

# BONNEVILLE HATCHERY



## PROGRAM MANAGEMENT PLAN 2018

# Bonneville Hatchery

## INTRODUCTION

Bonneville Hatchery is located 4 miles west of Cascade Locks, off of Interstate 84 (Exit 40) within the Bonneville Dam Complex. The site is at an elevation of approximately 46 feet above sea level, at latitude 45.6333 and longitude -121.9556. The site area is 22.46 acres.

The hatchery water supply is obtained from two sources: Tanner Creek and wells. Water from Tanner Creek is supplied by gravity; however, it sometimes freezes in December and January so it is not a reliable water supply during those months. Water is reused through the adult capture and holding system.

The facility is staffed with 15 FTE's.

### Rearing Facilities at Bonneville Hatchery

Unit Type	Unit Length (ft)	Unit Width (ft)	Unit Depth (ft)	Unit Volume (ft <sup>3</sup> )	Number Units	Total Volume (ft <sup>3</sup> )	Construction Material	Age	Condition	Comment
<u>Bonneville Hatchery</u>										
Two Adult Holding/ Rearing Ponds	123	76	7.5	70,110	1	70,110	concrete	1975	good	Combined dimension for each side
Adult Holding/ Rearing Pond	155	27	6.6	27,770	1	27,770	concrete	1975	good	Not a good adult holding option
Raceways	75	16.8	3	3,780	28	105,840	concrete	1975	good	Converted Burrows ponds
Raceways	80	20	2.5	4,000	30	144,000	concrete	1950	fair	4 raceways unusable
Deep Troughs	14	1.08	1.42	21	30	1,288	fiberglass	1984	good	
Vertical Incubators					1216		fiberglass	1975	fair	76 stacks use 15 trays
Vertical Incubators					1216		plastic	1985	good	76 stacks use 15 trays
Rearing Troughs	16	3	3	144	9	1296	fiberglass	2005	excellent	
Rearing Trough	14	3	2	84	1	84	Fiberglass	2011	excellent	
<u>Captive Brood Facility</u>										
Circular Tanks		10			4		fiberglass	1998	excellent	
Circular Tanks		20			15		fiberglass	1998	excellent	

## **PURPOSE**

Bonneville Hatchery was constructed in 1909 and was originally funded by the state of Oregon. In 1957, the facility was remodeled and expanded as part of the Columbia River Fisheries Development Program (Mitchell Act)—a program to enhance declining fish runs in the Columbia River Basin. The hatchery underwent another renovation in 1974 as part of the U.S. Army Corps of Engineers' (USACE) mitigation of fish losses from the construction of the John Day Dam. In 1998 construction was completed on the Captive Broodstock Facility for the Grande Ronde Basin spring Chinook supplementation program. The hatchery currently receives funding from both the National Marine Fisheries Service (NMFS) and USACE.

Bonneville Hatchery is one of the Oregon Department of Fish and Wildlife's larger hatchery facility and has a diverse fish production program. It is used for adult collection, egg incubation and rearing of tule Fall Chinook, adult collection of Fall Chinook upriver brights (URB) and adult collection and spawning of Coho. It is also used for rearing of Summer Steelhead, Winter Steelhead, Spring Chinook and Coho (Coho egg incubation occurs at Cascade Hatchery). The hatchery has excellent egg and fingerling quarantine facilities that are often used to assist other hatchery programs in the basin.

## **PROGRAM TYPES**

The ODFW Hatchery Management Policy defines hatchery programs as either harvest or conservation programs. Harvest programs operate to enhance or maintain fisheries without impairing naturally reproducing populations. Conservation programs operate to maintain or increase the number of naturally produced fish without reducing the productivity of naturally reproducing populations.

Bonneville Hatchery currently only has harvest programs:

Tanner Creek (14H) Tule Fall Chinook a harvest program funded by the Mitchell Act to mitigate for the lost harvest opportunities due to freshwater habitat degradation and production losses that occurred due to construction and operations of federal hydroelectric dams on the Columbia River Basin.

Little White Salmon (110H) Fall Chinook: a harvest program funded by USACE to mitigate for the loss of fishing and harvest opportunities due to habitat loss and migration blockage resulting from the Columbia Basin hydropower system.

URB (45H) Fall Chinook: a harvest program funded by USACE to mitigate for the loss of fishing and harvest opportunities due to habitat loss and migration blockage resulting from construction and operation of John Day Dam on the Columbia River.

Umatilla River (91H) Fall Chinook: a harvest program funded by the Bonneville Power Administration to meet the Umatilla component of the John Day Mitigation program to produce 107,000 adult Fall Chinook salmon annually.

Clackamas (19H) Spring Chinook: a harvest program funded by the Mitchell Act used for mitigation of fishing and harvest opportunities lost due to habitat loss and migration blockage due to hydroelectric projects in the Clackamas River Basin.

Tanner Creek (14H) Coho: a harvest program funded by the Mitchell Act to mitigate the losses of Coho Salmon harvests in the sport and commercial fisheries due to habitat and passage loss/degradation along the Columbia River Basin.

Big Creek (13H) Coho: a harvest program funded by the Mitchell Act to mitigate for the lost harvest opportunities due to freshwater habitat degradation and production losses that occurred due to construction and operations of federal hydroelectric dams on the Columbia River Basin.

South Santiam (24H) Summer Steelhead: a harvest program funded by the Mitchell Act, Portland General Electric, and the City of Portland to mitigate for loss of fishing and harvest opportunities due to habitat loss in the Columbia Basin and the Clackamas River.

Clackamas River (122H) Winter Steelhead: a harvest program funded by the Mitchell Act to mitigate for the loss of fishing and harvest opportunities in the Columbia Basin and the Clackamas River.

## **GOALS**

Tanner Creek (14H) Tule Fall Chinook: The primary goal of these programs is to increase the harvests of tule fall Chinook by sport, commercial, and tribal fisheries in the Pacific Ocean and the lower Columbia River by producing approximately 25,000 adults for recreational and commercial harvests as well as for broodstock use.

Little White Salmon (110H) Fall Chinook: The primary goal of the Umatilla River fall Chinook program is to reintroduce fall Chinook for harvest in the Yakima and Columbia rivers while rebuilding and maintaining adequate hatchery and natural production.

