

ELK RIVER HATCHERY



PROGRAM MANAGEMENT PLAN 2023

Elk River Hatchery

INTRODUCTION

Elk River Hatchery is located 7.5 miles upriver from Highway 101 just north and east of the City of Port Orford. Site is at an elevation of approximately 108 feet above sea level, at latitude 42.7389 and longitude -124.4028. The hatchery area is 13.2 acres.

Elk River water is pumped from a screened intake to supply modified Burrows rearing ponds, and from a well, which pumps water to the egg incubation facility and adult holding tanks. Water rights are for 20.015 cfs.

The facility is staffed with 4 FTE's.

Rearing Facilities at Elk River 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	75	17	3	3,825	24	91,800	concrete	40	Good	modified Burroughs ponds
Vertical Incubators					560					35 stacks of 16 trays (new in 2011)

PURPOSE

The major portion of Elk River Hatchery construction was completed in 1968. In the late 1970's the hatchery intake and ten new ponds completed final construction. Revenues for funding facility operations are from General funds.

The hatchery produces fall Chinook for ocean commercial and sport fisheries, recreational fisheries on the Elk River and Chetco River, and to supplement natural production for depressed populations in the region. The hatchery also produces legal and trophy size rainbow trout for release in various Rouge basin and South coast standing waterbodies and it produces winter Steelhead to provide for sport fishing on the Chetco River.

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.

Elk River Hatchery programs are harvest and conservation programs, used for the augmentation of fishing and harvest opportunities. The Smith River Fall Chinook program is an integrated recovery program intended to increase production in areas of suitable habitat that are presently underutilized.

GOALS

Fall Chinook:

Elk River (35H) stock: to provide fish for commercial and sport fishing harvest, while minimizing any potential adverse impacts to the wild population of this species or other species.

Chetco River (96H) stock: to provide fish for commercial and sport fishing harvest, while minimizing any potential adverse impacts to the wild populations, particularly the SONCC Coho which is a threatened population under the federal ESA.

Lower Umpqua/Smith River (151H) Stock: to aid the recovery of Fall Chinook in sub-basins which have adequate habitat but depressed population levels. Program fish are intended to be reproductively integrated with naturally produced Chinook in the target streams to help aid the recovery of the sub-basin's population. A goal of 10 – 15 returning spawners per mile is used as a baseline objective to aid recovery.

Rainbow Trout: Produce legal size triploid rainbow trout for Rogue Watershed District standing water bodies to meet management program objectives.

Winter Steelhead:

Chetco River (96H) stock: to provide fish primarily for angler harvest that are genetically and ecologically similar to wild populations to minimize any potential impacts to wild populations in the Chetco River Basin.

OBJECTIVES

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

Fall Chinook:

Elk River (35H) stock

Produce up to 250,000 unfed fry for release into Garrison Lake.

Produce 275,000 smolts (25,250 pounds) for release into Elk River.

Chetco River (96H) stock

Provide 200 eggs to STEP.

Produce 165,000 smolts (13,750 pounds) for release into Chetco River.

Produce 35,000 smolts (2,917 pounds) for transfer to Ferry Creek acclimation site.

Smith River (151H) stock

Produce 70,000 smolts (7,000 pounds) for transfer to Winchester Bay Acclimation

Rainbow Trout:

Cape Cod (72T) or Oak Springs (053T) stock

Provide 8,200 legal-size and trophy trout (5,233 pounds) for release into various standing water bodies.

Winter Steelhead:

Chetco River (96H) stock

Provide 1,400 eggs to STEP.

Produce 50,000 smolts (8,333 pounds) for release into the Chetco 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 preventive, therapeutic and disinfection 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 and resident 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, the Coastal Multispecies Conservation and Management Plan, and Hatchery Genetic and 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:

Elk River (35) stock: Adults arrive at the hatchery trap between October and January. Peak spawning occurs during late December. The program goal is to collect at least 250 pairs to use for broodstock. Tangle netting of wild fall Chinook broodstock may be conducted in the lower 4 miles of the mainstem October through January.

Chetco River (96) stock: Entry of adults into the Chetco River occurs from mid-October through mid-January. Peak spawning occurs during early December. Adults are collected by seining and are trucked to Elk River Hatchery and held for spawning. The goal is to collect at least 60 pairs of adults from wild and hatchery origin.

