- Management objective: Supplementation
- Life stage at release: Egg, Pre-smolt, Smolt
- ESA listing status: Endangered
- Columbia Basin Partnership stock: Snake R Sockeye
- Link to annual hatchery releases: Snake River Sockeye - Juvenile releases (see Springfield Fish Hatchery)

- Snake River Sockeye - Adult releases

  The goal of the program is to reestablish self-sustaining populations of Sockeye Salmon in the Sawtooth Valley lakes that are of sufficient size to allow delisting from the US Endangered Species Act (ESA) and provide treaty and sport harvest opportunities. Captive broodstocks are maintained to reduce risk of catastrophic loss of the entire population (see Eagle Fish Hatchery, Burley Creek Hatchery, Manchester Research Station). Sockeye Salmon reared in captivity that are not needed for broodstock spawning goals are released to Sawtooth Valley lakes to volitionally spawn. Adult releases are comprised of anadromous returns and captive reared adults from Eagle Fish Hatchery and Burley Creek/Manchester Research Station.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (2007-402-00)
  - Operator: Idaho Department of Fish and Game
  - Management objective: Supplementation
  - Life stage at release: Adult
  - ESA listing status: Endangered
  - Columbia Basin Partnership stock: Snake R Sockeye

- Link to annual hatchery releases: Snake River Sockeye - Adult releases (see Eagle Fish Hatchery)

Resident fish

Overview of facilities and production programs

For resident fish, there are currently 7 main hatchery facilities, authorized under the NW Power Act, established to mitigate the effects of the Federal Columbia River Power System on fish populations (Table 7, figure 6).

Table 7. Resident fish hatchery facilities established to mitigate for the effects of the Federal Columbia River Power System on fish populations (NW Power Act).

Facility Group	Facility Name	Species	Year in Service	Facility Operator
Colville Tribal Fish Hatchery	Colville Tribal Fish Hatchery	Rainbow Trout, Brook Trout, Lahontan Cutthroat Trout	1988	Confederated Tribes of the Colville Reservation
Sekokini Springs Hatchery	Sekokini Springs Hatchery	Westslope Cutthroat Trout	2011	Montana Fish Wildlife and Parks
Kalispel Tribal Hatchery	Kalispel Tribal Hatchery	Rainbow Trout	1997	Kalispel Tribe
Kootenai River Native Fish Conservation	Kootenai Tribal Sturgeon Hatchery	White Sturgeon	1989	Kootenai Tribe of Idaho
	Twin Rivers Sturgeon and Burbot Hatchery	White Sturgeon, Burbot	2015	Kootenai Tribe of Idaho
Lake Roosevelt Resident Fish	Sherman Creek Hatchery	Rainbow Trout, White Sturgeon	1992	Washington Department of Fish and Wildlife
	Spokane Tribal Hatchery	Rainbow Trout	1990	Spokane Tribe of Indians