URB (45H) Fall Chinook: The USACE mitigation agreement is to produce no more than 263,000 pounds of juvenile fall Chinook, a production level equivalent to the loss of 15,000 wild fall Chinook spawners caused by John Day Dam. The remaining mitigation for John Day Dam (production for 15,000 fall chinook spawners) is achieved at Spring Creek National Fish Hatchery.

Umatilla River (91H) Fall Chinook: The primary program goal is to meet harvest mitigation goals, and the secondary goal is to provide a supplementation benefit.

Clackamas River (19H) Spring Chinook: The goal is to produce a high quality, hatchery reared, summer-run Steelhead to provide a fishery for sport anglers in the lower Columbia River and the Clackamas River recreational fisheries.

Tanner Creek (14H) Coho: Hatchery goal associated with the Mitchell Act funding is to produce lower river Coho that will contribute to NE Pacific and Columbia River Basin commercial and sport fisheries while providing adequate escapement for hatchery production.

Big Creek (13H) Coho: Hatchery goal associated with the Mitchell Act funding is to produce lower river Coho that will contribute to NE Pacific and Columbia River Basin commercial and sport fisheries while providing adequate escapement for hatchery production.

South Santiam (24H) Summer Steelhead: Meet the PGE mitigation agreement goal and the City of Portland mitigation goal, contribute to the Columbia River sport fisheries, and meet subbasin fishery management goals.

Clackamas River (122H) Winter Steelhead: Provide sport harvest opportunities on hatchery winter steelhead in the Clackamas River, while minimizing intentional risks to naturally producing populations

## **OBJECTIVES**

Objective 1: Foster and sustain opportunities for sport, commercial, and tribal fishers consistent with the conservation of naturally produced native fish.

### Fall Chinook:

#### Tanner Creek (14H) Tule Stock

Produce 120,000 green eggs for shipment to Idaho Fish and Game.

Produce 2,067,800 eyed eggs for shipment to Washougal Hatchery WDFW.

Receive 1,800,000 fingerlings (10,000 pounds) from Washougal Hatchery WDFW

Produce 3,800,000 smolts (62,500 pounds) for on-station release.

#### Washington (45H) Upriver Bright Stock:

Produce 3,620,000 fingerlings (36,200 pounds) for transfer to Ringold Acclimation in Washington.

#### Umatilla River (91H) Upriver Bright Stock:

Produce 780,000 fingerlings (73,273 pounds) for transfer to Pendleton Acclimation for acclimation and release into the Umatilla River.

#### Little White Salmon (110H) Stock:

Produce 210,000 smolts (17,500 pounds) for acclimation and release into the Yakima River.

### Spring Chinook:

#### Clackamas River (19H) Spring Chinook:

Produce 645,000 smolts (35,833 pounds) for transfer to Clackamas Hatchery.

### Coho:

#### Tanner Creek (14H) Stock:

Produce 1,100,000 eggs for Cascade Hatchery.  
Receive 250,000 fingerlings from Cascade Hatchery.  
Produce 250,000 smolts (16,667 pounds) for on-station release.

Big Creek (13H) Stock:

Produce 750,000 fingerlings (5,556 pounds) for transfer to Clackamas Hatchery.

Summer Steelhead:

South Santiam River (24H) Stock:

Produce 125,000 smolts (27,778 pounds) for Clackamas Hatchery.

Produce 50,000 smolts (9,722 pounds) for acclimation at Foster Creek Acclimation.

Produce 75,000 smolts (16,667 pounds) for Sandy Hatchery.

Winter Steelhead:

Clackamas River (122H) Stock:

Produce 100,000 smolts (16,667 pounds) for acclimation and release into the Clackamas River.

- Objective 2: Contribute toward the sustainability of naturally produced native fish populations through the responsible use of hatcheries and hatchery-produced fish.
- Objective 3: Maintain genetic resources of native fish populations spawned or reared in captivity.
- Objective 4: Restrict the introduction, amplification, or dissemination of disease agents in hatchery produced fish and in natural environments by controlling egg and fish movements and by prescribing a variety of preventative, therapeutic and disinfecting strategies to control the spread of disease agents in fish populations in the state.
- Objective 5: Minimize adverse ecological impacts to watersheds caused by hatchery facilities and operations.
- Objective 6: Communicate effectively with other fish producers, managers and the public.

## **CURRENT PRACTICES TO ACHIEVE OBJECTIVES**

The sections that follow describe the current hatchery practices associated with anadromous fish production at this facility. Because ODFW hatcheries are managed to maximize use of the hatchery rearing space, hatchery operations are dynamic and subject to annual change depending upon statewide program needs.

The Native Fish Conservation Policy, the Fish Hatchery Management Policy, the Fish Health Management Policy and Hatchery Genetic Management Plans provide guidelines for the management of wild and hatchery fish in Oregon. These policies describe the brood collection, rearing, release, and health management strategies currently used at this facility.

**Objective 1: Foster and sustain opportunities for sport, commercial, and tribal fishers consistent with the conservation of naturally produced native fish.**

***Adult Collection***

Fall Chinook:

Washington (45H) URB Stock: Adult collection takes place at Priest Rapids Hatchery in Washington. Adults return to the hatchery from October through November.

Tanner Creek (14H) Tule Stock: Adults return to the hatchery from late August through September. Peak spawning occurs in mid-September. The collection goal is presently a minimum of 1,800 adults. No wild fish are taken for broodstock.

Umatilla River (91H) Stock: No adult collection takes place at the hatchery. Adults are collected at three Mile Dam on the Umatilla River (see the Umatilla Hatchery Plan for details).

Little White Salmon (110H) Stock: Adults are collected at Little White Salmon NFH in Washington. Spawning occurs in mid-November.

Spring Chinook:

Clackamas River (19H) Spring Chinook: No adults are collected at the hatchery. See the Clackamas Hatchery Plan for details.

Coho:

Tanner Creek (14H) Stock: Adults arrive at the hatchery between August and November. Peak spawning occurs during late October. The annual collection goal is 3,000 fish. Adults are selected randomly from the available marked hatchery fish for the broodstock. All unmarked Coho Salmon are released into the Columbia River upstream of Bonneville Dam.

Big Creek (13H) Stock: No adults are collected at the hatchery. See Big Creek Hatchery Plan for details.

Summer Steelhead:

South Santiam River (24H) Stock: No adults are collected at the hatchery. See South Santiam Hatchery Plan for details.

Winter Steelhead:

Clackamas River (122H) Stock: No adults are collected at the hatchery. See Clackamas Hatchery Plan for details.