Smith River (151H) Stock: Adults arrive at the collection sites between August and November. Peak spawning occurs during October. Adults are collected at Mill Creek Trap, Paradise Creek Trap, Winchester Creek and Weatherly Creek Trap; additional broodstock may be collected by use of tangle nets and angling. Adults are transported to the Gardiner STEP Facility for spawning. One adult is kept out of every four that enter the traps. The annual collection goal is 55 pairs.

Rainbow Trout:

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

Oak Springs (53T) stock: Broodstock are maintained at Oak Springs Hatchery.

Winter Steelhead:

Chetco River (96) stock: Entry of adults into the Chetco River occurs from early December through late April. Peak spawning occurs in late March. Adults are collected from the river by ODFW and volunteers using hook and line and trucked to Elk River Hatchery and held for spawning. The goal is to incorporate at least 65% of adults from wild origin.

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

Implement CMP Actions

The Coastal Multi-Species Conservation and Management Plan (CMP) identified Elk River fall Chinook as non-viable due to the high proportion of hatchery-produced Chinook in the natural spawning population (pHOS). The pHOS goal adopted in the CMP is 30%, averaged across the basin. Actions identified in the CMP to reduce pHOS include:

- Trap during the entire run in order to collect as many returning hatchery-produced fall Chinook as possible (implemented 2012 brood year).
- Remove hatchery fish from Anvil and Rock Creeks through the use of weirs and traps if feasible (implemented 2015 – 2016 brood years).
- Improve genetic diversity when gathering broodstock (implemented 2015 brood year).
- Enlist the help of the Oregon Hatchery Research Center to develop better attraction into the hatchery (ongoing – project initiated 2015 brood year).
- Improve nutrient enrichment above the hatchery if there are no disease concerns (implemented 2012 brood year – spawned Elk River Chinook carcasses are placed in Elk River upstream from the hatchery).

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. Elk River stock fall Chinook are reared on parent river water for nine to twelve months prior to liberation to ensure strong homing to the hatchery, thus reducing the stray rate to natural populations. Chetco stock fall Chinook and winter steelhead are liberated to the parent river and display strong homing without extended acclimation. 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:

Elk River (35H) stock:

Rear 255,000 smolts to a size of 12 fish/pound for on-station release into Elk River during mid-September to mid-November. All fish are ad-clipped and coded-wire tagged prior to release.

Rear 20,000 smolts to a size of 5 fish/pound for on-station release into Elk River in early March. All fish are ad-clipped and coded-wire tagged prior to release.

Up to 250,000 unfed fry (900 fish/pound) are released into Garrison Lake in mid-March. The unfed fry are surplus to the smolt program.

Chetco River (96H) stock:

Rear 165,000 smolts to a size of 12 fish/pound for non-acclimated release into the Chetco River during mid-October. All fish are ad-clipped and a portion are coded-wire tagged prior to release.

Rear 35,000 smolts to a size of 12 fish/pound for transfer to Ferry Creek Acclimation site in mid-October for acclimation and release into the Chetco River in late October. All fish are ad-clipped and coded-wire tagged prior to release.

Fall Chinook: Smith River (151H) stock:

Produce 70,000 smolts at a size of 10 fish/pound for transfer to Winchester Bay in late September for acclimation and release into the Umpqua River in mid-September. All fish are ad-clipped, and a portion are coded-wire tagged prior to transfer.

Rainbow Trout:

Cape Cod (72T) or Oak Springs (053T) stock: Rear 8,200 fish to 3.0 – 0.2 fish/pound for release into various South Coast District standing water bodies April – August.

Winter Steelhead:

Chetco River stock (96H):

Rear 50,000 fish to a size of 6 fish/pound for non-acclimated release into the Chetco River during late March to mid-April. All fish are ad-clipped, and a portion are coded-wire tagged 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 Elk River Hatchery:

Fall Chinook:

Elk River (35) Stock: Adults are collected from throughout the run and spawned entirely using the full factorial matrix method. Age composition of spawned males is up to 2% jacks, 30% 3+ and 55-60% 4+. Criteria for spawning are: 1) spawn all wild Chinook collected at the trap; 2) only spawn female hatchery Chinook over 800 mm fork length in order to prevent over representation of age 3 Chinook; 3) spawn females with larger males if possible, except that; 4) jacks should be utilized for 2% of the spawn. At least 9 spawn groups, collected from throughout the run, should be included in the smolt program. Only Elk River stock is used for broodstock. Excess eggs are taken for genetic reasons.