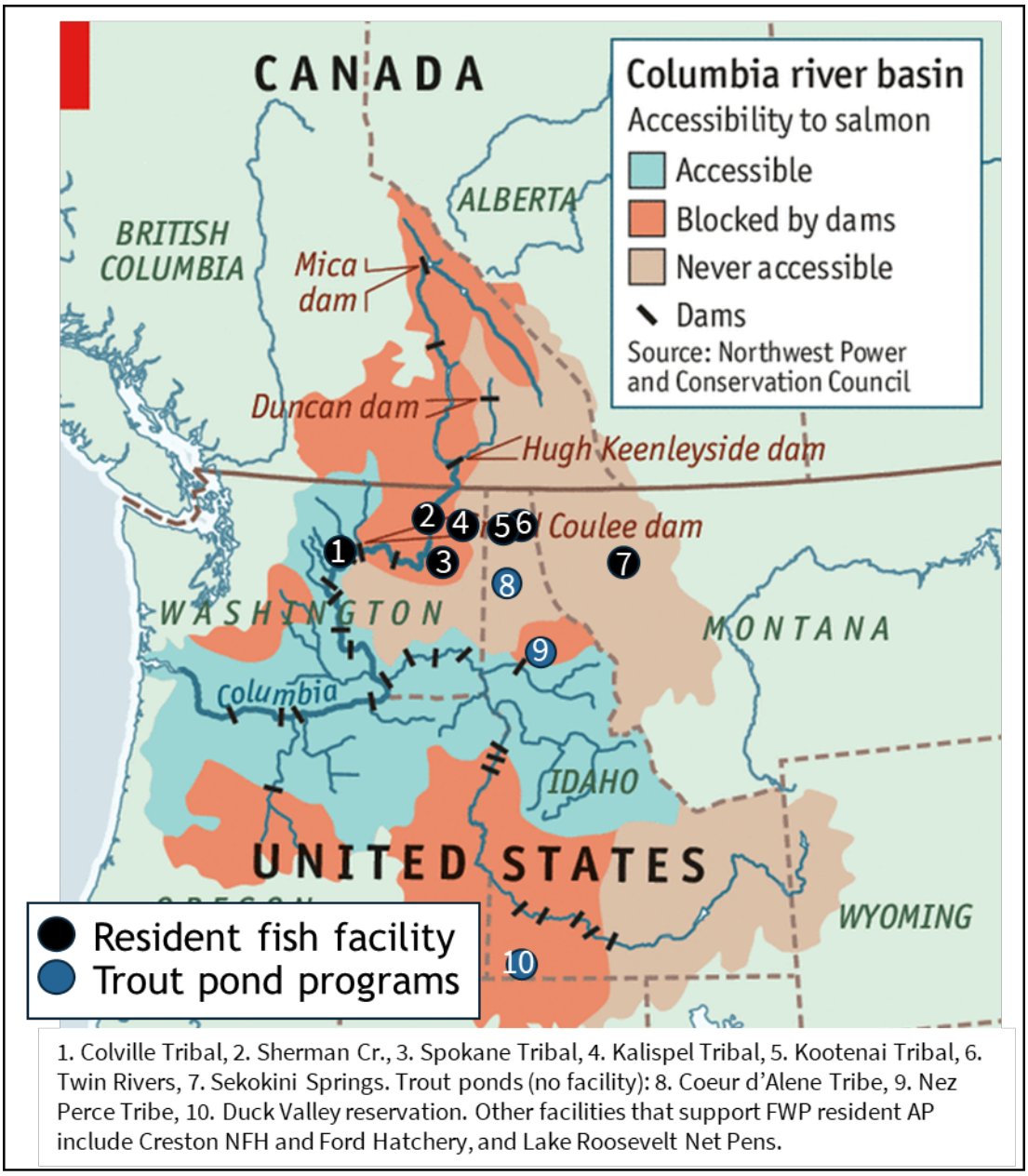

Figure 6. Location of the Program's resident fish hatchery facilities in relation to accessibility of anadromous salmon and steelhead in the Columbia River Basin. Additional facility and program details: Program Tracker hatchery

Most of the Program's resident fish facilities and artificial production programs address areas of the basin where anadromous fish are no longer present due to dams that blocked fish passage (i.e., Chief Joseph, Grand Coulee, Dworshak, Hells Canyon complex) and other areas where native fish species are impacted by the hydrosystem (i.e., Flathead and Kootenai subbasins). With the exception of two production programs, the resident fish production programs primarily enhance populations that support important fisheries (Figure 6, Table 7). The facilities in Table 7 support the majority (7) of the 13 total resident fish artificial production programs authorized

under the NW Power Act (Table 8). Three of the Program's production programs are supported at other facilities outside of the NW Power Act (i.e., Ford Hatchery, Creston National Fish Hatchery). In addition, three trout pond programs annually stock rainbow trout in tribal reservation waters (i.e., Nez Perce Tribe, Coeur d'Alene Tribe, and Shoshone Paiute Tribes) to support tribal subsistence and recreational fisheries.

Table 8. Artificial production programs for resident fish, authorized under the NW Power Act

Species	Release subbasin	Hatchery Program Name	Hatchery Facilities used by program (NW Power Act authorization in bold)	Management objective	Average annual release	Life stage at release
Rainbow Trout (triploid)	Upper Columbia	Banks Lake Rainbow Trout	Ford Hatchery	Fishery	187,377[a]	Catchable-size
	Upper Columbia, Spokane	Lake Roosevelt Hatcheries Program - Rainbow Trout	**Spokane Tribal Hatchery, Sherman Creek Hatchery**, Ford Hatchery, Lake Roosevelt Volunteer Net Pens	Fishery	599,933[b]	Catchable-size
	Upper Middle Columbia	Colville Tribal Fish Hatchery - Rainbow Trout	**Colville Tribal Fish Hatchery**	Fishery	94,639[b]	Catchable-size
	Flathead	Creston National Fish Hatchery - Rainbow Trout	Creston National Fish Hatchery	Fishery	94,639[b]	Catchable-size
	Pend Oreille	Kalispel Tribal Hatchery - Resident Fish	**Kalispel Tribal Hatchery**	Fishery	1,841[b]	Catchable-size
	Owyhee	Duck Valley Reservation Reservoirs - Rainbow Trout	Trout Ponds	Fishery	126,063[b]	Catchable-size, Fingerlings
	Coeur d'Alene	Coeur d'Alene Tribe Trout Ponds	Trout Ponds	Fishery	4,287[b]	Catchable-size
	Clearwater	The Nez Perce Tribe Resident	Trout Ponds	Fishery	5,667[c]	Catchable-size

		Fish Substitution Program (Trout Ponds)				
Brook Trout	Upper Middle Columbia	Colville Tribal Fish Hatchery - Brook Trout	**Colville Tribal Fish Hatchery**	Fishery	9,332[b]	Catchable-size
Lahontan Cutthroat Trout	Upper Middle Columbia	Colville Tribal Fish Hatchery - Lahontan Cutthroat Trout	**Colville Tribal Fish Hatchery**	Fishery	71,432[b]	Catchable-size
Westslope Cutthroat Trout	Flathead	Creston National Fish Hatchery - Westslope Cutthroat Trout	Creston National Fish Hatchery	Fishery	103,562[b]	Catchable-size
	Flathead	Sekokini Springs Hatchery - Westslope Cutthroat Trout	**Sekokini Springs Hatchery**	Native Fish Conservation	56,058[b]	Juvenile
Burbot	Kootenai	Kootenai River Native Fish Conservation Aquaculture Program - Burbot	**Twin Rivers Sturgeon and Burbot Hatchery**	Reintroduction and Supplementation	13,739,683[b,d]	Eggs, larvae, juveniles

[a] Release years 2021 – 2023.

