NEHALEM HATCHERY

PROGRAM MANAGEMENT PLAN
2024

North Nehalem Hatchery

INTRODUCTION

The North Nehalem Hatchery is located on the North Fork Nehalem River 12 miles East of the town of Nehalem on Highway 53. The site is at an elevation of 160 feet, at latitude 45.6614 and longitude -123.7745. Total land area is 20.53 acres.

The hatchery water is pumped from the North Fork Nehalem River. Water rights are for 23.52 cfs.

The facility is staffed with 3.0 FTE's.

Rearing Facilities at North Nehalem 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	50	26	3.2	3,328	1	3,328	concrete	1966	good	
Raceways	75	16	2.5	3,000	20	60,000	concrete	1966	poor	1 raceway holds the 6 Canadians
Troughs	21	2.6	1.66	91	6	544	fiberglass	1988	good	Canadian troughs
Trough	16	1.2	0.5	10	1	10	aluminum		good	picking trough
Vertical Incubators					144		fiberglass	2019	good	9 stacks of 16 trays
Circulars		3.83	2.08		4	24	fiberglass	2019	good	

PURPOSE

The North Nehalem Fish Hatchery was originally constructed in 1966. The hatchery replaced the Foley Creek Hatchery constructed in 1926. Revenues for funding facility operations are 100% license fees.

The facility is used for adult collection, spawning, egg incubation and rearing of Fall Chinook, Coho, Winter Steelhead and Rainbow Trout.

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.

Nehalem Hatchery programs are harvest programs, used for the augmentation of fishing and harvest opportunities.

GOALS

Fall Chinook:

Trask River (34H) stock: To provide hatchery-produced fish for sport and commercial harvest in both the ocean environment and the Necanicum River Basin.

Coho:

Nehalem (32F) stock: To provide hatchery-produced fish for sport and commercial harvest in both the ocean environment and the Nehalem Bay and North Fork Nehalem River.

Trask River (34F) stock: To provide hatchery-produced fish for sport and commercial harvest in both the ocean environment, Tillamook Bay and the Trask River.

Rainbow Trout: Provide legal and trophy-size rainbow trout for release in various waterbodies to meet statewide program objectives.

Winter Steelhead:

Nehalem (32H) stock: to release approximately 105,000 hatchery winter steelhead smolts in the North Fork Nehalem River (65,000) and the Necanicum River (40,000) with a goal to provide hatchery steelhead adults for recreational harvest in those basins.

Nehalem (32F) stock: to release approximately 25,000 hatchery winter steelhead smolts in the North Fork Nehalem River with a goal to provide hatchery steelhead adults for recreational harvest.

OBJECTIVES

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

Fall Chinook:

Trask River (34H) stock
Produce 25,000 smolts (1,389 pounds) for release into the Necanicum River.

Coho:

Nehalem (32F) stock
Produce 100,000 smolts (6,667 pounds) for on-station release.

Trask River (34F) stock
Produce 100,000 smolts (6,250 pounds) for Trask Hatchery.

Rainbow Trout:

Cape Cod Triploid (72T) stock
Supply 500 eyed eggs for the Tillamook STEP program.

Produce 1,600 fish (1,400 pounds) for Free Fishing Day events at Trask and Whiskey Creek hatcheries.

Produce 5,000 fingerlings (25 pounds) for backpack stocking.

Produce 66,550 legals (33,275 pounds) and 1,550 trophy trout (3,100 pounds) for release into various standing water bodies

Winter Steelhead:

Nehalem (32H) stock
Supply 1,750 eyed eggs for the Tillamook STEP program.

Produce 105,000 smolts (17,500 pounds) for release into the North Fork Nehalem River (65,000) and the Necanicum River (40,000).

Nehalem Wild (32F) stock
Produce 25,000 smolts (4,167 pounds) for release into the North Fork Nehalem 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 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:

Trask River (34H) stock: No adults are collected at Nehalem Hatchery. See the Trask Hatchery Plan for details.

Coho:

N. Fork Nehalem River (32F) stock: Adults arrive at the hatchery from late September through November. Peak spawning occurs in early-November. The adult collection goal is a minimum of 60 males and 60 females.

N. Fork Nehalem River (32W) stock: Adults arrive at the hatchery from early November through December. Peak spawning occurs in early December. The adult collection goal is a maximum of 55 males and 55 females.