Chetco River (96) stock (H/W): Adults are seined from the Chetco River and transferred to Elk River Hatchery. Adults are spawned entirely using the full factorial matrix method. Age composition of spawned males is up to 4% jacks, 30% 3+ and 55-60% 4+. Criteria for broodstock collection and spawning are: 1) collect all wild Chinook; 2) collect only hatchery

Chinook over 800 mm fork length in order to prevent over representation of age 3 Chinook; 3) spawn females with larger males if possible, except that; 4) jacks should be utilized for 4% of the spawn. Broodstock is to be 70%-80% wild spawners. Excess eggs are taken for genetic reasons.

Smith River (151H) Stock: Adults are collected throughout the run and are spawned at a 1:1 male to female ratio, in a matrix procedure. Jacks are incorporated at random proportional to population. The broodstock must contain at least 10% wild fish; up to 100% wild fish have been utilized.

Rainbow Trout:

Cape Cod (72T) or Oak Springs (53T) stock: No broodstock are maintained on the hatchery.

Winter Steelhead:

Chetco River (96) stock: Adults are collected by ODFW, and volunteers using hook and line from the Chetco River and are transferred to Elk River Hatchery. Adults are live spawned entirely using the full factorial matrix method. Only Chetco River stock is used for broodstock. Broodstock is to be at least 65% wild spawners. Excess eggs are taken for genetic reasons. Recovered adults are transferred back into the Chetco River.

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 Elk River 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 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 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 and disinfected in iodophor at 100 ppm for one hour.
- Juvenile fish are administered antibiotics orally as needed to control bacterial infections.
- Formalin is dispensed into incubation water for control of fungus on eggs. 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

- 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 or Virkon Aquatic 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.
- Different lots of fish/eggs are physically segregated from each other by separate ponds, incubator units and water supplies.
- 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 Pollutant 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. 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).
- 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:

- All 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. Data is collected by the Marine Resource Program and is not stored at the hatchery.
- 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.