**Objective 2: Contribute toward the sustainability of naturally produced native fish populations through the responsible use of hatcheries and hatchery-produced fish.**

## ***Rearing and Release Strategies***

Rearing and release strategies are designed to limit the amount of ecological interactions occurring between hatchery and naturally produced fish. Fish are reared to sufficient size that smoltification occurs within nearly the entire population, which will reduce the retention time in downstream migration. Rearing on parent river water, or acclimation to parent river water for several weeks, is used to ensure strong homing to the hatchery, thus reducing the stray rate to natural populations. Various release strategies are used to ensure that fish migrate from the hatchery with least amount of interaction with native populations. The specific rearing and release strategies used at this hatchery are outlined below.

### Fall Chinook:

#### Tanner Creek (14H) Tule Stock:

Rear 1,600,000 fish to a size of 80 fpp for on-station release into Tanner Creek in mid-April. All fish are fin-clipped and 150,000 are coded-wire tagged prior to release.

Rear 1,800,000 fish to a size of 80 fpp for on-station release into Tanner Creek in mid-June. All fish are fin-clipped prior to release.

Rear 400,000 fish to a size of 20 fpp for on-station release into Tanner Creek in late September/early October. All fish are fin-clipped and 40,000 are coded-wire tagged prior to release.

#### Washington (45H) URB Stock:

Rear 2,540,000 fish to a size of 100 fpp for transfer to Ringold Acclimation in Washington the first week of May. All fish are fin-clipped and 240,000 are coded-wire tagged prior to transfer.

Rear 1,080,000 fish to a size of 100 fpp for transfer to Ringold Acclimation in Washington the second week of May. All fish are fin-clipped and 160,000 are coded-wire tagged prior to transfer.

#### Umatilla River (91H) Stock:

Rear 520,000 smolts to a size of 16 fpp for transfer in early February to Pendleton Acclimation site for acclimation and release into the Umatilla River. All fish are fin-clipped and coded-wire tagged prior to transfer.

Rear 260,000 smolts to a size of 16 fpp for transfer in early March to Pendleton Acclimation site for acclimation and release into the Umatilla River. All fish are fin-clipped and coded-wire tagged prior to transfer.

Rear 120,000 smolts to a size of 16 fpp for direct release into the Umatilla River in early March. All fish are fin-clipped and coded-wire tagged prior to release.

Little White Salmon (110H) Stock:

Rear 210,000 smolts to a size of 12 fpp in January for acclimation and release into the Yakima River.

Spring Chinook:

Clackamas River (19) Spring Chinook:

Rear 645,000 fish to a size of 18 fpp for transfer to Clackamas Hatchery in October for further rearing and release into the Clackamas River system. All fish are marked and two groups of 50,000 are coded-wire tagged prior to transfer.

Coho:

Tanner Creek (14H) Stock:

Receive 256,000 fingerlings at a size of 150 fpp from Cascade Hatchery in mid-June and produce 250,000 smolts at a size of 15 fpp for on-station release in early May. All fish are adipose-clipped and 25,000 are coded-wire tagged prior to release.

Big Creek (13H) Stock:

Receive 830,000 fry at a size of 1200 fpp from Cascade Hatchery in mid-February and produce 750,000 fingerlings at a size of 135 fpp for transfer to Clackamas Hatchery in late May. All fish are adipose-clipped prior to transfer; coded-wire tagging takes place at Clackamas Hatchery.

Summer Steelhead:

South Santiam River (24H) Stock:

Rear 25,000 smolts to a size of 6.0 fpp for transfer to Foster Creek Acclimation in mid-February. All fish receive a right maxillary clip and an adipose clip prior to transfer.

Rear 125,000 smolts to a size of 4.5 fpp for transfer to Clackamas Hatchery in late March. All fish receive a right maxillary clip and an adipose clip prior to transfer.

Rear 75,000 smolts to a size of 4.5 fpp for transfer to Sandy Hatchery in late March. All fish receive a right maxillary clip and an adipose clip prior to transfer.

Rear 25,000 smolts to a size of 4.5 fpp for transfer to Foster Creek Acclimation in mid-March. All fish receive a right maxillary clip and an adipose clip prior to transfer.

Winter Steelhead:

Clackamas River (122H) Stock:

Rear 75,000 smolts to a size of 6 fpp for transfer to Clackamas Hatchery in mid-March for acclimation and release into the Clackamas River. All fish receive an adipose clip prior to transfer.

Rear 25,000 smolts to a size of 6 fpp for transfer to Foster Creek acclimation site in early April for acclimation and release into the Clackamas River. All fish receive an adipose clip prior to transfer.

### **Objective 3: Maintain genetic resources of native fish populations spawned or reared in captivity.**

#### ***Broodstock Selection and Spawning***

Oregon's Native Fish Conservation Policy and Hatchery Genetic Management Plans outline broodstock selection and spawning protocols for some fish stocks. The following practices are currently being used at Bonneville Hatchery:

##### Fall Chinook:

Tanner Creek (14H) Tule Stock: Adults will be collected at the hatchery throughout the run and spawned using a 1:1 male to female spawning ratio. Brood for spawning are randomly selected without any bias for particular traits. Jacks are not included in the broodstock.

Washington (45H) URB Stock: No adults are collected at the hatchery; broodstock selection and spawning take place at Priest Rapids Hatchery in Washington. Eggs are transferred to Bonneville in early December.

Umatilla River (91H) Stock: No adults are collected at the hatchery; broodstock selection and spawning take place at Three Mile Dam on the Umatilla River. Eggs are transferred to Bonneville in January.

Little White Salmon (110H) Stock: No adults are collected at the hatchery, but are collected at Little White Salmon NFH in Washington. The hatchery goal is to spawn fish from throughout the run using a 1:1 male to female ratio.

##### Spring Chinook:

Clackamas River (19H) Spring Chinook: No broodstock selection or spawning takes place at this facility. See the Clackamas Hatchery Plan for details.

##### Coho:

Tanner Creek (14H) Stock: Adults are collected throughout the run and spawned at a 1:1 male to female spawning ratio. Only hatchery adults are used as broodstock; no jacks are utilized.

Big Creek (13H) Stock: Broodstock selection and spawning take place at Big Creek Hatchery. See the Big Creek Hatchery Plan for details.

