

FALL RIVER HATCHERY



PROGRAM MANAGEMENT PLAN 2017

Fall River Hatchery

INTRODUCTION

Fall River Hatchery is located off of South Century Drive about 25 miles south of Bend. The site is at an elevation of 4,250 feet above sea level, at latitude 43° 47' 51" N (43.7975) and longitude 121° 34' 22" W (121.5728). The site consists of 20 acres.

The hatchery water is obtained from Fall River, which supplies water to the raceways and egg incubation facilities. Water quality is excellent with no weather-related problems. Water rights are for 20 cfs.

A domestic well was drilled in 1994 that was oversized to produce incubation water. This well produces 250 gpm @ 46 degrees. There is a separate water right for 278 gpm from this well.

The facility is staffed with 1 FTE.

Rearing Facilities at Fall 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	100	20	3.5	7,000	10	70,000	concrete	1950	poor	
Rearing Pond	20	9	2.5	450	1	450	fiberglass	1965	poor	
Rearing Pond	23	15	3.5	1,208	1	1,208	fiberglass	1965	poor	
Rearing Troughs	16	3.8	3	182	8	1,456	fiberglass	2011	excellent	
Rearing Troughs	16	3	3	144	4	576	fiberglass	2011	excellent	
Rearing Troughs	12	3.8	3	137	2	274	fiberglass	2011	excellent	
Rearing Troughs	12	3	3	108	2	216	fiberglass	2011	excellent	
Vertical Incubators				64			Alum/ FG	2003	excellent	8 stacks of 8 trays each
Abatement Pond	150	35	4	21,000	1	21,000	dirt	1976	poor	unusable

PURPOSE

The original portion of Fall River Hatchery construction was completed in 1929. Many improvements have been made since original construction. In 1952 the ten raceways were completed. The hatchery currently receives funding from license fees.

The hatchery produces legal sized rainbow trout, sub-legal rainbow trout, fingerling rainbow trout and provides rainbow, brook and cutthroat trout fingerling for air stocking programs throughout the state.

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.

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

GOALS

Brook Trout: Produce brook trout fingerlings to meet statewide trout management program objectives.

Cutthroat Trout: Produce cutthroat trout fingerlings to meet statewide trout management program objectives.

Rainbow Trout: Produce rainbow trout fingerlings, sublegal and legal catchables to meet statewide trout management program objectives.

OBJECTIVES

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

Brook Trout:

Three Creeks Lake (158W) Stock

Produce 91,200 fingerlings (435 pounds) for airstocking and release into various lakes (odd years only).

Produce 7,000 fingerlings (35 pounds) for stocking into Monon Lake in the North Willamette District.

Cutthroat Trout:

Hackleman Creek – Fish Lake (119) Stock

Produce 8,000 fingerlings (32 pounds) for release into three lakes in the Deschutes District.

Produce 54,850 fingerlings (255 pounds) for high lakes air stocking (odd years only).

Rainbow Trout:

Cape Cod Triploid (72T) Stock

Produce 450 legals (150 pounds) for transfer to STEP.

Produce 68,830 legals (25,899 pounds) for release into various lakes.

Crane Prairie Reservoir (127) Stock

Produce 33,150 legal (13,260 pounds) and 900 trophy trout (1,800 pounds) for release in various lakes and rivers.

Crane Prairie Reservoir Triploid (127T) Stock:

Hold 76,800 fingerlings (321 pounds) for high lakes air stocking (odd years only).

- 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 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 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

Brook Trout:

Three Creeks Lake (158W) Stock : Broodstock are collected by trapping at Three Creeks Lake.

Cutthroat Trout:

Hackleman Cr./Fish Lake (119) Stock: Broodstock are maintained at Oak Springs Hatchery.

Rainbow Trout:

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

Crane Prairie Reservoir (127) Stock: Broodstock are maintained at Wizard Falls Hatchery.

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. Resident trout stocks are released only into standing water bodies to reduce interactions with native fish populations in streams. The specific rearing and release strategies used at this hatchery are outlined below.

Brook Trout:

Three Creeks Lake (158W) Stock :

Rear 74,200 fingerlings to a size of 200 fish/pound for transfer to Sandy, Marion Forks and Wizard Falls hatcheries for airstocking in various high lakes in early July (odd years only).

Rear 17,000 fingerlings to a size of 250 fish/pound for airstocking in variously high lakes in July (odd years only).

Rear 7,000 fingerlings to a size of 200 fish/pound for release into Monon Lake and Taylor Lake in July.