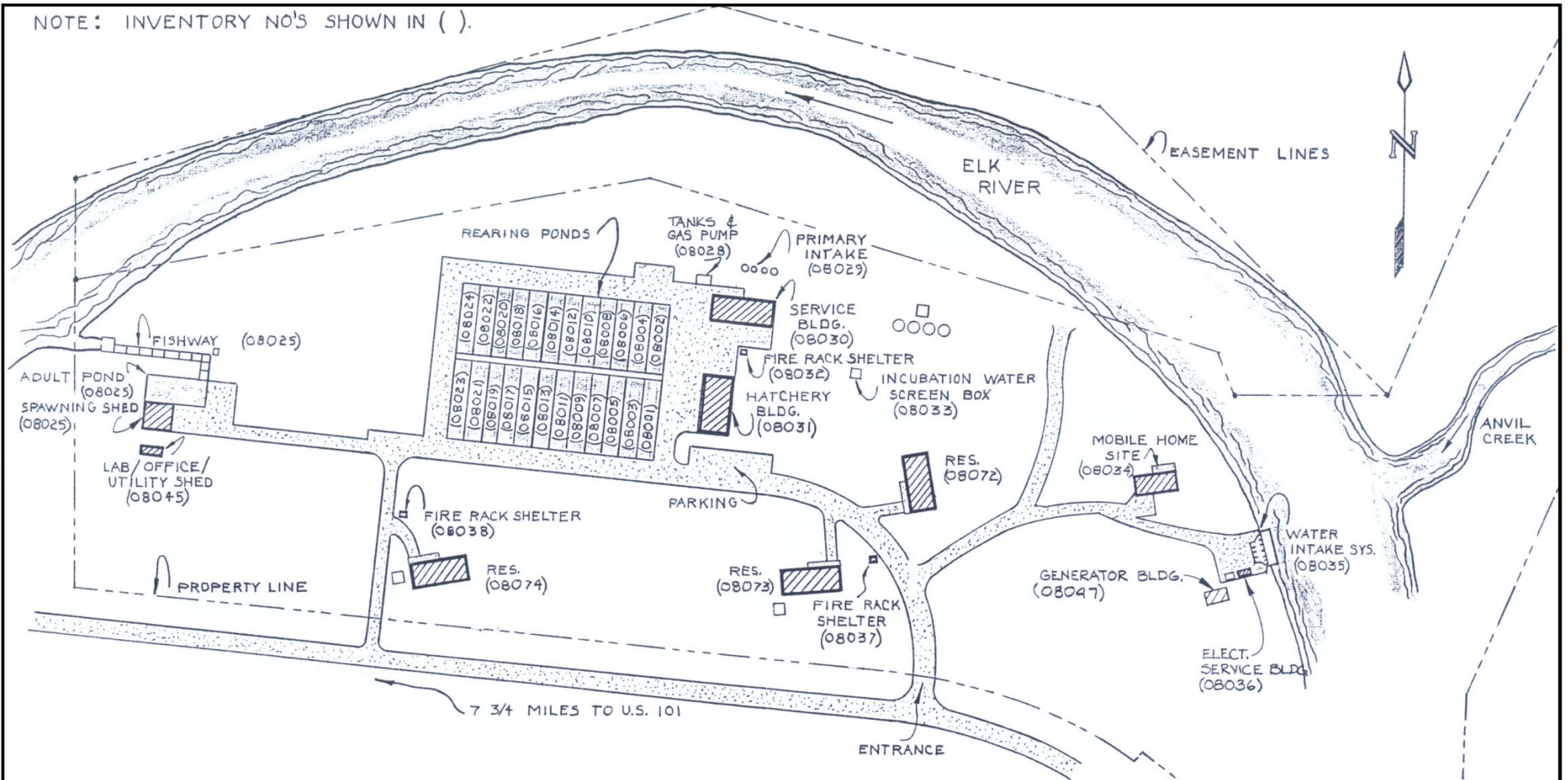
Interagency Coordination Communication

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

Elk River Hatchery welcomes approximately 2,500 visitors annually. In addition a boat launch site and public river access is utilized by many private and guided fishermen.

NOTE: INVENTORY NO'S SHOWN IN ().



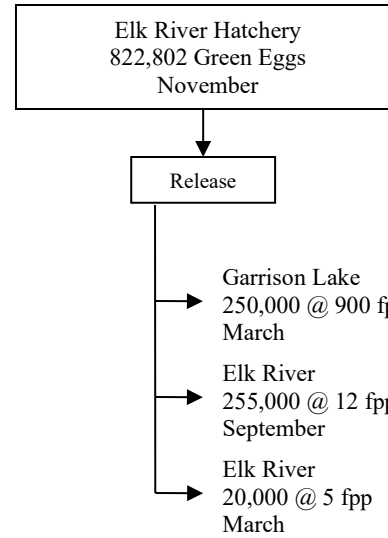
INVENTORY ITEMS NOT SHOWN ON DRAWING

- 08026 FENCE
- 08027 HANDRAILS
- 08039 GRADING, LANDSCAPING
- 08040 ROADWAYS, DRIVEWAYS
- 08041 BURIED ELECT. SERV.
- 08042 POND WIRING, LAMPS
- 08043 ELECT. SYS. TO INTAKE 3
- 08044 PIPE, DRAIN & WATER
- 08071 LAND ACQUISITION