##### Summer Steelhead:

South Santiam River (24H) Stock: Broodstock selection and spawning take place at South Santiam Hatchery. See the South Santiam Hatchery Plan for details.

##### Winter Steelhead:

Clackamas River Wild (122H) Stock: Broodstock selection and spawning take place Clackamas Hatchery. See the Clackamas Hatchery Plan for details.

**Objective 4: Restrict the introduction, amplification, or dissemination of disease agents in hatchery produced fish and in natural environments by controlling egg and fish movements and by prescribing a variety of preventative, therapeutic and disinfecting strategies to control the spread of disease agents in fish populations in the state.**

### ***Fish Health Management Programs—All Stocks***

ODFW has adopted a Fish Health Management Policy that describes measures that minimize the impact of fish diseases on the state's fish resources. The primary objective of fish health management programs at ODFW hatcheries is to produce healthy smolts that will contribute to the fishery and return sufficient numbers of adults to continue propagation of the stocks and provide supplementation if desired. Equally important is to prevent the introduction, amplification or spread of fish pathogens that might negatively affect the health of both hatchery and naturally reproducing stocks.

ODFW has implemented both disease control and disease prevention programs at all of its facilities to achieve these objectives. These programs include the following standard elements:

#### Disease Control (Reactive)

- Perform necropsies of diseased and dead fish to diagnose the cause of loss.
- Prescribe appropriate treatments and remedies to disease. This includes recommending modifications in fish culture practices, when appropriate, to alleviate disease-contributing factors.
- Apply a disease control policy as stated in the Oregon Administrative Rules which dictates how specific disease problems will be addressed and what restrictions may be placed on movements of diseased stocks
- Conduct applied research on new and existing techniques to control disease epizootics.

#### Disease Prevention (Proactive)

- Routinely remove dead fish from each rearing container and notify ODFW Fish Health Section if losses are increasing. Monthly mortality records are submitted to Fish Health Section from each hatchery.
- Routinely perform examinations of live fish to assess health status and detect problems before they progress to clinical disease or mortality.
- Implement disease preventative strategies in all aspects of fish culture to produce a quality fish. This includes prescribing the optimal nutritional needs and environmental conditions in the hatchery rearing container based on historical disease events. It also involves the use of vaccines or antibiotics in order to avoid a disease problem.

- Use a disease prevention policy that restricts the introduction of stocks into a facility. This will help avoid new disease problems and fish pathogens not previously found at the site.
- Use sanitation procedures that prevent introduction of pathogens into and/or within a facility.
- Conduct applied research on new and existing disease prevention techniques.
- Utilize pond management strategies (e.g., Density Index and Flow Index guidelines) to help optimize the quality of the aquatic environment and minimize fish stress that can be conducive to infectious and noninfectious diseases. For example, a Density Index is used to estimate the maximum number of fish that can occupy a rearing unit based on the rearing unit's size. A Flow Index is used to estimate the rearing unit's carrying capacity based on water flows.

### ***Fish Health Activities at Bonneville Hatchery***

#### Health Monitoring

- Monthly health monitoring examinations of healthy and clinically diseased fish are conducted on each fish lot at the hatchery. More frequent monitoring is necessary from April through August. Monitoring samples includes a minimum of 10 moribund/dead fish (if available) and 4-6 live fish per lot.
- All fish are given a health inspection no longer than 6 weeks before fish are released or transferred. This exam may be in conjunction with the routine monthly visit.
- Examinations for *Myxobolus cerebralis*, agent of whirling disease, are conducted annually on 60 fish held for a minimum of 180 days at the facility.
- At spawning, a minimum of 60 ovarian fluids and 60 kidney/spleen/pyloric caeca (based on a minimum sampling at the 5% incidence level) are examined for viral pathogens from each salmon lot. If prespawning mortality is above normal, necropsies are conducted on dead adult fish for bacteria, parasites and other causes of death.
- Whenever abnormal behavior is reported or observed, or mortality exceeds 0.1% per day over five consecutive days in any rearing container, the fish pathologist will examine the affected fish, make a diagnosis and recommend the appropriate remedial or preventative measures.
- Reporting and control of specific fish pathogens are conducted in accordance with the Fish Health Management Policy. Results from each examination mentioned above are reported on the ODFW Fish Health or Virus Examination forms.

#### Fish and Egg Movements

- Movements of fish and eggs are conducted in accordance with the Fish Health Management Policy.

### Therapeutic and Prophylactic Treatments

- At spawning, eggs are water-hardened in iodophor for disinfection and incubated in mass in deep troughs.
- Juvenile fish are administered antibiotics orally as needed for the control of bacterial infections and for prevention of diseases.
- Formalin is dispensed into water for control of parasites and fungus on eggs, juveniles and adults. Treatment dosage and exposure time varies with species, life stage and condition being treated.
- Only approved or permitted therapeutic agents are used for treatments:
  - FDA labeled and approved for use on food fish.
  - Allowed by the FDA as an Investigational New Animal Drug.
  - Obtained by extra-label prescription from a veterinarian.
  - Allowed by the FDA as low regulatory priority or deferred regulatory status.
  - Approved by the FDA through USFWS for fish listed under the federal Endangered Species Act.

### Sanitation

- All eggs brought to the facility are surface-disinfected or water-hardened in buffered iodophor.
- Disinfection footbaths (or other means of disinfection) are provided at the incubation facility's entrance and exit areas while embryos are incubating in the facility.
- All equipment (e.g., nets, tanks, rain gear, boots) is disinfected with iodophor between uses with different fish/egg lots or different rearing containers.
- Dead fish are disposed of promptly and in a manner that prevents introduction of disease agents to the waters of the state.
- Rearing units are cleaned on a regular basis.
- Fish transport trucks are disinfected between the hauling of different fish lots.

