

SANDY HATCHERY



PROGRAM MANAGEMENT PLAN 2017

Sandy Hatchery

INTRODUCTION

Sandy Hatchery is located along Cedar Creek (a Sandy River tributary) 1.5 miles north of Sandy, Oregon, off Highway 26. The hatchery is at an elevation of 500 feet above sea level, at latitude 45° 24' 25" N (45.40694) and longitude 122° 15' 11" W (122.2531). The site area is 12.34 acres.

Water rights total 12,577 gpm from a spring and Cedar Creek. Water is supplied to the hatchery by gravity flow from Cedar Creek with a high flow of 8,000 gpm in March and a low flow of 1,800 gpm in July/August. A small amount of spring water is also used. Adult holding ponds are supplied with water from the rearing ponds.

The facility is staffed with 4 full time employees.

Rearing Facilities at Sandy Hatchery

| Unit Type | Unit Length (ft) | Unit Width (ft) | Unit Depth (ft) | Unit Volume (ft ³) | Number Units | Total Volume (ft ³) | Construction Material | Age | Condition | Comment |
|--------------------|------------------|-----------------|-----------------|--------------------------------|--------------|---------------------------------|-----------------------|------|-----------|---------|
| Adult Holding Pond | 78 | 35 | 3 | 8,190 | 1 | 8,190 | concrete | 1961 | fair | |
| Raceways | 80 | 20 | 3.5 | 5,600 | 20 | 112,000 | concrete | 1966 | poor | |
| Troughs | 14 | 1.4 | 1.17 | 23 | 24 | 552 | concrete | 1966 | fair | |

PURPOSE

Sandy Hatchery began operation in 1951 as a state-funded facility. In 1959, the hatchery became part of the Columbia River Fisheries Development Program (Mitchell Act)—a program to enhance declining fish runs in the Columbia River Basin. In 2013 the facility was returned to state funding, and is managed as part of the Clackamas Hatchery complex. The facility is currently used for the adult collection of spring Chinook, winter and summer steelhead and coho salmon. Winter Steelhead eggs are taken and incubated until eyed stage and then shipped to other ODFW facilities. Coho eggs are taken, hatched, ponded and reared to release on station.

PROGRAM TYPE

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.

Sandy Hatchery programs are harvest programs, used to mitigate loss of fishing and harvest opportunities due to loss of habitat and migration blockage resulting from the Columbia Basin hydropower system, and to augment fishing and harvest opportunities on the Sandy River.

GOALS

Sandy River (11H) Spring Chinook: Mitigate for the loss of spring Chinook catch in sport and commercial fisheries that was lost due to habitat degradation and passage impairment resulting from PGE (Marmot Dam-removed in 2007 and no longer requires mitigation) and City of Portland (Bull Run dams) construction and operation of dams on the Bull Run River.

Sandy River (11H) Coho: Mitigate for the loss of coho salmon catch in sport and commercial fisheries due to habitat and passage loss or degradation as a result of hydropower development on the mainstem Columbia River.

South Santiam River (24H) Summer Steelhead: To provide sport harvest opportunities on hatchery summer steelhead in the lower Columbia River and Sandy River.

Sandy River (11H) Winter Steelhead: To provide sport harvest opportunities on hatchery winter steelhead in the lower Columbia River and Sandy 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.

Brook Trout:

3 Creeks Lake (158W) Stock:

Hold 35,000 fingerlings (175 pounds) for air stocking of high mountain lakes (odd years only).

Spring Chinook:

Sandy River (11H) Stock:

Acclimate 132,000 smolts (13,200 pounds) at Bull Run Acclimation site for release into the Bull Run River.

Coho:

Sandy River (11H) Stock:

Produce 200,000 smolts (13,333 pounds) for on-station release.

Big Creek (13H) Stock:

Produce 200,000 smolts (13,333 pounds) for transfer to Clatsop County Fisheries (CCF) Blind Slough net pens.

Rainbow Trout:

Cape Cod Triploid (72T) Stock:

Hold 10,000 fingerlings (40 pounds) for air stocking of high mountain lakes (odd years only).

Summer Steelhead:

South Santiam River (24H) Stock:

Acclimate 75,000 smolts (16,667 pounds) for on-station release.