Cutthroat Trout:

Hackleman Cr./Fish Lake (119H) Stock:

Rear 8,000 fingerlings to a size of 250 fish/pound for release into three lakes in early July.

Rear 54,850 fingerlings to a size of 200 fish/pound for airstocking into various high lakes in early July (odd years only).

Rainbow Trout:

Cape Cod Triploid (72T) Stock:

Rear 450 fish to a size of 3 fish/pound for transfer to STEP in early April.

Rear 830 fish to a size of 2.5 fish/pound for the Free Fishing Day event at Sunriver in early June.

Rear 24,500 fish to a size of 3 fish/pound for release into various waterbodies from April through July.

Rear 44,330 fish to a size of 2.5 fish/pound for release into various standing water bodies from March through June.

Crane Prairie Reservoir (127H) Stock:

Rear 33,150 fish to a size of 2.5 fish/pound for release into various Deschutes District waterbodies from May through August.

Rear 500 fish to a size of 0.5 fish/pound for Free Fishing Day activities.

Rear 400 fish to a size of 0.5 fish/pound for release into Fall River in late April.

All fish are adipose fin-clipped prior to release.

Crane Prairie Reservoir Triploid (127T) Stock:

Rear 63,100 fingerlings to a size of 250 fish/pound for Upper Willamette high lakes air stocking (odd years only).

Rear 13,700 fingerlings to a size of 200 fish/pound for high lakes air stocking in July (odd years only).

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

Broodstock Selection and Spawning

Brook Trout:

Three Creeks Lake (158W) Stock: Broodstock are trapped at Three Creeks Lake. Spawning takes place in October and eggs are transferred to Klamath Hatchery for incubation

Cutthroat Trout:

Hackleman Cr./Fish Lake (119) Stock: Broodstock are maintained at Oak Springs Hatchery. Spawning takes place in April and fish are transferred to Fall River Hatchery to a size of 250 fish/pound prior to airstocking in July.

Rainbow Trout:

Cape Cod (72T) Stock: Broodstock are maintained at Roaring River Hatchery. Spawning takes place in December and eyed eggs are shipped to Wizard Falls Hatchery in January to

complete incubation and rearing. Fish are transferred in April to Fall River Hatchery at a size of 4 fish/pound to complete rearing to 3 fish/pound legal.

Eyed eggs are shipped from Roaring River Hatchery to Klamath Hatchery in January to complete incubation and rearing. Fish are transferred to Fall River Hatchery in July, October, and April.

Crane Prairie Reservoir (127) Stock: Broodstock originated from wild fish spawned from Crane Prairie Reservoir. Spawning takes place at Wizard Falls Hatchery in March and fertilized eggs enter a triploid process to make them sterile.

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 with resident trout programs is to produce healthy fish that will contribute to the fishery and provide sufficient numbers of broodstock to continue propagation of the stocks. 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 disease control as stated in the Fish Health Management Policy 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 Fall 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.
- 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

- 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 egg 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.
- Total Ammonia and Total Phosphorus – 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).
- 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 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.