**Objective 5: Minimize adverse ecological impacts to watersheds caused by hatchery facilities and operations.**

## ***Environmental Monitoring***

Primarily, environmental monitoring is conducted at ODFW facilities to ensure these facilities meet the requirements of the National Pollution Discharge Elimination Permit administered by the Oregon Department of Environmental Quality. It is also used in managing fish health. On a short-term basis, monitoring helps identify when changes to hatchery practices are required. Long-term monitoring provides the ability to quantify water quality impacts resulting from changes in the watershed (e.g., logging, road building and urbanization). The following environmental parameters are currently monitored at all ODFW hatcheries:

- Total Suspended Solids (TSS) – measured quarterly. Two composite samples are collected, one during normal operations and one during cleaning. Some facilities may take more samples because of multiple outfalls.
- Settleable Solids (SS) – measured quarterly. Two grab samples are collected, one during normal operations and one during cleaning. Some facilities may take more samples because of multiple outfalls.
- pH – measured quarterly when settleable solids are measured.
- Total Ammonia and Total Phosphorus – measured quarterly during the first 12 months of the permit when settleable solids are measured.
- Water Temperatures – daily maximum and minimum water temperatures are measured within the hatchery. Temperature units are recorded for egg development in some hatcheries.
- Dissolved Oxygen (DO) – is measured weekly to ensure dissolved oxygen is within acceptable limits.
- Air Temperatures – maximum and minimum temperatures are recorded daily at some stations, but there are no special monitoring requirements.
- Flow Logs – changes in water flows through the hatchery ponds are recorded weekly.

**Objective 6: Communicate effectively with other fish producers, managers and the public.**

### ***Coordination/Communication within ODFW***

Annual Fish Production Meetings: ODFW conducts meetings throughout the state to set annual fish production goals for all public hatcheries in Oregon. These meetings involve the participation of ODFW research, management and fish culture staff as well as representatives from applicable federal agencies and tribes.

Record Keeping: The following records are kept at all ODFW hatcheries:

- Anadromous Adult Transaction Report – details the collection and disposition of all adult fish handled at the facility.
- Mark Recovery Report – details sex, fish length and tag information from all marked adult fish that are captured.
- Egg and Fry Report – records all egg and fry movements, treatments, etc.
- Monthly Pondered Report – updates hatchery operations from the previous month (i.e., current number of fish, size, transfers or releases, feed conversion, mortality, medication, etc.).
- Monthly Progress Report – document summarizing operational activities for the hatchery and all satellite facilities (e.g., fish culture, fish health, fish distribution, maintenance and safety).
- Fish Loss and Treatment Report – records disease problems and daily mortality.
- Fish Loss Report/Investigation – when 1,000 or more juveniles or 10 or more adult fish are accidentally lost in a single accident.
- Predator Mortality Report – documents any fish predators that may die at the hatchery facility.
- Fish Liberation Reports – details information regarding all fish releases (e.g., fish numbers, size, location, method of release, marks, etc.).
- Coded–Wire Tag Release Reports – record of all juvenile fish released with coded-wire tags.
- Length Frequency Record – details fish lengths of all anadromous fish released (based on a sample of the releases).
- Chemical use, feed use report, waste discharge monitoring, purchasing, budget, hazardous materials, safety, vehicles, equipment, maintenance and alarm logs.
- Visitor Log – some facilities record the daily visitor use of the facility; however, this is not a requirement.

Hatchery Management System (HMS): Computerized system to collect, report, summarize and analyze hatchery production data. This system is a tool to be used in production control at all hatchery management levels.

### ***Interagency Coordination/Communication***

Production Advisory Committee (PAC): The Columbia River PAC is comprised of representatives from the regulatory management agencies and tribes. This group meets monthly to discuss

anadromous fish production issues and to provide an opportunity for communication among the anadromous fish hatchery managers.

Technical Advisory Committee (TAC): The Columbia River TAC is comprised of regulatory fish harvest technicians. This group provides management direction used in establishing hatchery fish production goals. TAC meets monthly.

Pacific Northwest Fish Health Protection Committee (PNFHPC): This group is comprised of representatives from U.S. and Canadian fish management agencies, tribes, universities, and private fish operations. The groups meets twice a year to monitor regional fish health policies and to discuss current fish health issues in the Pacific Northwest.

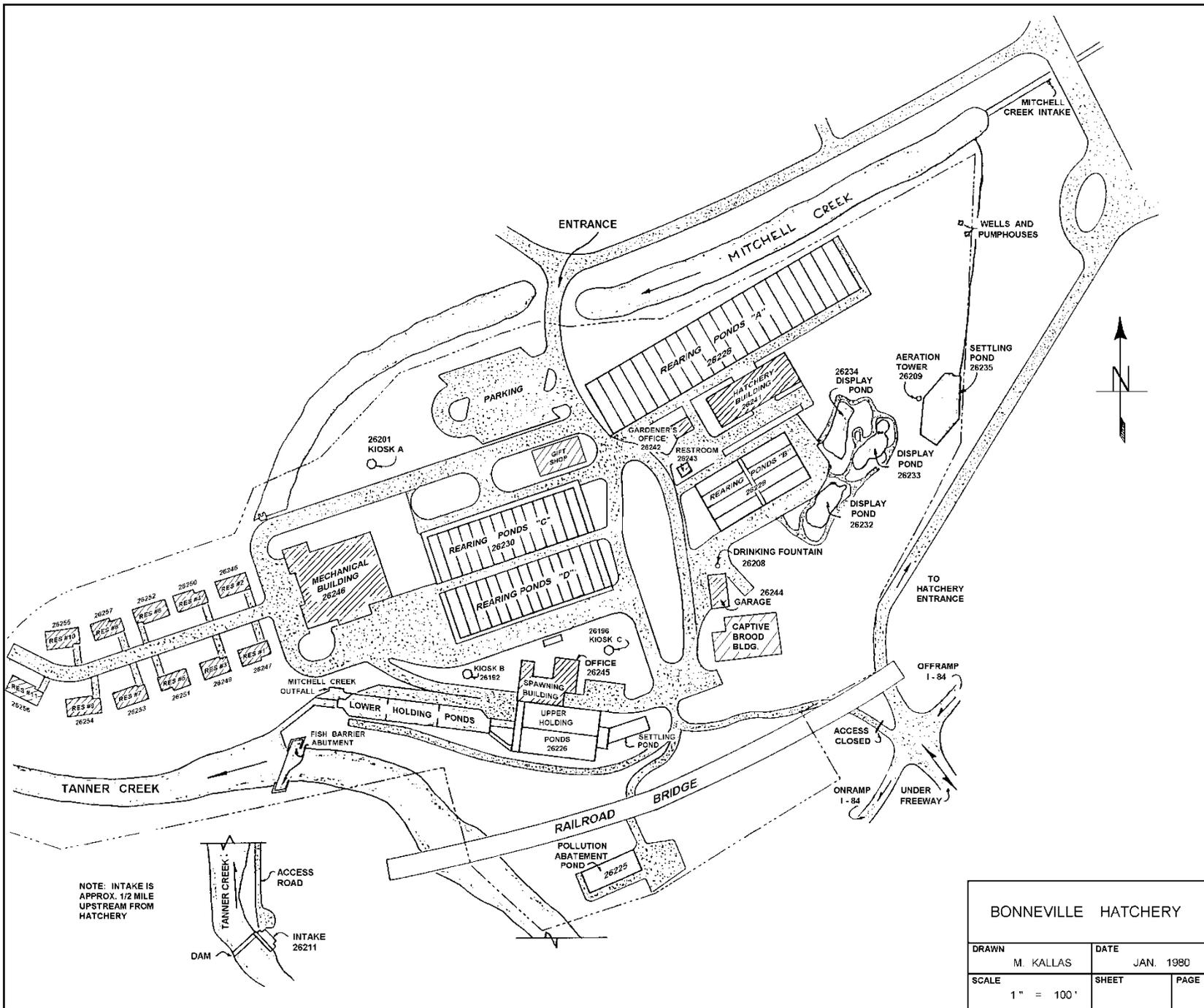
In-River Agreements: State and tribal representatives meet annually to set Columbia River harvests as part of the *U.S. v. Oregon Agreement*. Periodic meetings are also held throughout the year to assess if targets are being met.