Winter Steelhead:

Sandy River (11H) Stock:

Acclimate 160,000 smolts (26,667 pounds) for on-station release.

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

Spring Chinook:

Sandy River (11H) Stock: Adults return to the Sandy River between April and mid-October. Peak spawning occurs from mid-September to mid-October. Adults are collected throughout the run at the Bull Run River trap/weir and/or at other weirs/traps, or by seine/tangle net. Only hatchery-origin fish are collected; all wild fish are passed upstream of the collection sites. Adults are transported throughout the run cycle to Clackamas Hatchery for spawning. A minimum of 100 adults will be collected to meet the smolt production goal of 132,000.

Coho:

Sandy River (11H) Stock: Adults return to the Sandy River between September and mid-December. Peak spawning occurs during the first three weeks of November. Fish are collected at Sandy Hatchery. All wild Coho that are trapped are released into Cedar Creek above the hatchery intake. A segment of hatchery adults collected throughout the run are used for brood. Surplus hatchery adults are either given to The Oregon Food Bank, used for stream enrichment programs, or buried in local landfill. The annual broodstock maximum is 400 adults, 300 females and 100 males.

Big Creek (13H) Stock: No adult collection takes place at this facility; see the Big Creek Hatchery Plan for further information.

Summer Steelhead:

South Santiam (24H) Stock: Adults return to the Sandy River from March through September but can be found in the river year round. Adults are collected at the hatchery are identified as hatchery or wild in origin and the hatchery fish are either recycled back downriver (through July 31st) to provide additional fishing opportunities, given to local food banks or buried in local landfill. (see South Santiam Hatchery Plan for further information).

Winter Steelhead:

Sandy River (11H) Stock: Adults return to the Sandy River between December and April. Peak spawning occurs in March. Fish are collected at the Sandy Hatchery trap and identified as wild or hatchery in origin. Brood fish are collected throughout the run. Wild fish entering the hatchery trap are passed above the hatchery intake. The minimum collection goal is 120 adults; all surplus hatchery fish are recycled back downriver, given to local food banks, or buried in local landfill.

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.

Brook Trout:

3 Creeks Lake (158W) Stock:

Receive 35,000 fingerlings at a size of 200 fish/pound from Fall River Hatchery in late June/early July; hold for air stocking in high mountain lakes in the Cascade and Mid-Columbia Districts (odd years only).

Spring Chinook:

Sandy River (11H) Stock:

Receive 145,000 smolts at a size of 18 fish/pound from Cascade Hatchery in October.

Transfer 66,000 smolts at a size of 10 fish/pound to the Bull Run Acclimation site in February for acclimation and release into the Bull Run River. All fish are fin-clipped and coded wire tagged prior to release.

Transfer 66,000 smolts at a size of 10 fish/pound to the Bull Run Acclimation site in March for acclimation and release into the Bull Run River. All fish are fin-clipped and coded wire tagged prior to release.

Coho:

Sandy River (11H) Stock:

Rear 200,000 smolts to a size of 15 fish/pound; release on-station in mid-April. All fish are fin-clipped and 25,000 are coded-wire tagged prior to release.

Big Creek (13H) Stock:

Rear 200,000 smolts to a size of 15 fish/pound; transfer to CCF Blind Slough net pens in April for acclimation and release into the Columbia River in early May. All fish are fin-clipped and 25,000 are coded-wire tagged prior to transfer.

Rainbow Trout:

Cape Cod Triploid (72T) Stock:

Receive 10,000 fingerlings at a size of 250 fish/pound from Klamath Hatchery in early July; hold for air stocking in high mountain lakes in the Cascade District (odd years only).

Summer Steelhead:

South Santiam (24H) Stock:

Receive 77,500 smolts at a size of 4.5 fish/pound from Bonneville Hatchery in mid-March for acclimation and on-station release of 75,000 smolts in mid-April. All fish are fin-clipped and right maxillary-clipped.

Winter Steelhead:

Sandy River (011) Stock:

Receive 170,000 fingerlings at a size of 20 fish/pound from Oak Springs Hatchery in November for acclimation and on-station release of 160,000 smolts at 6 fish/pound in mid-April. All fish are fin-clipped.

