

KLASKANI NE HATCHERY



PROGRAM MANAGEMENT PLAN 2017

Klaskanine Hatchery

INTRODUCTION

Klaskanine Hatchery is located along the North Fork Klaskanine River approximately 12 miles southeast of Astoria, Oregon, on Highway 202. The site is at an elevation of about 25 feet above sea level, at latitude 46° 05' 21" N (46.0890) and longitude 123° 42' 57" W (123.7174). The area of the site is 16.56 acres, owned by ODFW.

Water is supplied by gravity flow and from three intakes located on the North Fork Klaskanine River and North Fork of the North Fork Klaskanine River. The current water right is for 22,442 gpm (50 cfs) although the maximum water usage is 11,000 gpm. Summer/fall water flows are a limiting factor and the hatchery utilizes the entire flow available from the river during this period (about 1,000 gpm). The water delivery system limits the amount of water that can be supplied during high flows.

The facility is staffed with 2.0 FTEs.

Rearing Facilities at Klaskanine 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
Raceways	150	16	2.5	6,000	5	6,000	concrete	1959	fair	
Raceways	80	20	3	4,800	16	76,800	concrete	1951	good	Bottoms replaced in 8 ponds, 1985
Rearing Pond			7	210,000	1	210,000	asphalt	1981	good	0.75 acre pond
Vertical Incubators					320		plastic	1985	good	40 stacks of 7 trays
Rectangular troughs	16	1.3	0.5	10.4	39		fiberglass	?	good	

PURPOSE

Klaskanine Hatchery was first operated in 1911 by the state of Oregon. In 1959 the hatchery was enlarged and renovated under the Columbia River Fisheries Development Program (Mitchell Act)—a program to enhance declining fish runs in the Columbia River Basin. The hatchery is now closely tied to the Select Area Fisheries Enhancement (SAFE) program and works closely with Clatsop County Fisheries (CCF). The facility is currently used primarily for rearing coho for SAFE commercial fisheries, as well as for adult collection and spawning of fall Chinook and as a rearing facility for fall Chinook and winter steelhead.

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.

Klaskanine 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.

GOALS

Fall Chinook: Produce lower river fall Chinook that will contribute to NE Pacific and Columbia River Basin commercial and sport fisheries while providing adequate escapement for hatchery production.

Coho: Produce lower river fall coho that will contribute to NE Pacific and Columbia River Basin commercial and sport fisheries while providing adequate escapement for hatchery production.

Winter Steelhead: Create a consumptive, winter steelhead sport fishery in the Klaskanine River.

OBJECTIVES

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

Fall Chinook:

Select Area Bright (52H) Stock:

Produce 1,200,000 smolts (40,000 pounds) for release into the North Fork Klaskanine River.

Coho:

Big Creek (13) Stock:

Produce 1,750,000 smolts (116,667 pounds) for release into the North Fork Klaskanine River.

Winter Steelhead:

Big Creek (13) Stock:

Acclimate 40,000 smolts (5,714) pounds for direct release into the North Fork Klaskanine 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 used 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 help guide 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:

Tule Chinook (15H) Stock:

Adults may be collected for spawning. Green eggs are transferred to Big Creek Hatchery until their production is achieved. Excess adults are either sold or used for stream enrichment.

Select Area Bright (52H) Stock:

Adults are collected and held for spawning from October to November. When the egg allocation for NF Klaskanine is achieved then green eggs are transferred to Clatsop County Fisheries South Fork Klaskanine Hatchery until their production is met. If available, SF Klaskanine may spawn adults and transfer green eggs to NF Klaskanine to help achieve production. Spawned adults are used for stream enrichment.

Coho:

Klaskanine (15H) Stock: Adults may be held for spawning at this facility from September to November. Green eggs are transferred to Big Creek Hatchery until their production is achieved. Excess hatchery adults collected are sold or used for stream enrichment. Adults are collected at Big Creek Hatchery from early September to November. Spawning occurs from October to November with a peak from late-October to early November.

Klaskanine River (15W) Stock: Wild adults are passed above the hatchery barrier and allowed to spawn naturally.

Winter Steelhead:

Big Creek (13H) Stock: No adults are held for spawning at this facility; any hatchery adults collected are recycled downstream or liberated into Coffenbury Lake for angler harvest. Adults arrive at the Big Creek Hatchery from late November through late February. Peak spawning occurs from mid-January through mid-February.

Klaskanine River (15W) Stock: Wild adults are passed above the hatchery barrier and allowed to spawn naturally.

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:

Select Area Bright (52H) Stock: rear 1,200,000 smolts to a size of 30 fish/pound for release into the North Fork Klaskanine River in mid-July. All fish are LV-clipped and 25,000 are coded-wire tagged prior to release.