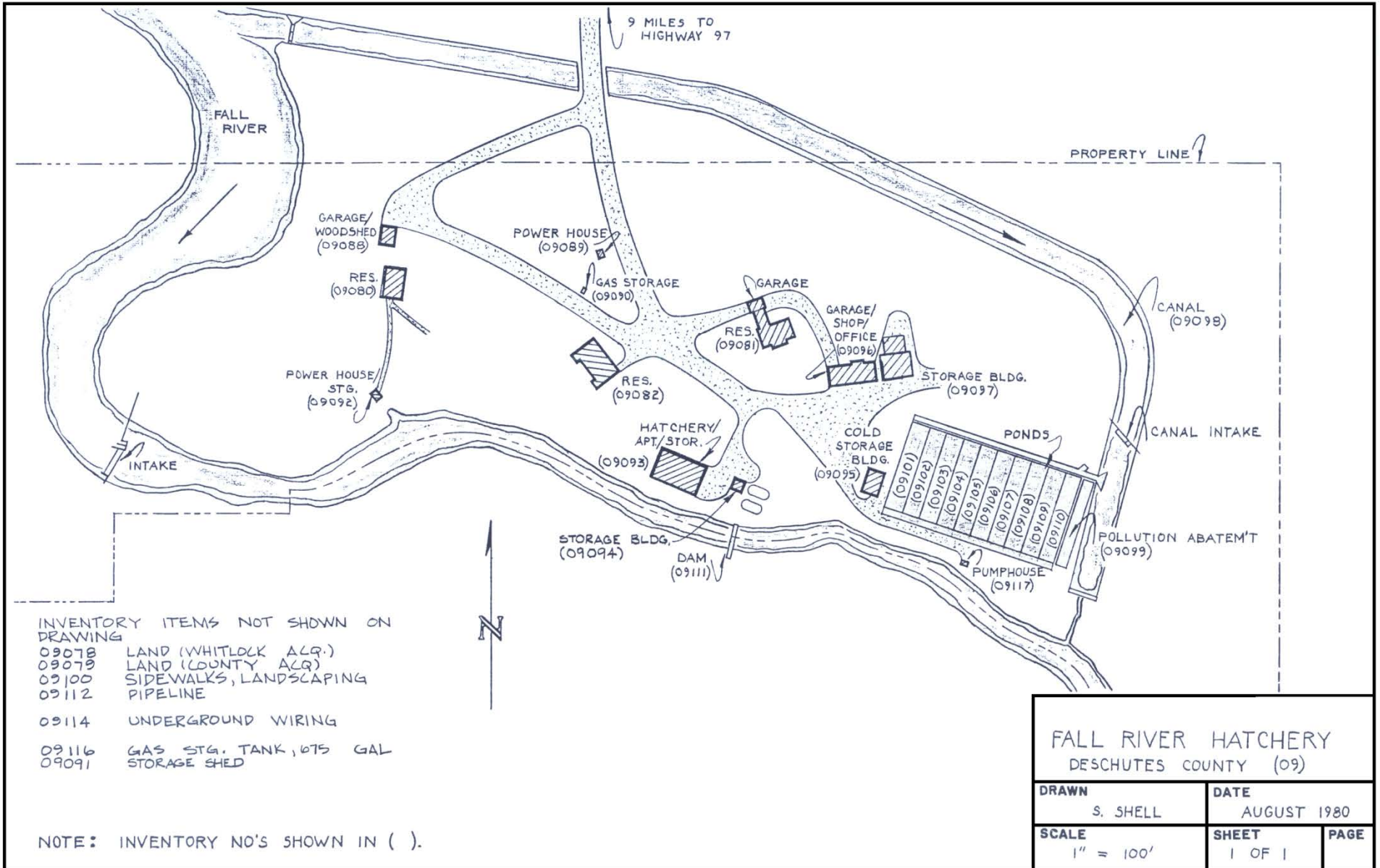
Hatchery Management System (HMS): Computerized system to collect, report, summarize and analyze hatchery production data. This system is a tool to be used in production control at all hatchery management levels.