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 Sandy Hatchery:

Brook Trout:

3 Creeks Lake (158W) Stock: Broodstock are maintained at Wizard Falls Hatchery; see the Wizard Falls Hatchery plan for a description of spawning practices.

Spring Chinook:

Sandy River (11H) Stock: Adults are collected throughout the run and trucked to Clackamas Hatchery for holding and spawning. A 1:1 male to female spawning ratio is maintained. Only hatchery fish are utilized as broodstock.

Coho:

Sandy River (11H) Stock: Adults are collected throughout the run without bias for size, run timing, or any other characteristics. A 1:3 male to female spawning ratio is maintained. The major portion of the run is comprised of hatchery fish. Only Sandy River coho is used for brood stock. No wild fish are used in the spawning mix.

Big Creek (13H) Stock: No adults are collected or spawned at this facility; see the Big Creek Hatchery Plan for further information.

Rainbow Trout:

Cape Cod Triploid (72T) Stock: Broodstock are maintained at Roaring River Hatchery; see the Roaring River Hatchery plan for a description of spawning practices.

Summer Steelhead:

South Santiam River (24H) Stock: Broodstock selection and spawning take place at South Santiam Hatchery (see South Santiam Hatchery Plan for additional information).

Winter Steelhead:

Sandy River (11H) Stock: Hatchery-origin fish are collected from the Sandy Hatchery trap throughout the run. Fish are selected and paired at random from the pooled broodstock population and spawned at a 1:1 male to female ratio.

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 Pathology if losses are increasing. Monthly mortality records are submitted to Fish Pathology 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 Sandy Hatchery

Health Monitoring

- Monthly health monitoring examinations of healthy and clinically diseased fish are conducted on each fish lot. The sample 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.
- 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 and juveniles. 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, and 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.
- Rearing units are sanitized after removing fish and before introducing a new fish stock either by thorough cleaning and use of a disinfectant or by cleaning and leaving dry for an extended time.
- A barrier prevents adult salmon or steelhead from entering Cedar Creek above the hatchery intake.

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 composite 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.
- 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) – measured only when conditions warrant (e.g., periods of low flows and high temperatures).
- 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 Poned 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, 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.

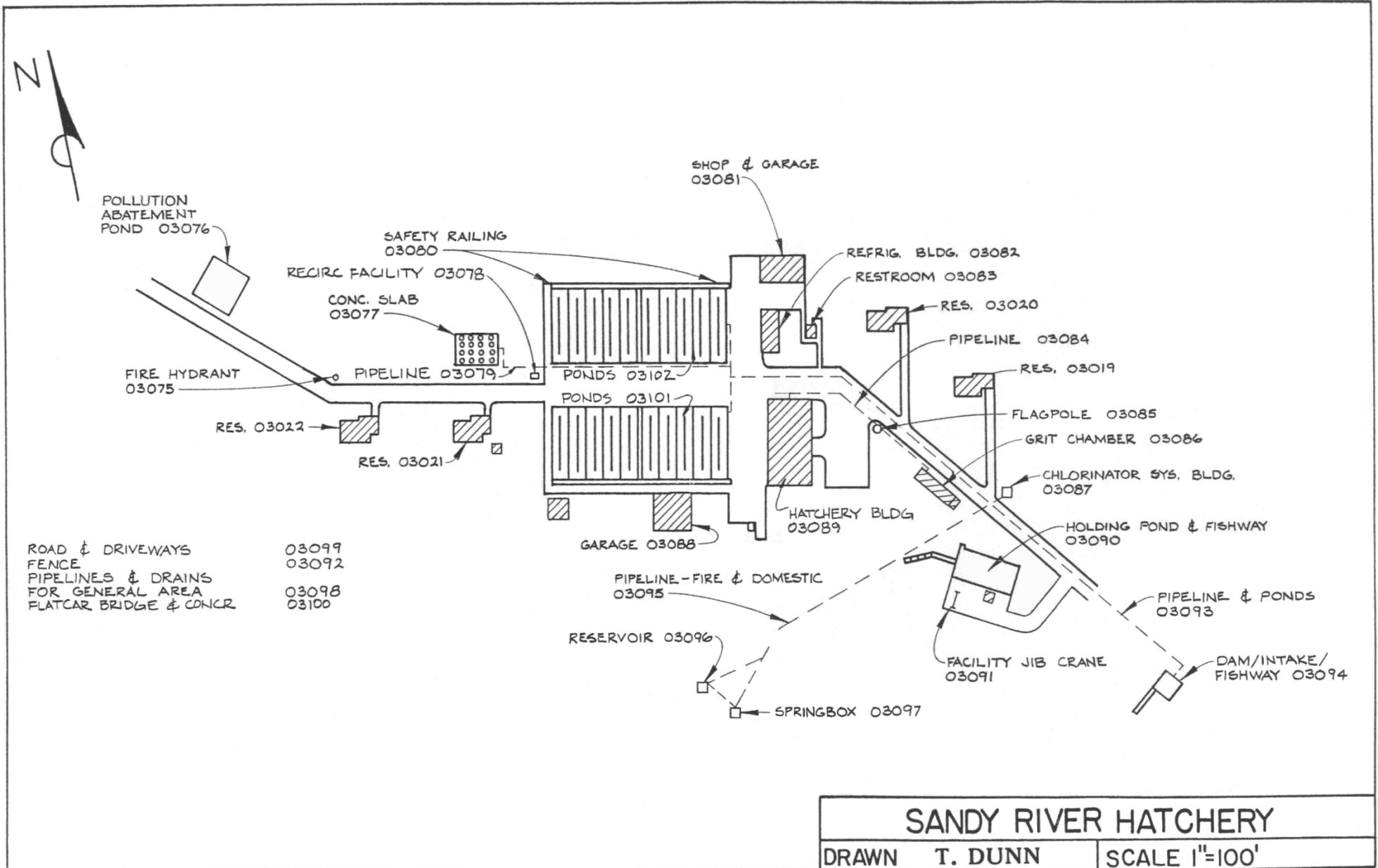
Streamnet ([www/streamnet.org](http://www.streamnet.org)): Hatchery return data are input into StreamNet, a cooperative information management and data dissemination project focused on fisheries and aquatic related data and data related services in the Columbia River basin and the Pacific Northwest. 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).