Trask River (34H) stock: No adults are collected at Nehalem Hatchery. See the Trask Hatchery Plan for details.

Rainbow Trout:

Cape Cod Triploid (72T) Stock: Broodstock are maintained at Roaring River Hatchery.

Winter Steelhead:

N. Fork Nehalem River (32H) stock: Adults arrive at the hatchery trap from November to March. Peak spawning occurs in January. A minimum of 100 adult pairs are collected

N. Fork Nehalem River Wild (32W) stock: Adults arrive at the hatchery from December to April. Adults are collected by anglers or in the hatchery trap. Peak spawning occurs in February.

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:

Trask River (34H) Stock: Rear 25,000 fish to a size of 18 fpp for release (non-acclimated) into the Necanicum River in early September. All fish are adipose fin-clipped at Trask Hatchery prior to transfer.

Coho:

N. Fork Nehalem River (32F) Stock: Rear 100,000 smolts to a size of 15 fpp for on-station release in late March/early April. All fish are adipose fin-clipped prior to release.

Trask River (34F) stock: Rear 100,000 smolts to a size of 16 fpp for transfer to Trask Hatchery in late March. All fish receive an AD-LM clip prior to transfer.

Rainbow Trout:

Cape Cod Triploid (72T) stock: Rear 5,000 fingerlings to a size of 200 fpp for backpack stocking into Battle Lake in May.

Rear 66,550 fish to a size of 2 fpp for release into various North Coast District lakes from March to May.

Rear 1,200 fish to a size of 1 fpp for a special fishing events such as Whiskey Creek Hatchery in September.

Rear 1,550 fish to a size of 0.5 fpp for release into various North Coast District lakes in mid-September.

None of these fish are marked.

Winter Steelhead:

N. Fork Nehalem River (32H) stock: Rear 105,000 smolts to a size of 6 fpp for release into the North Fork Nehalem River (65,000) and off-station direct release into the Necanicum River (40,000) in early April. All fish are fin-clipped prior to release.

N. Fork Nehalem River Wild (32F) stock: Rear 25,000 smolts to a size of 6 fpp release into the North Fork Nehalem River in mid-April. All fish are fin-clipped prior to release.

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 Nehalem Hatchery:

Fall Chinook:

Trask River (34H) Stock: No adults are collected at Nehalem Hatchery. See the Trask Hatchery report for further information.

Coho:

N. Fork Nehalem (32F) Stock: Adults are collected at the trap from throughout the run. Adults are spawned at a 1:1 spawning ratio using a matrix spawning technique.

N. Fork Nehalem (32W) Stock: Adults are collected by angling or at the trap from throughout the run. Adults are spawned at a 1:1 male to female spawning ratio using a matrix spawning technique.

Trask River (34H) Stock: No adults are collected at Nehalem Hatchery. See the Trask Hatchery report for further information.

Rainbow Trout:

Cape Cod Triploid (72T) stock: No broodstock are kept at the hatchery.

Winter Steelhead:

N. Fork Nehalem (32H) stock:
Adults are collected at the trap from throughout the run. Adults are spawned at a 1:1 male to female spawning ratio using a matrix spawning technique.

N. Fork Nehalem Wild (32W) stock:
Adults are collected by angling or at the trap throughout the run. Adults are spawned at a 1:1 male to female spawning ratio using a matrix spawning technique. Only naturally-produced adults are used for spawning.

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 Nehalem Hatchery

Health Monitoring

- 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.
- Monthly health monitoring examinations of healthy and clinically diseased fish are conducted on each fish lot at the hatchery.
- Examinations for *Myxobolus cerebralis*, agent of whirling disease, are conducted every 3 years 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 coho salmon stock. If prespawning mortality is above normal, necropsies are conducted on dead adult fish for bacteria, parasites and other causes of death.
- At spawning, a minimum of 60 ovarian fluids based on a minimum sampling at the 5% incidence level) are examined for viral pathogens from each winter steelhead stock. 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, 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.
- Different lots of fish/eggs are physically segregated from each other by separate ponds, incubator units and water supplies. Some of the incubators have sheet metal splash guards to decrease cross contamination between incubator stacks.
- 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.
- 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 whenever flows are altered for hatchery management activities (i.e., ponding of fish, splitting of fish lots, fish releases, etc.).