[b] Release years 2019 – 2023.

[c] Release years 2015 – 2019.

[d] Majority of releases are eggs and larvae. The annual juvenile release target is 225,000.

Production program details summarized by species

Rainbow Trout (triploid)

- Banks Lake Rainbow Trout

  The Lake Roosevelt Hatcheries Program was established to mitigate for the effects of the Federal Columbia River Power System on fish populations, primarily from the Chief Joseph and Grand Coulee dams that lead to loss of anadromous fish. The Ford Hatchery is one of four aquaculture projects forming the Lake Roosevelt Hatcheries Program and contributes to rearing and releasing triploid Rainbow Trout to Banks Lake to support a segregated harvest program for Tribal subsistence and sport fisheries.

- Program purpose:
  - Mitigation – Federal Columbia River Power System
- Funding source & mitigation responsibility:
  - Bonneville Power Administration through the NPCC Fish & Wildlife Program (2001-029-00)
- Operator: Washington Department of Fish and Wildlife
- Management objective: Fishery
- Life stage at release: Catchable-size
- ESA listing status: Non-listed
- Link to annual hatchery releases: Banks Lake Rainbow Trout (see Ford Hatchery)

- Lake Roosevelt Hatcheries Program - Rainbow Trout

  The Lake Roosevelt Hatcheries Program was established to mitigate for the effects of the Federal Columbia River Power System on fish populations, primarily from the Chief Joseph and Grand Coulee dams that lead to loss of anadromous fish. Hydrosystem operations also limit the ability of naturally producing native resident fish populations to provide sustainable fisheries. The Spokane Tribal Hatchery is one of four aquaculture projects forming the Lake Roosevelt Hatcheries Program and produces harvestable-size Rainbow Trout to support a segregated harvest program for Tribal subsistence and sport fisheries. Rainbow trout eggs are cultured at the Spokane Tribal Hatchery, rainbow trout fry/fingerlings/yearlings are reared collectively between the Spokane Tribal Hatchery, Ford Trout Hatchery, Sherman Creek Hatchery and Lake Roosevelt Volunteer Net Pen project before release as harvestable size yearlings each spring after the reservoir begins to refill.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (1991-046-00, 1991-047-00, 1995-009-00,2001-029-00)
  - Operator: Spokane Tribe of Indians
  - Management objective: Fishery
  - Life stage at release: Catchable-size
  - ESA listing status: Non-listed

- Link to annual hatchery releases: Lake Roosevelt Hatcheries Program - Rainbow Trout (see Spokane Tribal Hatchery)

- Colville Tribal Fish Hatchery - Rainbow Trout

  The Colville Tribal Fish Hatchery program was established to mitigate for the effects of the Federal Columbia River Power System on fish populations, primarily from the Chief Joseph and Grand Coulee dams that led to loss of anadromous fish. Hydrosystem operations also limit the ability of naturally producing native resident fish populations to provide sustainable fisheries. Rainbow Trout are stocked throughout Colville Reservation waters to support fisheries. In 2010, a net pen project was initiated on Lake Rufus Woods as a cost-effective alternative to expansion of the facilities at Colville Tribal Fish Hatchery to rear a component of the hatchery Rainbow Trout production.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (1985-038-00)
  - Operator: Confederated Tribes of the Colville Reservation
  - Management objective: Fishery
  - Life stage at release: Catchable-size
  - ESA listing status: Non-listed
  - Link to annual hatchery releases: Colville Tribal Fish Hatchery - Rainbow Trout (see Colville Tribal Fish Hatchery)

- Creston National Fish Hatchery - Rainbow Trout

  The Rainbow Trout program at Creston National Fish Hatchery was established to mitigate for the effects of the Federal Columbia River Power System on fish populations, primarily impacts due to the construction and operation of Hungry Horse Dam. The facility acquires genetically pure eggs, hatches and rears up to 100,000 Rainbow Trout annually for offsite mitigation in closed basin waters of the Flathead River System. The Rainbow Trout program is currently transitioning to close (release target of 50,000 in 2025, and 0 in 2026), and will shift all focus toward production of 200,000 Westslope Cutthroat Trout.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
  - Funding source & mitigation responsibility:

        - Bonneville Power Administration through the NPCC Fish & Wildlife Program (1991-019-04)
    - Operator: US Fish and Wildlife Service
    - Management objective: Fishery
    - Life stage at release: Catchable-size
    - ESA listing status: Non-listed
    - Link to annual hatchery releases: Creston National Fish Hatchery - Rainbow Trout (see Creston National Fish Hatchery)

- Kalispel Tribal Hatchery - Resident Fish

  The resident fish program at Kalispel Tribal Hatchery was established to mitigate for the effects of the Federal Columbia River Power System on fish populations, primarily from the Chief Joseph and Grand Coulee dams that lead to loss of anadromous fish. Hydrosystem operations also limit the ability of naturally producing native resident fish populations to provide sustainable fisheries. The current program produces triploid Rainbow Trout to support a Tribal subsistence fishery at the Indian Creek Community Forest.