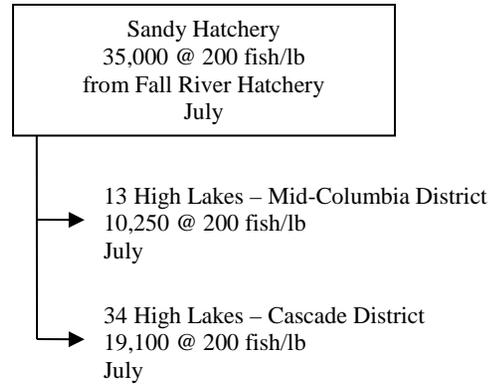
In-Season Communications: Communication with PAC, the Columbia River Inter-Tribal Fish Commission, Washington Department of Wildlife, Washington Department of Fisheries, U.S. Fish and Wildlife Service and Idaho Department of Fish and Game takes place each year to coordinate proper fish and egg transfers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

Communication with the General Public

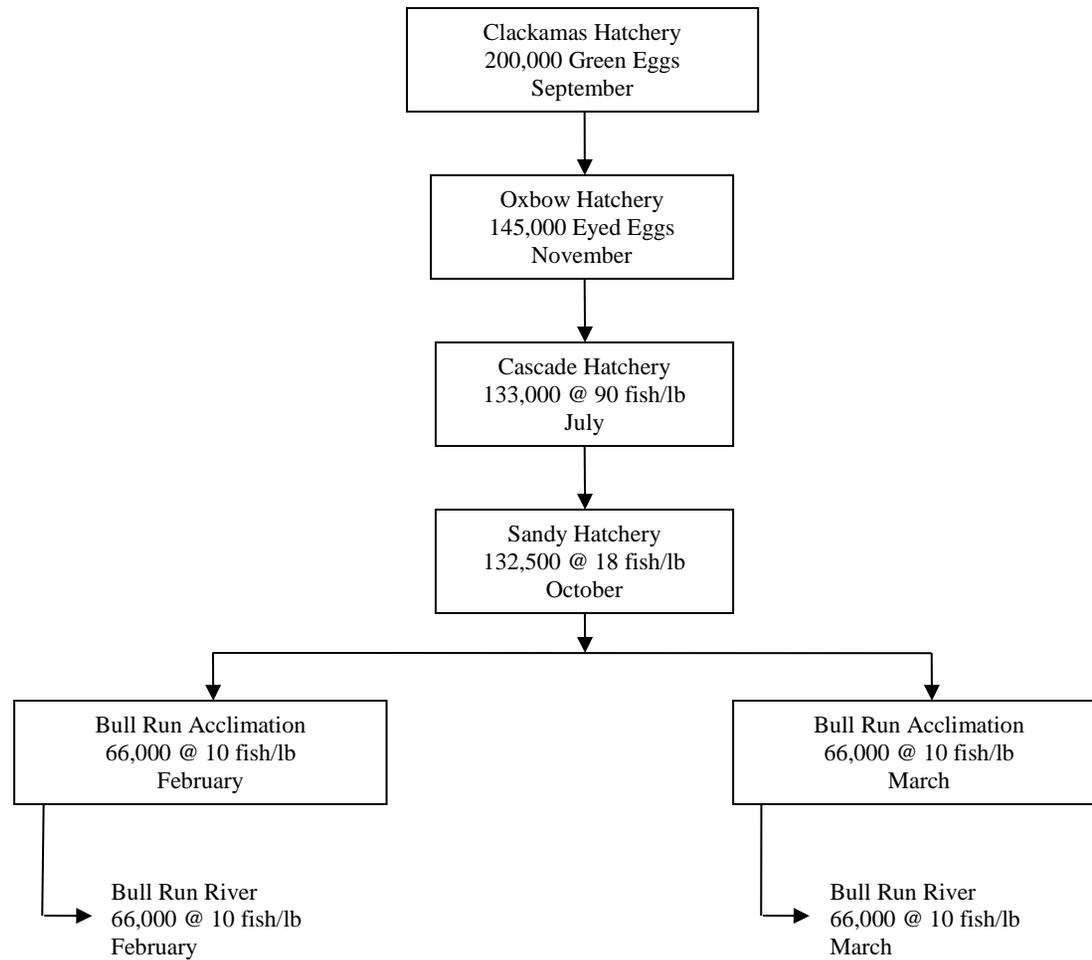
Sandy Hatchery receives approximately 10,000 visitors per year.



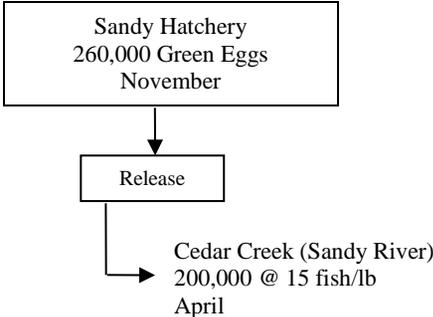
**Sandy Hatchery
Brook Trout – Stock 158W (3 Creeks Lake)
(airstock years only)**