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 Ponded 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.

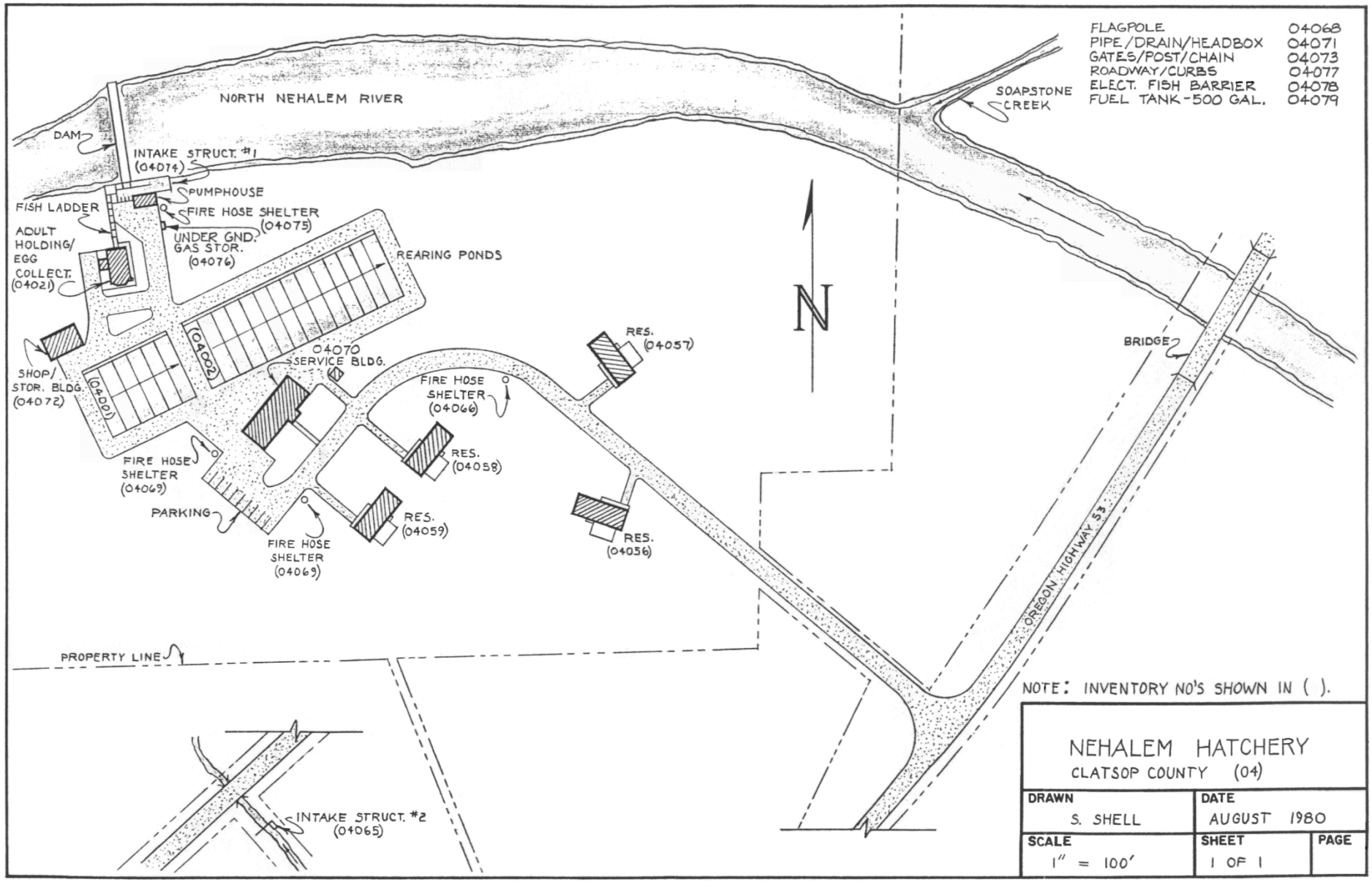
Hatchery Management System (HMS): Computerized system to collect, report, summarize and analyze hatchery production data. This system is a tool to be used in production control at all hatchery management levels.