    - Program purpose:
        - Mitigation – Federal Columbia River Power System
    - Funding source & mitigation responsibility:
        - Bonneville Power Administration through the NPCC Fish & Wildlife Program (1995-001-00)
    - Operator: US Fish and Wildlife Service
    - Management objective: Fishery
    - Life stage at release: Catchable-size
    - ESA listing status: Non-listed
    - Link to annual hatchery releases: Kalispel Tribal Hatchery - Resident Fish (see Kalispel Tribal Hatchery)

- Duck Valley Reservation Reservoirs - Rainbow Trout

  The Duck Valley Reservation Reservoirs program was established to mitigate for the effects of the Federal Columbia River Power System on fish populations, primarily due to construction and operation of the Brownlee, Oxbow, and Hells Canyon Dams. As partial mitigation for the loss of anadromous fishes on the Duck Valley Indian Reservation, rainbow trout are annually stocked into three reservoirs (i.e., Mountain View, Sheep Creek, and Lake Billy Shaw) on the reservation to maintain subsistence and recreational fisheries. All fish stocked into Lake Billy

Shaw are sterile (triploid) catchable (250-350 mm) Rainbow Trout. A mixture of catchable Rainbow Trout (spring and fall, 250-350 mm) and fingerlings (spring and fall 150-180 mm) are stocked into Sheep Creek and Mountain View reservoirs.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (1995-015-00)
  - Operator: Shoshone Paiute Tribes
  - Management objective: Fishery
  - Life stage at release: Catchable-size, Fingerlings
  - ESA listing status: Non-listed
  - Link to annual hatchery releases: Duck Valley Reservation Reservoirs - Rainbow Trout (see Duck Valley Reservation Reservoirs)

- Coeur d'Alene Tribe Trout Ponds

  The Coeur d'Alene Tribe Trout Ponds program was established to mitigate for the effects of the Federal Columbia River Power System on fish populations, primarily from the Chief Joseph and Grand Coulee dams that lead to loss of anadromous fish. Hydrosystem operations also limit the ability of naturally producing native resident fish populations to provide sustainable fisheries. Rainbow Trout are stocked in four ponds located within the Hangman Creek watershed situated near reservation communities, and the program provides subsistence and recreational fishing opportunities for the community of tribal and nontribal anglers of the Coeur d'Alene Reservation and the surrounding area.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (2007-024-00)
  - Operator: Coeur d'Alene Tribe
  - Management objective: Fishery
  - Life stage at release: Catchable-size
  - ESA listing status: Non-listed

- Link to annual hatchery releases: Coeur d'Alene Tribe Trout Ponds (see Coeur d'Alene Tribe Trout Ponds)

- Nez Perce Tribe Resident Fish - Trout Ponds

  The program was established in 1995 to mitigate for the effects of the Federal Columbia River Power System on fish populations, primarily due to construction and operation of Dworshak Dam which blocked passage to anadromous fish. Three ponds are managed by the Nez Perce Tribe to provide subsistence and recreational harvest opportunities for tribal members (Mud Springs and Talmaks ponds) and including non-tribal members (Tunnel Pond) using trout fisheries in small ponds (< 3 hectares) stocked with hatchery Rainbow Trout. The project goal of 4,750 kg of trout harvested annually is limited by insufficient carrying capacity and habitat volume due to eutrophication processes in existing ponds, as well as inadequate quantity of ponds (program originally called for 6-12 ponds).

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (1995-013-00)
  - Operator: Nez Perce Tribe
  - Management objective: Fishery
  - Life stage at release: Catchable-size
  - ESA listing status: Non-listed
  - Link to annual hatchery releases: Nez Perce Tribe Trout Ponds (see Nez Perce Tribe Trout Ponds)

Brook Trout

- Colville Tribal Fish Hatchery - Brook Trout

  The Colville Tribal Fish Hatchery program was established to mitigate for the effects of the Federal Columbia River Power System on fish populations, primarily from the Chief Joseph and Grand Coulee dams that lead to loss of anadromous fish. Hydrosystem operations also limit the ability of naturally producing native resident fish populations to provide sustainable fisheries. Brook Trout are stocked throughout Colville Reservation waters to support fisheries.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
  - Funding source & mitigation responsibility:

        - Bonneville Power Administration through the NPCC Fish & Wildlife Program (1985-038-00)
    - Operator: Confederated Tribes of the Colville Reservation
    - Management objective: Fishery
    - Life stage at release: Catchable-size
    - ESA listing status: Non-listed
    - Link to annual hatchery releases: Colville Tribal Fish Hatchery - Brook Trout (see Colville Tribal Fish Hatchery)

Lahontan Cutthroat Trout

- Colville Tribal Fish Hatchery - Lahontan Cutthroat Trout

  The Colville Tribal Fish Hatchery program was established to mitigate for the effects of the Federal Columbia River Power System on fish populations, primarily from the Chief Joseph and Grand Coulee dams that lead to loss of anadromous fish. Hydrosystem operations also limit the ability of naturally producing native resident fish populations to provide sustainable fisheries. Lahontan Cutthroat Trout are stocked throughout Colville Reservation waters to support fisheries.