Coho:

Big Creek (13H) Stock: Receive 800,000 eyed eggs from Big Creek Hatchery in mid-December; rear 750,000 smolts to a size of 15 fish/pound for release into the North Fork Klaskanine River in early May. All fish are adipose-clipped and 25,000 are coded-wire tagged prior to release

Receive 500,000 pre-smolts at a size of 30 fish/pound from Cedar Creek Hatchery in October and 500,000 presmolts at a size of 34 fish/pound from Upper Herman Creek Ponds in November; rear to a size of 15 fish/pound for release into the North Fork Klaskanine River in late April. All fish are adipose-clipped and 55,000 are coded-wire tagged prior to release.

Winter Steelhead:

Big Creek (13H) Stock: Receive 41,000 smolts at a size of 12 fish/pound in late November for rearing and release at a size of 7 fish/pound into the North Fork Klaskanine River in mid-April. All fish are adipose-clipped at Big Creek Hatchery 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 Klaskanine Hatchery:

Fall Chinook:

Tule Chinook (15H) Stock: All adults are collected throughout the run at the trap and spawned at 1:1 male to female spawning ratio when available. The main spawning and egg incubation takes place at Big Creek Hatchery. See the Big Creek Plan for further information.

Select Area Bright (52H) Stock: All adults are collected throughout the run at the trap and spawned at a 1:1 male to female spawning ratio when available. Only hatchery fish are kept for broodstock.

Coho:

Klaskanine (15H) Stock: All adults are collected throughout the run at the trap and spawned at 1:1 male to female spawning ratio when available. The main spawning and egg incubation takes place at Big Creek Hatchery. See the Big Creek Plan for further information.

Winter Steelhead:

Big Creek (13H) Stock: Spawning and egg incubation take place at Big Creek Hatchery. See the Big Creek Plan for further information.

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 Klaskanine Hatchery

Health Monitoring

- Monthly health monitoring examinations of healthy and clinically diseased fish are conducted on each fish lot at the hatchery. The sample includes a minimum of 10 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.
- 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, 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.

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.
- 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. Effluent and receiving stream temperatures are measured weekly from April to October.
- 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.

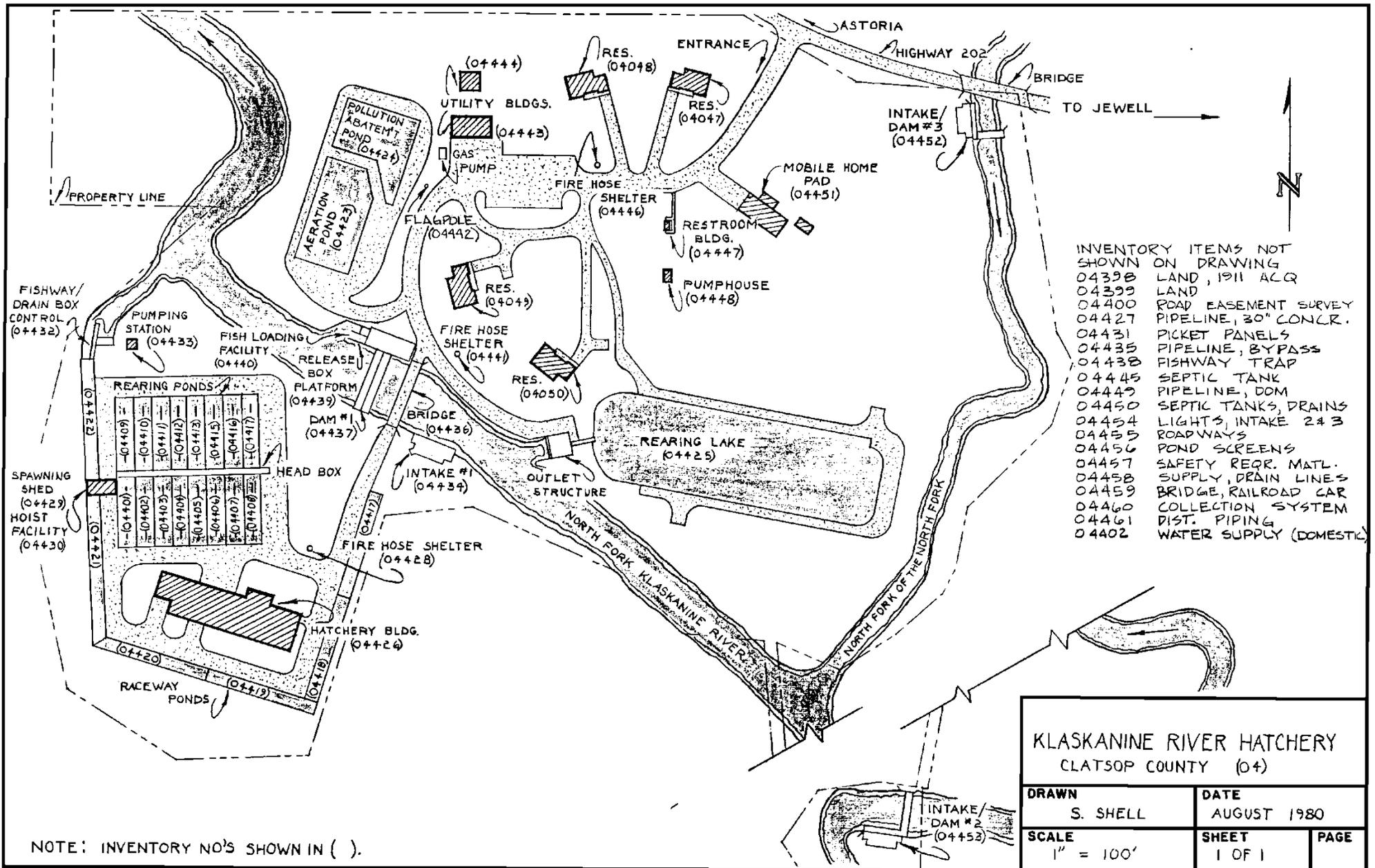
Streamnet (www/streamnet.org): Hatchery return data are input into StreamNet, a cooperative information management and data dissemination project focused on fisheries and aquatic related data and data related services in the Columbia River basin and the Pacific Northwest. StreamNet is funded through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