Interagency Coordination Communication

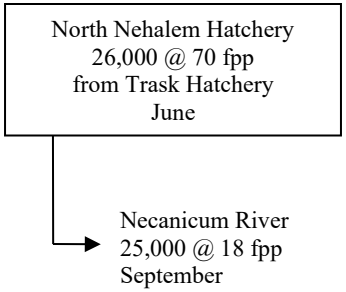
Pacific Northwest Fish Health Protection Committee (PNFHPC): This group is comprised of representatives from U.S. and Canadian fish management agencies, tribes, universities, and private fish operations. The groups meets twice a year to monitor regional fish health policies and to discuss current fish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

Communication with the General Public

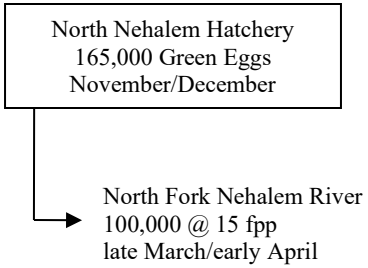
Nehalem Hatchery receives approximately 5,500 visitors each year.


NORTH NEHALEM RIVER
DAM
INTAKE STRUCT. #1 (04074)
PUMPHOUSE
FISH LADDER
FIRE HOSE SHELTER (04075)
UNDER GND. GAS STOR. (04076)
ADULT HOLDING/ EGG COLLECT. (04021)
REARING PONDS
(04002)
(04001)
SHOP/ STOR. BLDG. (04072)
04070 SERVICE BLDG.
RES. (04057)
FIRE HOSE SHELTER (04066)
RES. (04058)
FIRE HOSE SHELTER (04069)
PARKING
RES. (04059)
FIRE HOSE SHELTER (04069)
RES. (04056)
SOAPSTONE CREEK
BRIDGE
OREGON HIGHWAY 53
PROPERTY LINE
INTAKE STRUCT. #2 (04065)
N
FLAGPOLE 04068
PIPE./DRAIN/HEADBOX 04071
GATES/POST/CHAIN 04073
ROADWAY/CURBS 04077
ELECT. FISH BARRIER 04078
FUEL TANK-500 GAL. 04079
NOTE: INVENTORY NO'S SHOWN IN ( ).
NEHALEM HATCHERY
CLATSOP COUNTY (04)
DRAWN S. SHELL
DATE AUGUST 1980
SCALE 1" = 100'
SHEET 1 OF 1
PAGE

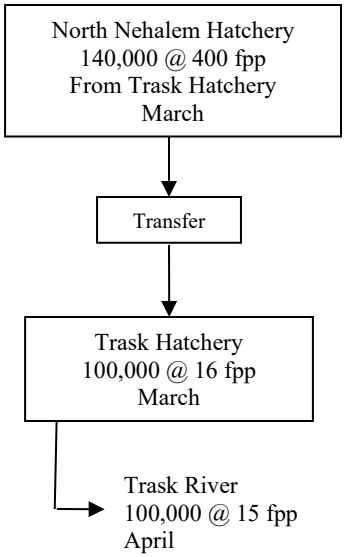
North Nehalem Hatchery
Fall Chinook Salmon – Stock 34H (Trask River)