    - Program purpose:
        - Mitigation – Federal Columbia River Power System
    - Funding source & mitigation responsibility:
        - Bonneville Power Administration through the NPCC Fish & Wildlife Program (1985-038-00)
    - Operator: Confederated Tribes of the Colville Reservation
    - Management objective: Fishery
    - Life stage at release: Catchable-size
    - ESA listing status: Non-listed
    - Link to annual hatchery releases: Colville Tribal Fish Hatchery - Lahontan Cutthroat Trout (see Colville Tribal Fish Hatchery)

Westslope Cutthroat Trout

- Creston National Fish Hatchery - Westslope Cutthroat Trout

  The Westslope Cutthroat Trout program at Creston National Fish Hatchery was established to mitigate for the effects of the Federal Columbia River Power System on fish populations, primarily impacts due to the construction and operation of Hungry Horse Dam. The facility

acquires genetically pure eggs, hatches and rears up to 100,000 Cutthroat Trout annually for offsite mitigation in closed basin waters of the Flathead River System. With production adjustments to close the Rainbow Trout program, production supporting Westslope Cutthroat Trout will target 150,000 released in 2025 and 200,000 annual release beginning in 2026.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (1991-019-04)
  - Operator: US Fish and Wildlife Service
  - Management objective: Fishery
  - Life stage at release: Catchable-size
  - ESA listing status: Non-listed
  - Link to annual hatchery releases: Creston National Fish Hatchery - Westslope Cutthroat Trout (see Creston National Fish Hatchery)

- Sekokini Springs Hatchery - Westslope Cutthroat Trout

  The Westslope Cutthroat trout program at Sekokini Springs Hatchery was established to mitigate for the effects of the Federal Columbia River Power System on fish populations, primarily impacts due to the construction and operation of Hungry Horse Dam. To protect the remaining genetic diversity in the Flathead Subbasin, the Sekokini Springs Hatchery produces purebred Westslope Cutthroat trout for outplanting in high mountain lakes in the South Fork Flathead drainage that have been treated to remove hybrid trout populations. Wild Westslope Cutthroat trout are transported to the facility and held in isolation until they are certified genetically pure and free of all reportable pathogens. After certification, juvenile offspring from unique donor populations are reared to maturity and spawned to replicate progeny for restoration in the South Fork Flathead drainage.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (2019-001-00)
  - Operator: Montana Fish Wildlife and Parks
  - Management objective: Native Fish Conservation

- Life stage at release: Juvenile
- ESA listing status: Non-listed
- Link to annual hatchery releases: Sekokini Springs Hatchery - Westslope Cutthroat Trout (see Sekokini Springs Hatchery)

Burbot

- Kootenai River Native Fish Conservation Aquaculture Program – Burbot

  The Burbot program, as part of the Kootenai River Native Fish Conservation Aquaculture Program, was established to mitigate for the effects of the Federal Columbia River Power System on fish populations. The program aims to reintroduce burbot into the lower Kootenai River and begin rebuilding the population using genetically similar stock from within the subbasin (Moyie Lake in British Columbia). The facility is used to collect burbot gametes, and rear and release eggs, larvae, and/or juvenile in the Kootenai River.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (1988-064-00)
  - Operator: Kootenai Tribe of Idaho
  - Management objective: Reintroduction and Supplementation
  - Life stage at release: Eggs, larvae, juveniles
  - ESA listing status: Non-listed
  - Link to annual hatchery releases: Kootenai River Native Fish Conservation Aquaculture Program - Burbot (see Twin Rivers Sturgeon and Burbot Hatchery)

Other native fish – White Sturgeon and Pacific Lamprey

Overview of facilities and production programs

There are three main hatchery facilities authorized under the NW Power Act (Table 7), that support two White Sturgeon production programs in the Upper Columbia and Kootenai subbasins (Table 9, figure 7). Both programs use conservation aquaculture to prevent extirpation of White Sturgeon.