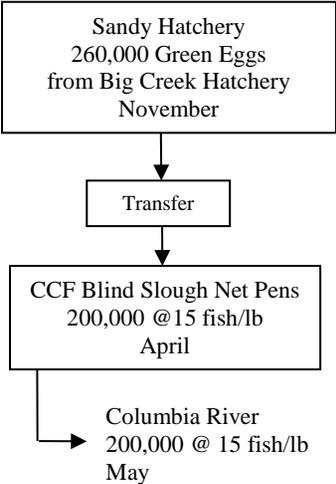
**Clackamas Hatchery
Spring Chinook Salmon – Stock 11H (Sandy River)**



**Sandy Hatchery
Coho Salmon – Stock 11H (Sandy River)**



**Sandy Hatchery
Coho Salmon – Stock 13H (Big Creek)**



**Sandy Hatchery
Rainbow Trout – Stock 72T (Cape Cod Triploid)
(airstock years only)**

Sandy Hatchery
8,000 @ 200 fish/lb
from Fall River Hatchery
July

8 High Lakes – Cascade District
6,900 @ 200 fish/lb
July

Sandy Hatchery
Sumer Steelhead – Stock 24H (South Santiam River)

Sandy Hatchery
77,500 @ 4.5 fish/lb
from Bonneville Hatchery
March

→ Cedar Creek (Sandy River)
75,000 @ 4.5 fish/lb
April

Sandy Hatchery Winter Steelhead – Stock 11H (Sandy River)