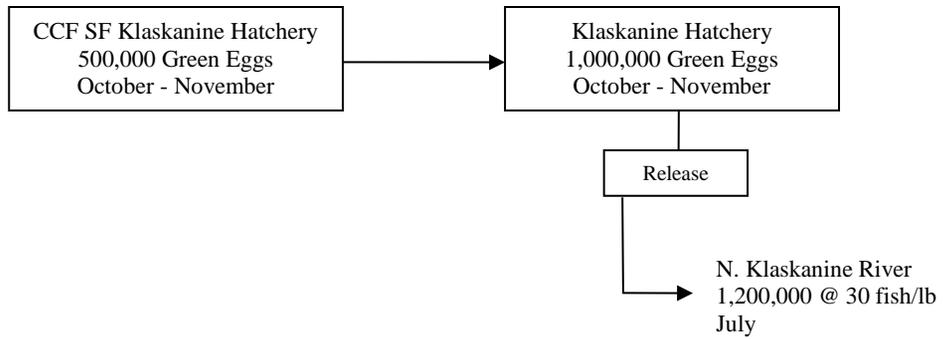
Klaskanine Hatchery receives approximately 5,000 annual visitors.

Klaskanine Hatchery has also provided the opportunity for new NMFS law enforcement recruits to learn about fish culture techniques.

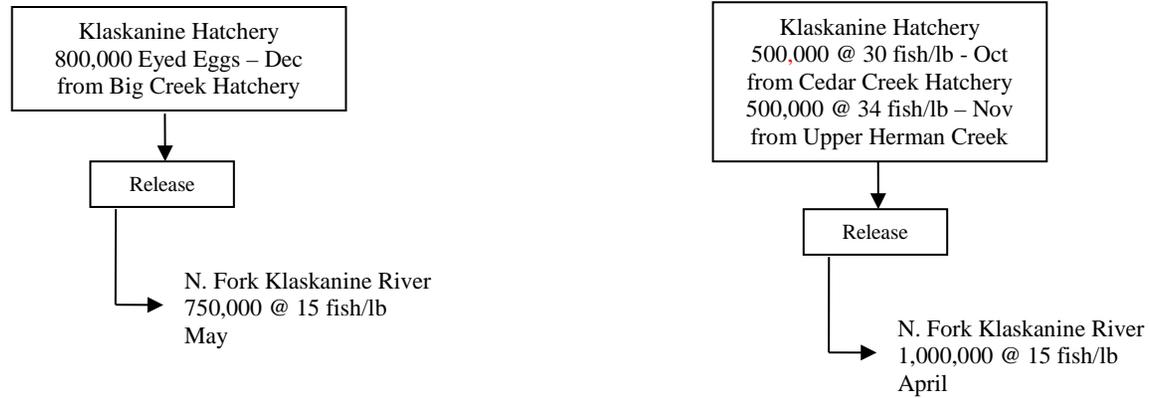


KLASKANINE RIVER HATCHERY CLATSOP COUNTY (04)		
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**Klaskanine Hatchery
Bright Fall Chinook Salmon – Stock 52 (SAB)**



Klaskanine Hatchery Coho Salmon – Stock 13 (Big Creek)



**Klaskanine Hatchery
Winter Steelhead – Stock 13 (Big Creek)**