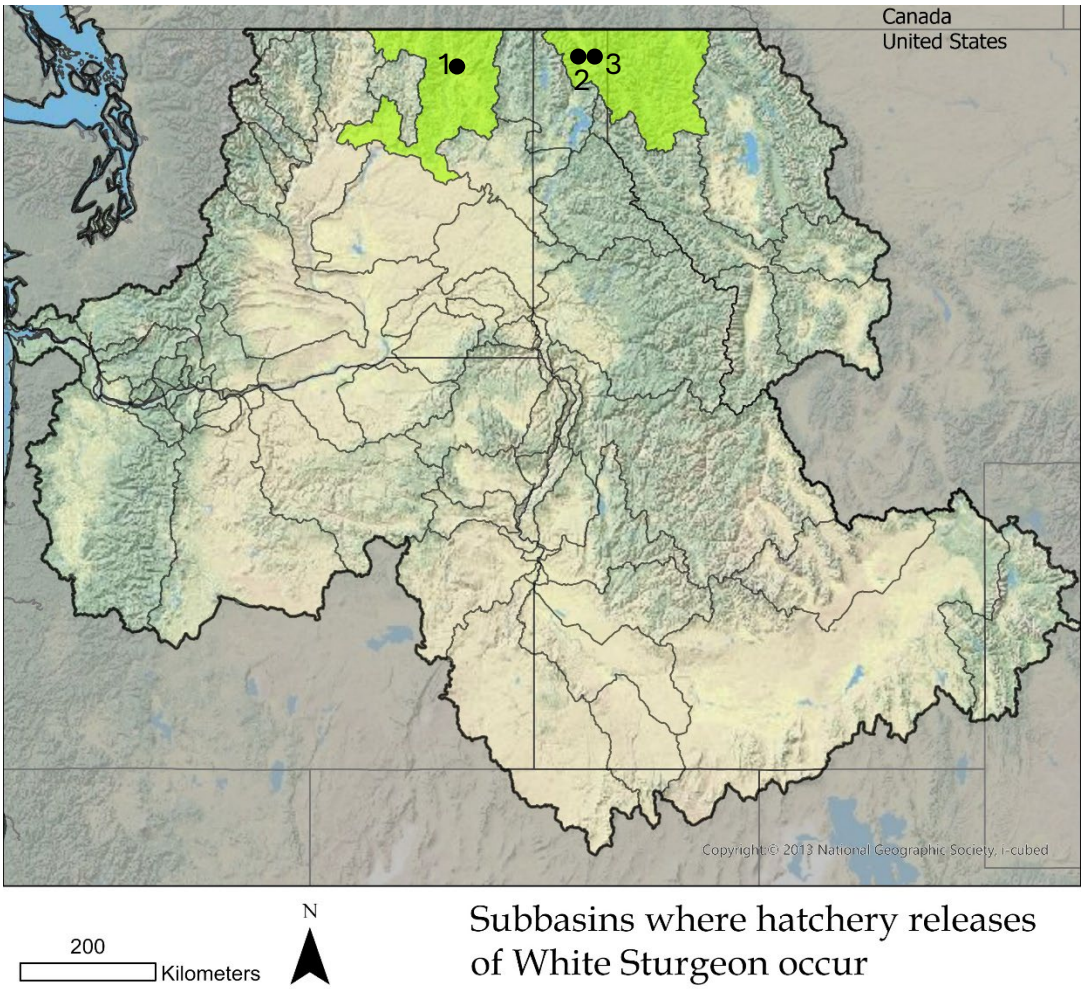

Figure 7. Location of the Program's hatchery facilities (1. Sherman Creek Hatchery, 2. Kootenai Tribal Sturgeon Hatchery, 3. Twin Rivers Sturgeon and Burbot Hatchery) and subbasins (Kootenai, Upper Columbia) where White Sturgeon artificial production releases occur. Additional facility and program details: Program Tracker hatchery.

There are two facilities that support two Pacific lamprey production programs where lamprey are released in the Yakima and Tucannon subbasins (Figure 8). Both programs (Table 9) are part of a concerted effort to restore natural production of Pacific lamprey to a level that will provide robust species abundance, significant ecological contributions, and meaningful tribal harvest throughout the Yakama Nation and Confederated Tribes of the Umatilla Indian Reservation treaty territories. Extensive research and development of methods for aquaculture of Pacific lamprey led to the first experimental artificial production releases in 2021.

Similar to the lamprey programs, there is ongoing extensive research and development of methods for aquaculture of native freshwater mussels occurring under the Program (project number: 2002-037-00). Experimental releases will be tracked in future assessments and the Program Tracker hatchery tool as the project continues through its Master Planning phases.