In-Season Communications: Communication with PAC, the Columbia River Inter-Tribal Fish Commission, Washington Department of Wildlife, Washington Department of Fisheries, U.S. Fish and Wildlife Service and Idaho Department of Fish and Game takes place each year to coordinate proper fish and egg transfers in an effort to meet basin-wide goals at all facilities, where applicable.

Streamnet ([www/streamnet.org](http://www.streamnet.org)): Hatchery return data are input into StreamNet, a cooperative information management and data dissemination project focused on fisheries and aquatic related data and data related services in the Columbia River basin and the Pacific Northwest. StreamNet is funded through the Northwest Power and Conservation Council's Fish and Wildlife Program by the Bonneville Power Administration and are administered by the Pacific States Marine Fisheries Commission. The data are maintained and disseminated through the Pacific States Marine Fisheries Commission (PSMFC).

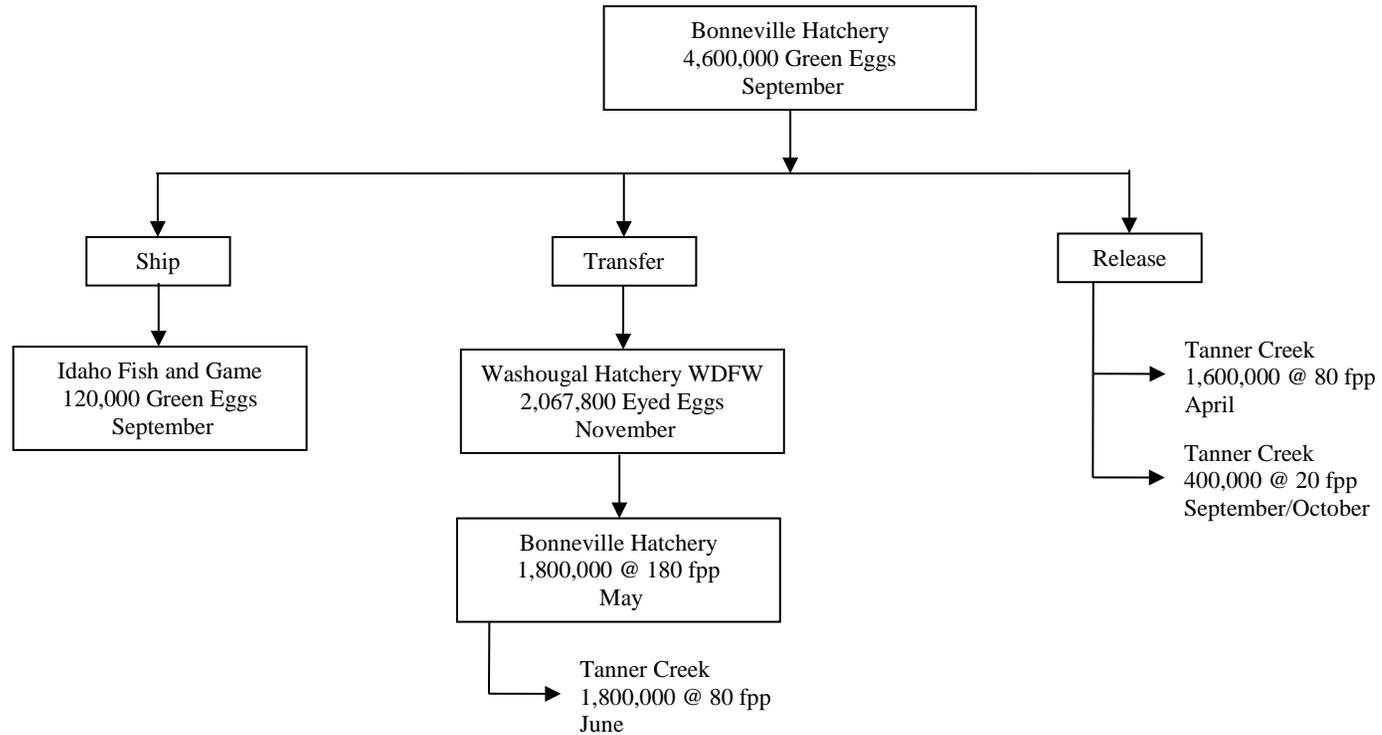
### ***Communication with the General Public***

Bonneville Hatchery receives approximately 500,000 visitors each year.