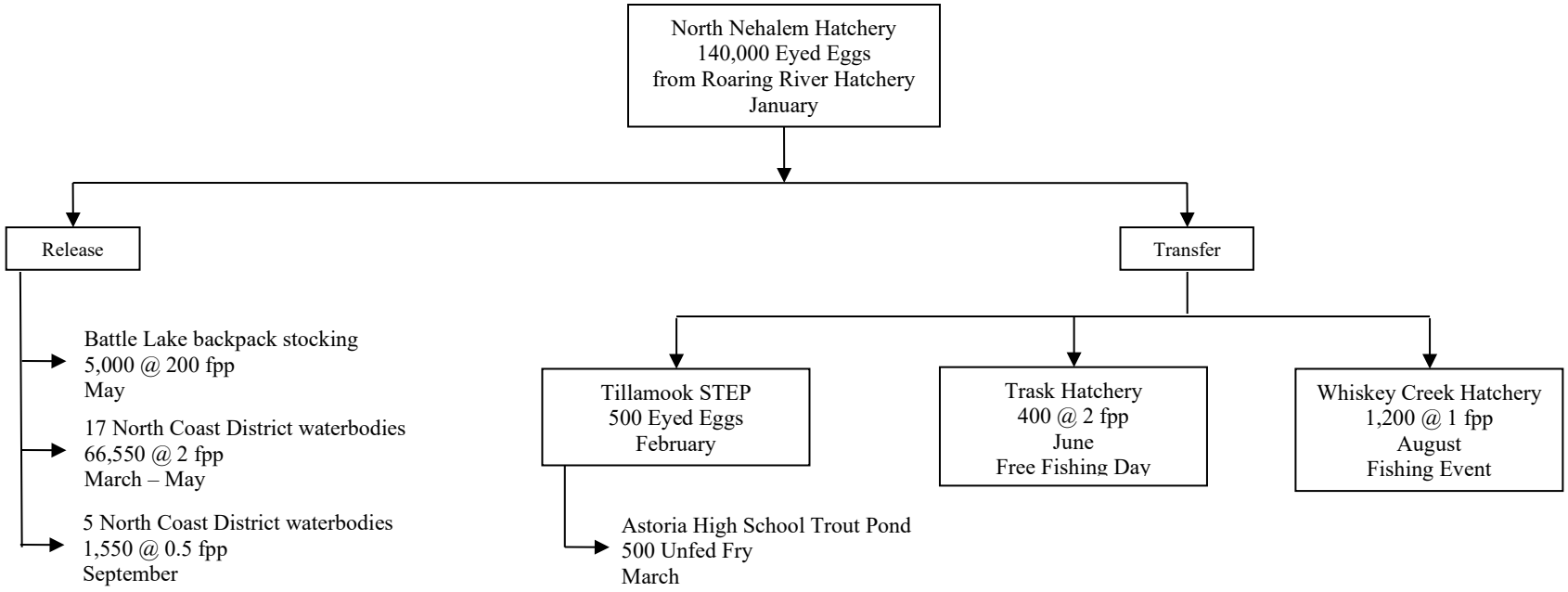
North Nehalem Hatchery
Coho Salmon – Stock 32F (North Fork Nehalem River)



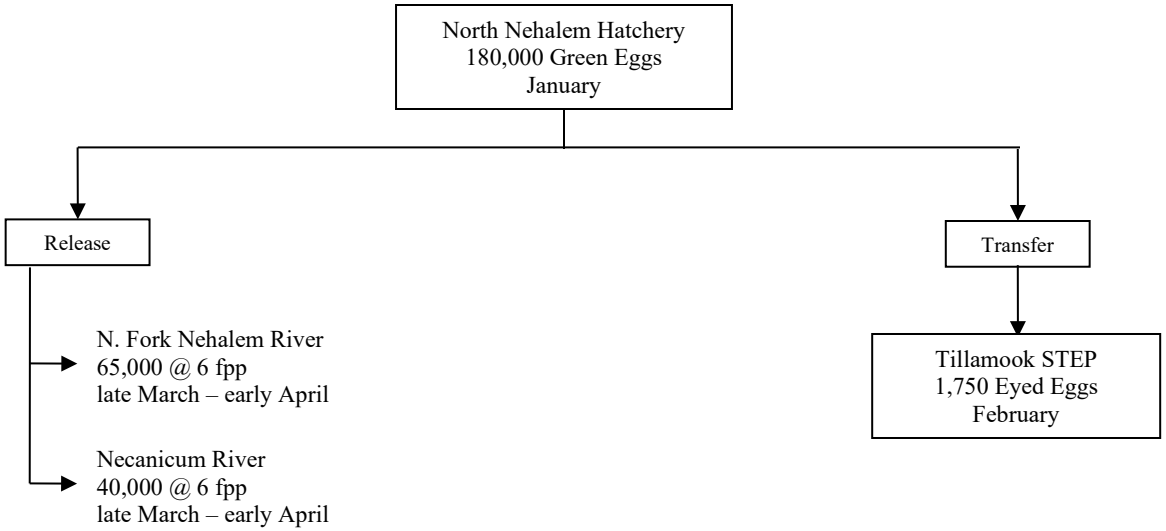
North Nehalem Hatchery
Coho Salmon – Stock 34F (Trask River)



North Nehalem Hatchery
Rainbow Trout – Stock 72T (Cape Cod Triploid)



North Nehalem Hatchery
Winter Steelhead – Stock 32H (North Fork Nehalem River)



North Nehalem Hatchery
Winter Steelhead – Stock 32F (North Fork Nehalem River Wild)