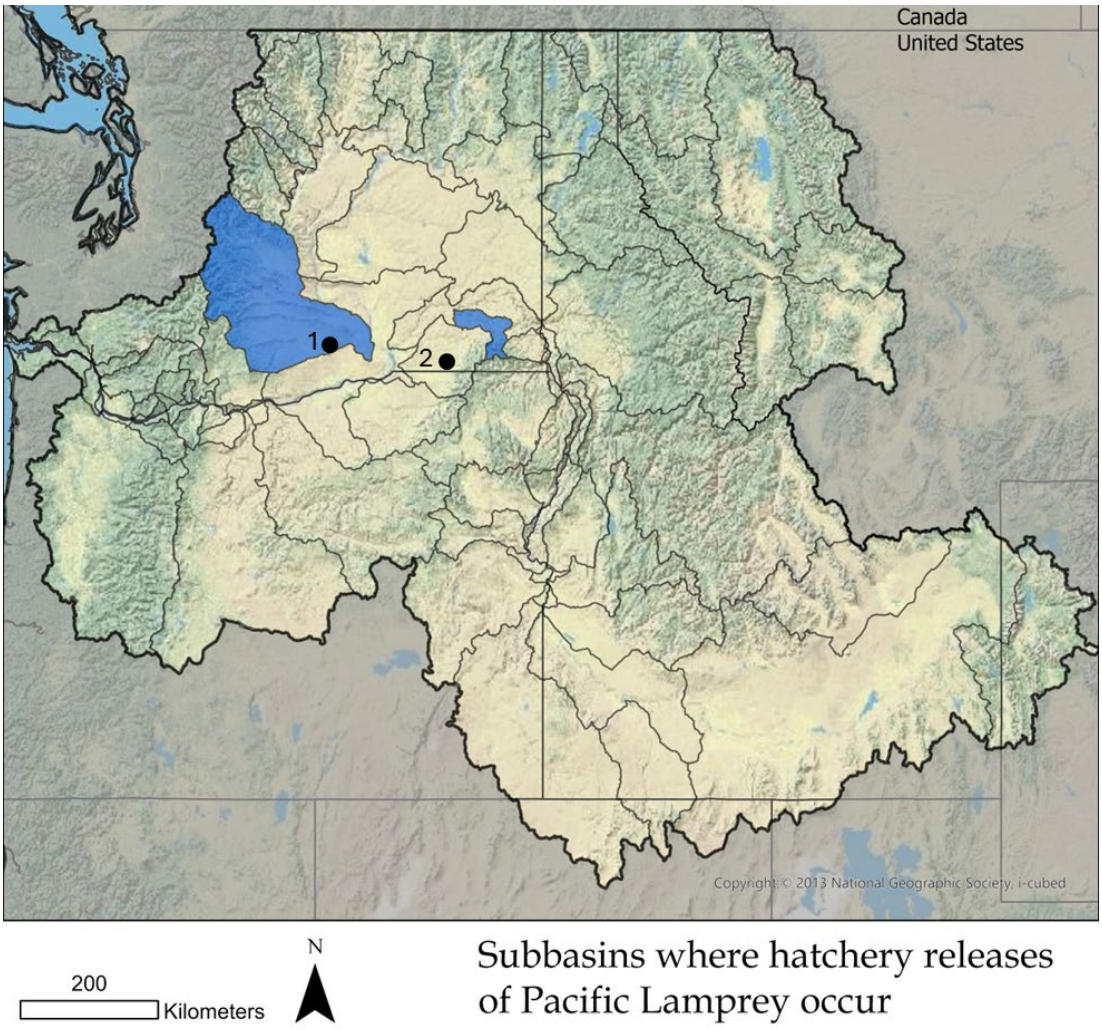

Figure 8. Location of facilities (1. Prosser Hatchery, 2. William Grant Water and Environmental Center) that support artificial production of Pacific lamprey and subbasins where lamprey are released (Yakima, Tucannon). Additional facility and program details: Program Tracker hatchery.

Table 9. Artificial production programs for White Sturgeon and Pacific Lamprey, authorized under the NW Power Act

Species	Release subbasin	Hatchery Program Name	Hatchery Facilities used by program (NW Power Act authorization in bold)	Management objective	Average annual release	Life stage at release
White Sturgeon	Kootenai	Kootenai River Native Fish Conservation Aquaculture Program – Sturgeon	**Kootenai Tribal Sturgeon Hatchery, Twin Rivers Sturgeon and Burbot Hatchery**	Native Fish Conservation	6,261[a]	Eggs, larvae, juveniles

	Upper Columbia	Lake Roosevelt Sturgeon Recovery Project	**Sherman Creek Hatchery**	Native Fish Conservation	2,650[b]	Juvenile
Pacific Lamprey	Yakima	Yakima Nation - Pacific Lamprey Program	Prosser Hatchery	Supplementation, Research	Experimental releases - see Program Tracker	Fertilized Eggs, Prolarvae, Larvae, Eyed Juveniles
	Tucannon	Confederated Tribes of the Umatilla Indian Reservation - Pacific Lamprey Program	William Grant Water and Environmental Center	Supplementation, Research	Experimental releases - see Program Tracker	Prolarvae

[a] Release years 2017 – 2022.

[b] Release years 2019 – 2023.

Production program details summarized by species

White Sturgeon

- Lake Roosevelt Sturgeon Recovery Project

  The Lake Roosevelt Sturgeon Recovery Project was established to mitigate for the effects of the Federal Columbia River Power System on fish populations. This program is part of a broader effort, Upper Columbia White Sturgeon Recovery Initiative, to ensure the persistence and viability of naturally reproducing populations of White Sturgeon in the upper Columbia River and restore opportunities for beneficial use if feasible. The Lake Roosevelt component of this conservation aquaculture program is currently supported at Sherman Creek Hatchery, where rearing of wild-caught larvae occurs until release to Lake Roosevelt. Current stocking targets are intended to meet adult abundance goals (UCWSRI 2013) and support a subsistence and recreational fishery on Lake Roosevelt.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (1995-027-00)
  - Operator: Spokane Tribe of Indians
  - Management objective: Native Fish Conservation

- Life stage at release: Juvenile
- ESA listing status: (British Columbia)
- Link to annual hatchery releases: Lake Roosevelt Sturgeon Recovery Project (see Sherman Creek Hatchery)

- Kootenai River Native Fish Conservation Aquaculture Program – Sturgeon

  The Kootenai sturgeon program, as part of the Kootenai River Native Fish Conservation Aquaculture Program, was established to mitigate for the effects of the Federal Columbia River Power System on fish populations. The Kootenai Tribe initiated this conservation aquaculture program to prevent extinction of this endangered population, preserve the existing gene pool, and continue rebuilding a healthy age class structure using conservation aquaculture techniques with wild native broodstock. The facility is used to spawn white sturgeon, incubate, hatch, and rear progeny, and release eggs, larvae, and/or juveniles into the Kootenai River.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program ((1988-064-00)
  - Operator: Kootenai Tribe of Idaho
  - Management objective: Native Fish Conservation
  - Life stage at release: Eggs, larvae, juveniles
  - ESA listing status: Endangered
  - Link to annual hatchery releases: Kootenai River Native Fish Conservation Aquaculture Program - Sturgeon (see Twin Rivers Sturgeon and Burbot Hatchery)

Pacific Lamprey

- Yakima Nation - Pacific Lamprey Program

  The Yakama Nation's Pacific Lamprey Program was established to mitigate for the effects of the Federal Columbia River Power System on fish populations. The goal of the program is part of a concerted effort to restore natural production of Pacific lamprey to a level that will provide robust species abundance, significant ecological contributions, and meaningful tribal harvest throughout the Yakama Nation treaty territories and all usual and accustomed areas. The program is coordinated through project # 2008-470-00, with objectives for lamprey research and restoration in the mid-Columbia, including outplanting of lamprey. Adult Pacific

lamprey broodstock are collected from the lower mainstem dams and held at Yakama Nation's Prosser Hatchery until maturation. Spawning, incubation, and rearing of prolarvae and larvae occurs at the same facility until they are released into the Yakima River Subbasin as outlined in the Lamprey Supplementation "Master Plan" where the Pacific lamprey population was once very abundant.