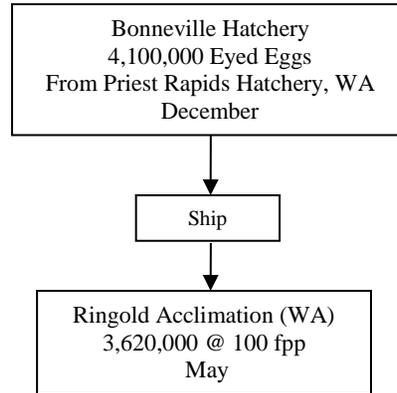


BONNEVILLE HATCHERY			
DRAWN	M. KALLAS	DATE	JAN. 1980
SCALE	1" = 100'	SHEET	PAGE

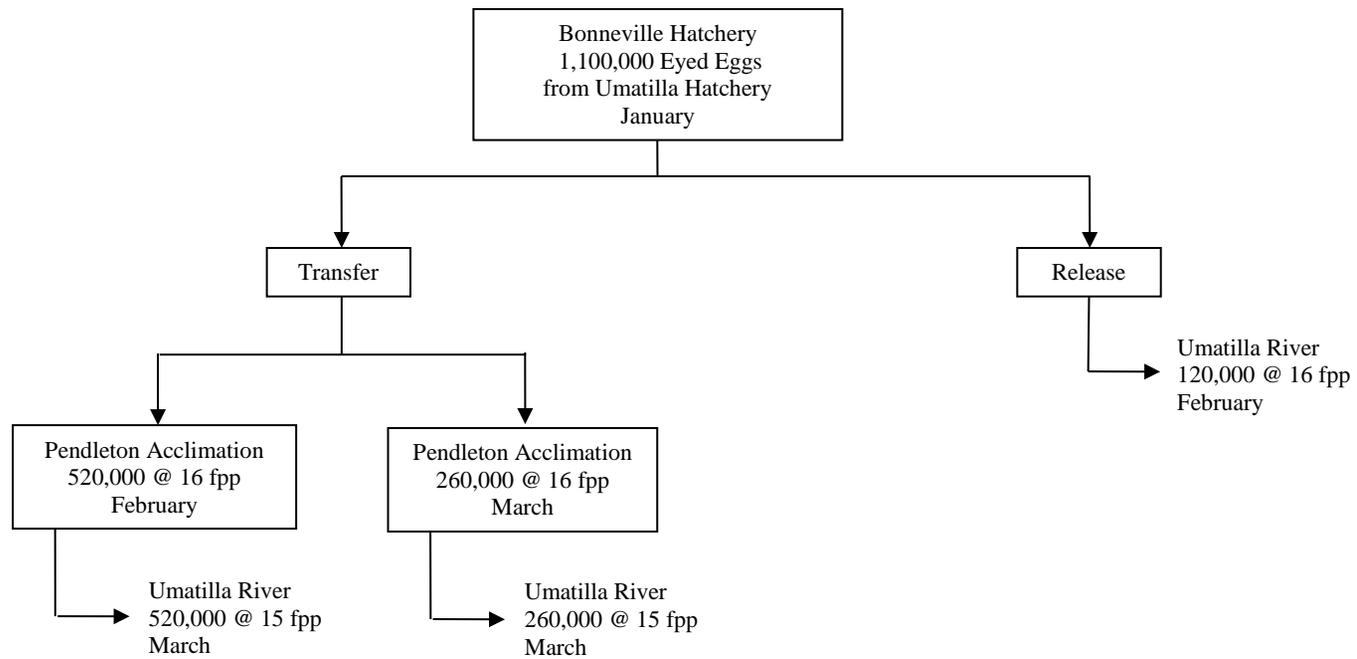
# Bonneville Hatchery Tule Fall Chinook Salmon – Stock 14H (Tanner Creek)