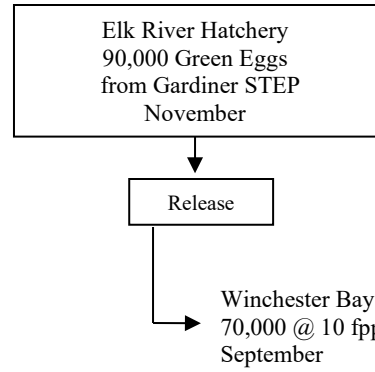
08046 INCUBATION WATER WELL

ELK RIVER HATCHERY CURRY COUNTY (08)		
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S. SHELL	JULY 1980	
SCALE	SHEET	PAGE
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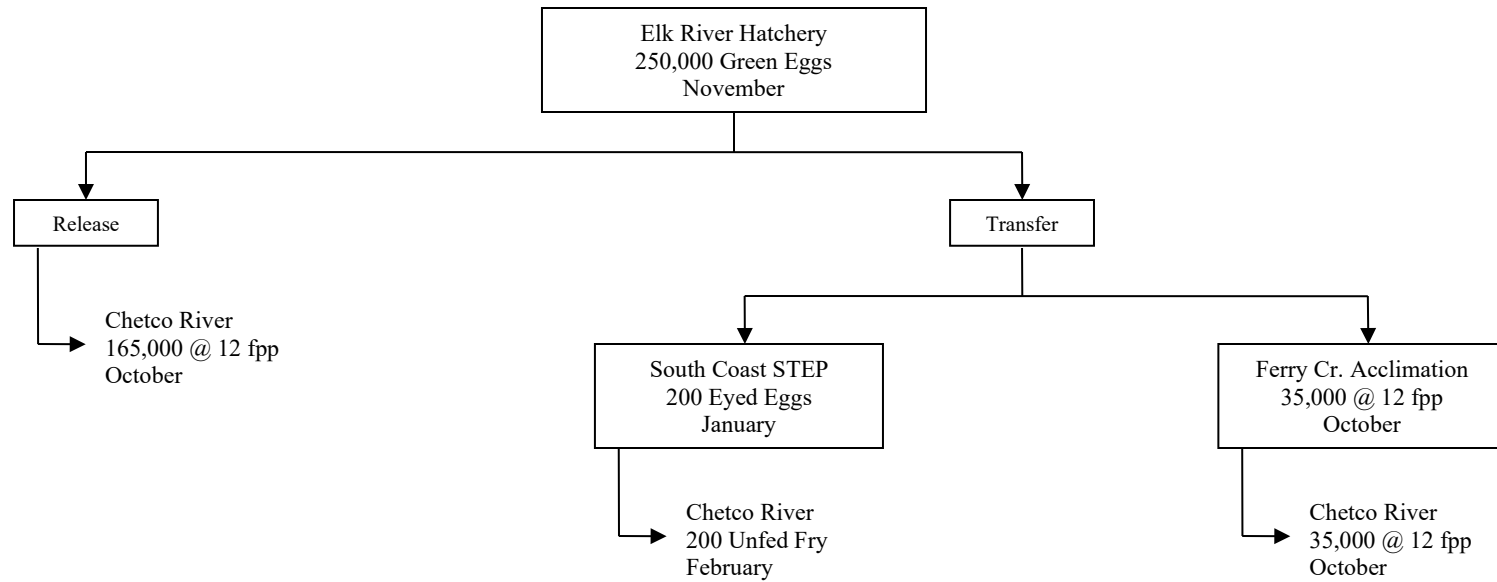
Elk River Hatchery Fall Chinook Salmon – Stock 35H (Elk River)



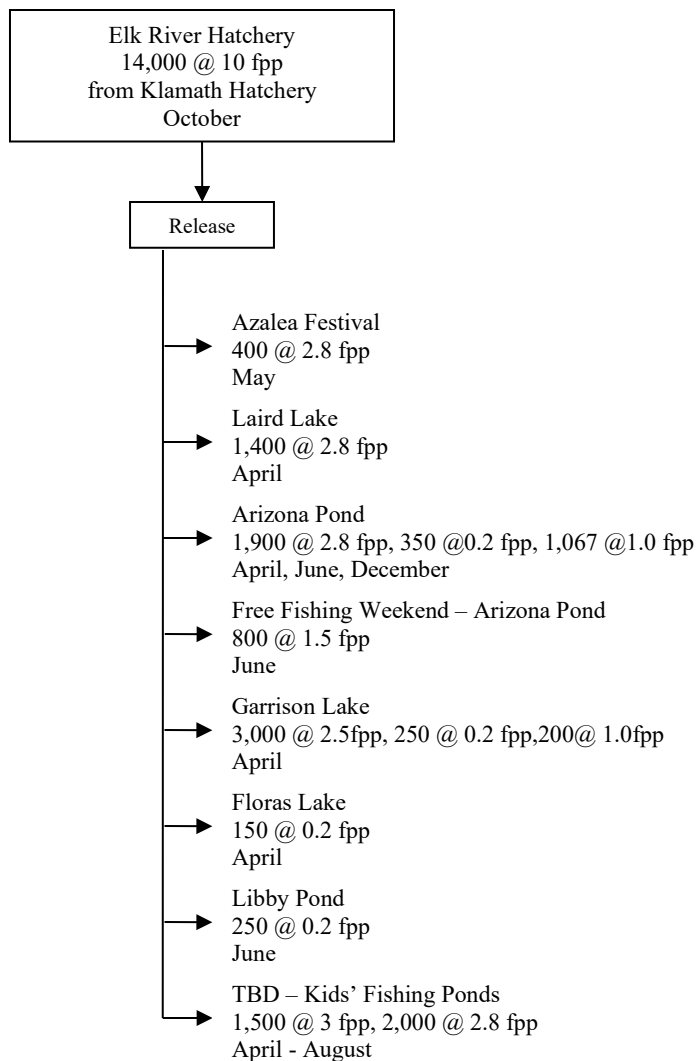
**Elk River Hatchery
Fall Chinook Salmon – Stock 151H (Smith River)**



Elk River Hatchery Fall Chinook Salmon – Stock 96H (Chetco River)



Elk River Hatchery Rainbow Trout – Stock 72T (Cape Cod) or Stock 53T (Oak Springs)



Elk River Hatchery Winter Steelhead – Stock 96H (Chetco River)