- Program purpose:
  - Mitigation – Federal Columbia River Power System
- Funding source & mitigation responsibility:
  - Bonneville Power Administration through the NPCC Fish & Wildlife Program (2008-470-00)
- Operator: Yakama Nation
- Management objective: Supplementation, Research
- Life stage at release: Fertilized Eggs, Prolarvae, Larvae, Eyed Juveniles
- ESA listing status: Non-listed
- Link to annual hatchery releases: Yakima Nation - Pacific Lamprey program (see Prosser Hatchery)

- Confederated Tribes of the Umatilla Indian Reservation - Pacific Lamprey Program

  The Confederated Tribes of the Umatilla Indian Reservation's Pacific Lamprey Program was established to mitigate for the effects of the Federal Columbia River Power System on fish populations. The goal of the program is part of a concerted effort to restore natural production of Pacific lamprey to a level that will provide robust species abundance, significant ecological contributions, and meaningful tribal harvest throughout the ceded lands of the Confederated Tribes of the Umatilla Indian Reservation treaty territories and all usual and accustomed areas. The program is coordinated through project # 1994-026-00, with objectives for lamprey research and restoration in the mid-Columbia, including outplanting of lamprey. Adult Pacific lamprey broodstock are collected from the lower mainstem dams and held at the William Grant Water and Environmental Center at the Walla Walla Community College wet lab until maturation. Spawning and early rearing of prolarvae occurs at the same facility until they are released into the upper Tucannon River basin where the Pacific lamprey population was once very abundant.

  - Program purpose:
    - Mitigation – Federal Columbia River Power System
  - Funding source & mitigation responsibility:
    - Bonneville Power Administration through the NPCC Fish & Wildlife Program (1994-026-00)

- Operator: Confederated Tribes of the Umatilla Indian Reservation
- Management objective: Supplementation, Research
- Life stage at release: Prolarvae
- ESA listing status: Non-listed
- Link to annual hatchery releases: Confederated Tribes of the Umatilla Indian Reservation - Pacific Lamprey program (see William Grant Water and Environmental Center)

General discussion

Comprehensive plans for new hatchery facility construction located in interior regions of the Basin resulted in nine anadromous fish hatchery facilities (and 23 satellites) and seven resident fish hatchery facilities being established as mitigation under the NW Power Act. Anadromous salmon and steelhead production programs are largely managed to achieve the dual objectives of fisheries and conservation which includes preventing and restoring extirpated populations. While some production occurs in regions below Bonneville Dam, all facilities and the majority of hatchery releases occur in the interior Basin where impacts from the hydropower system on fish are greatest. Production facilities and programs for resident fish have been developed in areas where anadromy was blocked by dams (i.e., Chief Joseph, Grand Coulee, Dworshak, Hells Canyon complex) and other areas where native fish species are also impacted by the hydrosystem (i.e., Flathead and Kootenai subbasins). Resident fish programs primarily support and enhance tribal subsistence and non-tribal sport fisheries, with a few programs serving conservation-only objectives. Additionally, production programs for White Sturgeon were developed to prevent extirpation through conservation aquaculture, and extensive research and development of methods for Pacific lamprey aquaculture have led to the first experimental releases of this culturally important species. Extensive and robust research, monitoring and evaluation programs are associated with each production program, guiding adaptive management to balance and manage risk to natural populations while meeting mitigation and conservation objectives.

This assessment compiles the components of the Program's current artificial production implementation, demonstrates alignment of implementation with the Program's measures over time, and with context to how the Program fits within the broader context of hatchery mitigation in the Columbia River Basin. Current implementation described here represents a snapshot in time, as there are several additional facilities and production programs in planning and development stages. This compilation of the Program's current implementation of artificial production is intended to be a resource for the Council and region to consider as we approach the next Program amendment cycle in 2025. Below are questions for consideration when making recommendations for amending the Program related to artificial production:

General questions:

- What metrics are most important to understand if the Program's hatcheries are meeting facility and Program mitigation goals, and should the Program be revised accordingly?
- Should the Program's Artificial Production strategy be amended - and if so, how - given that we have learned that operations and maintenance funding levels are a concern?

Specific questions – How should the Program address:

- identifying the appropriate metrics and information to understand if and how the Program is achieving hatchery mitigation goals as a comprehensive Program?
- potential changes in the artificial production facilities or production programs based on shifting regional priorities, climate change or aging infrastructure?
- challenges in meeting production objectives with current annual operations and maintenance funding for recurring maintenance?
- certainty of funding for asset management plans to address long-term non-recurring maintenance needs?

References

Marine Fisheries Advisory Committee (MAFAC) 2019 and 2020. A Vision for Salmon and Steelhead, Goals to Restore Thriving Salmon and Steelhead to the Columbia River Basin. Phase 1 and Phase 2 Reports of the Columbia Basin Partnership Task force of the Marine Fisheries Advisory Committee.

United States v. Oregon Management Agreement, 2018-2027. Case 3:68-cv-00513-MO. Document 2607-1. Filed 02/26/18.