**Bonneville Hatchery**  
**URB Fall Chinook Salmon – Stock 45H (Washington Upriver Bright)**



## Bonneville Hatchery URB Fall Chinook Salmon – Stock 91H (Umatilla River)



**Bonneville Hatchery**  
**URB Fall Chinook Salmon – Stock 110H (Little White Salmon)**

Bonneville Hatchery  
260,000 Fry  
from Oxbow Hatchery  
March

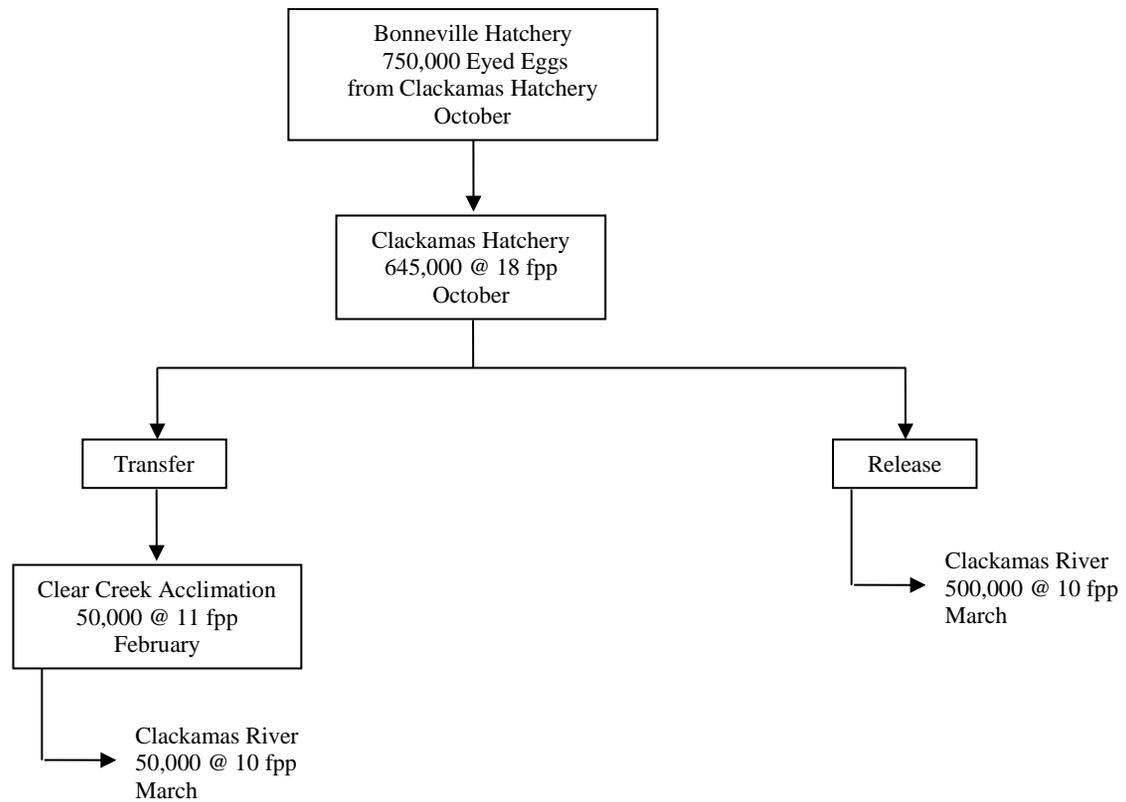


Prosser Hatchery, YN  
210,000 @ 12 fpp  
January

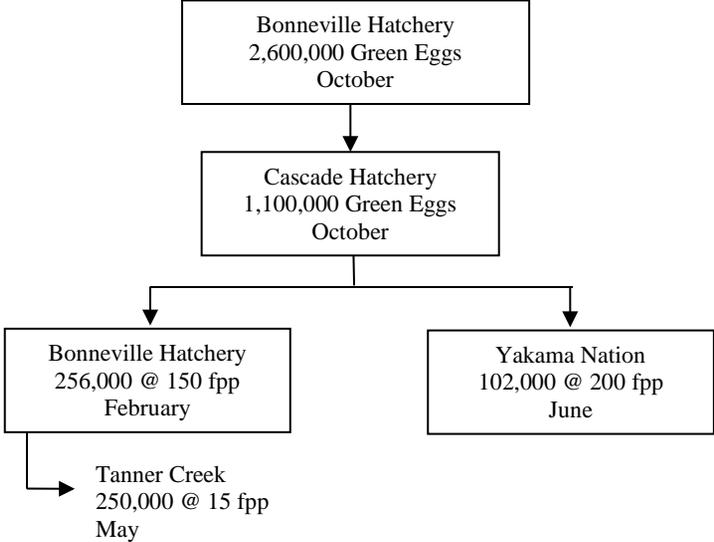


Yakima River  
210,000 @ 10 fpp  
March

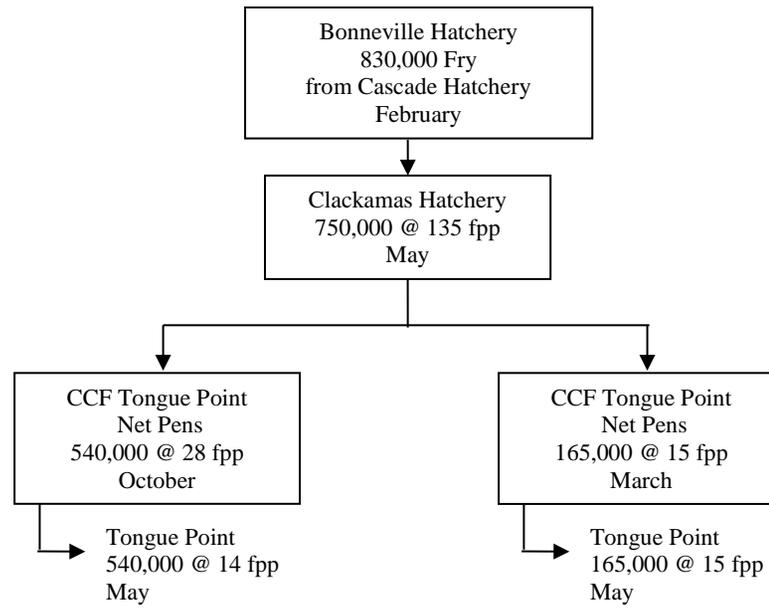
## Bonneville Hatchery Spring Chinook Salmon – Stock 19H (Clackamas River)



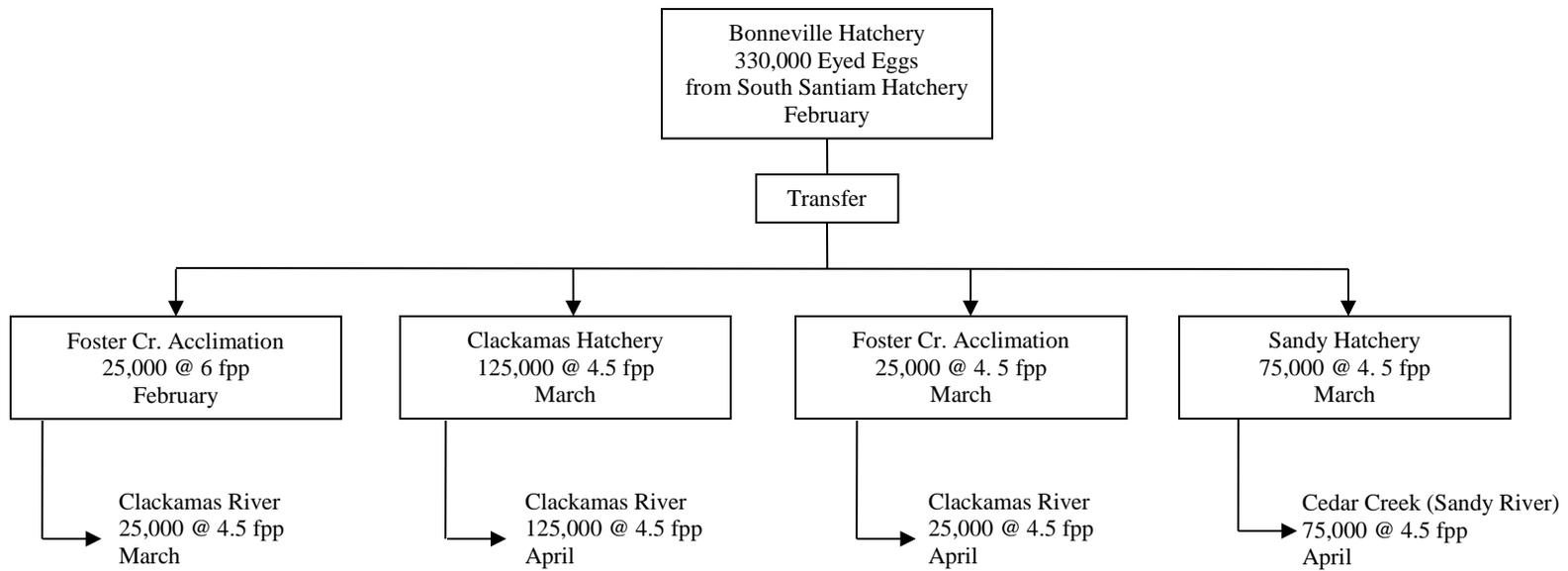
**Bonneville Hatchery  
Coho Salmon – Stock 14H (Tanner Creek)**



## Bonneville Hatchery Coho Salmon – Stock 13H (Big Creek)



## Bonneville Hatchery Summer Steelhead – Stock 24H (South Santiam River)



**Bonneville Hatchery**  
**Winter Steelhead – Stock 122H (Clackamas River)**