Interagency Coordination Communication

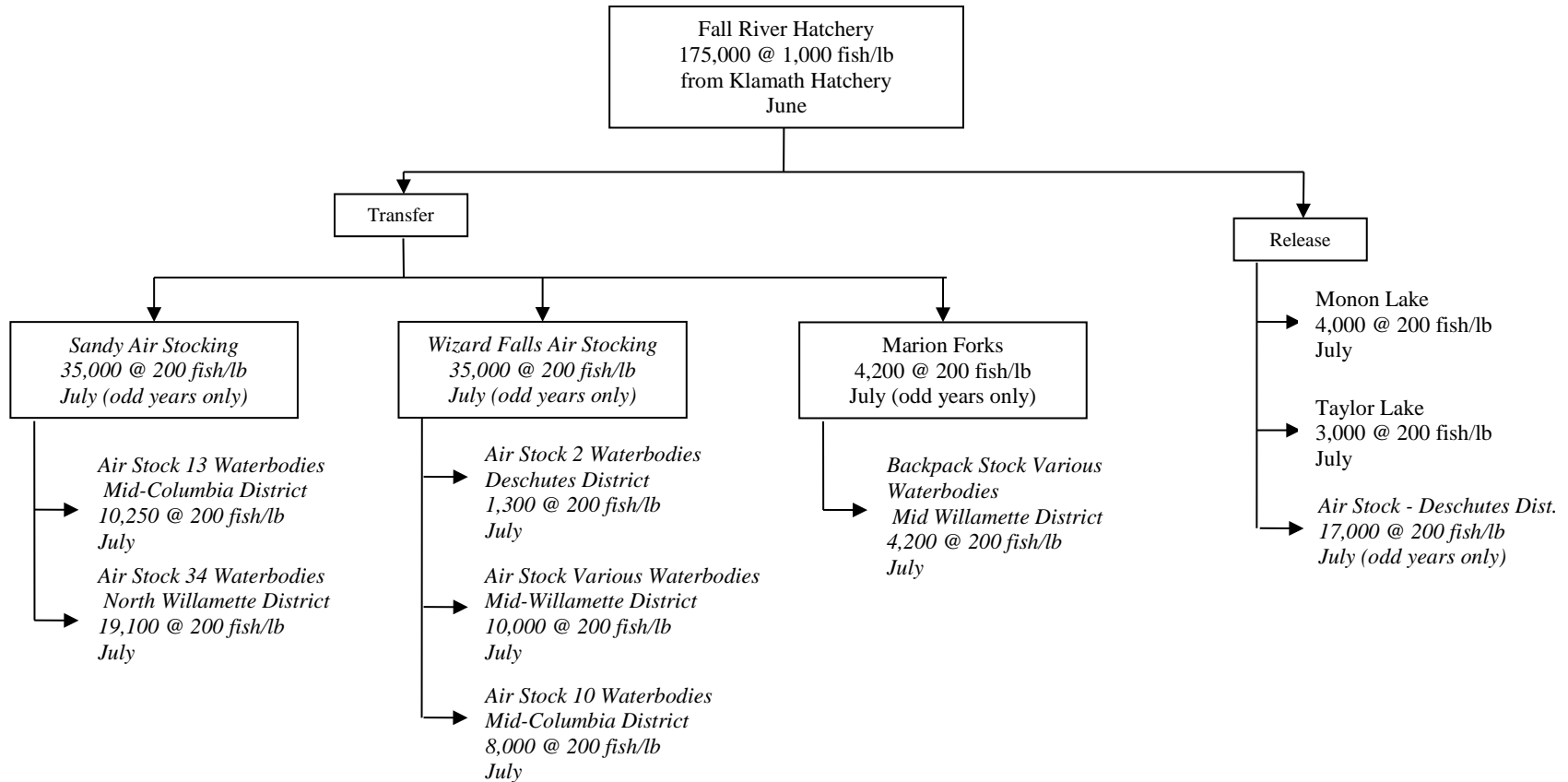
Pacific Northwest Fish Health Protection Committee (PNFHPC): This group is comprised of representatives from U.S. and Canadian fish management agencies, tribes, universities, and private fish operations. The groups meets twice a year to monitor regional fish health policies and to discuss current fish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

Communication with the General Public

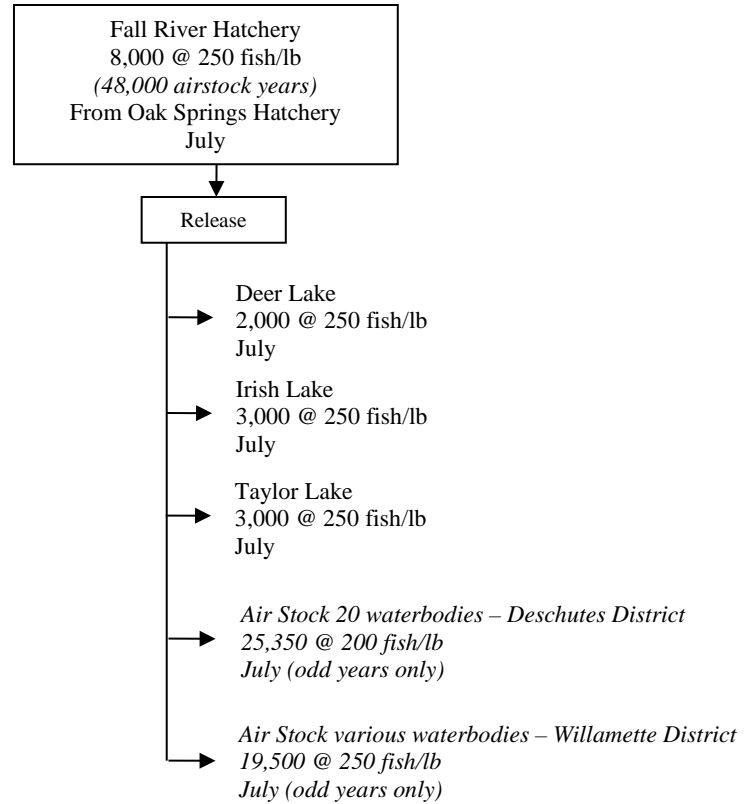
Fall River Hatchery welcomes approximately 20,000 visitors annually. Public river access is utilized by many anglers.



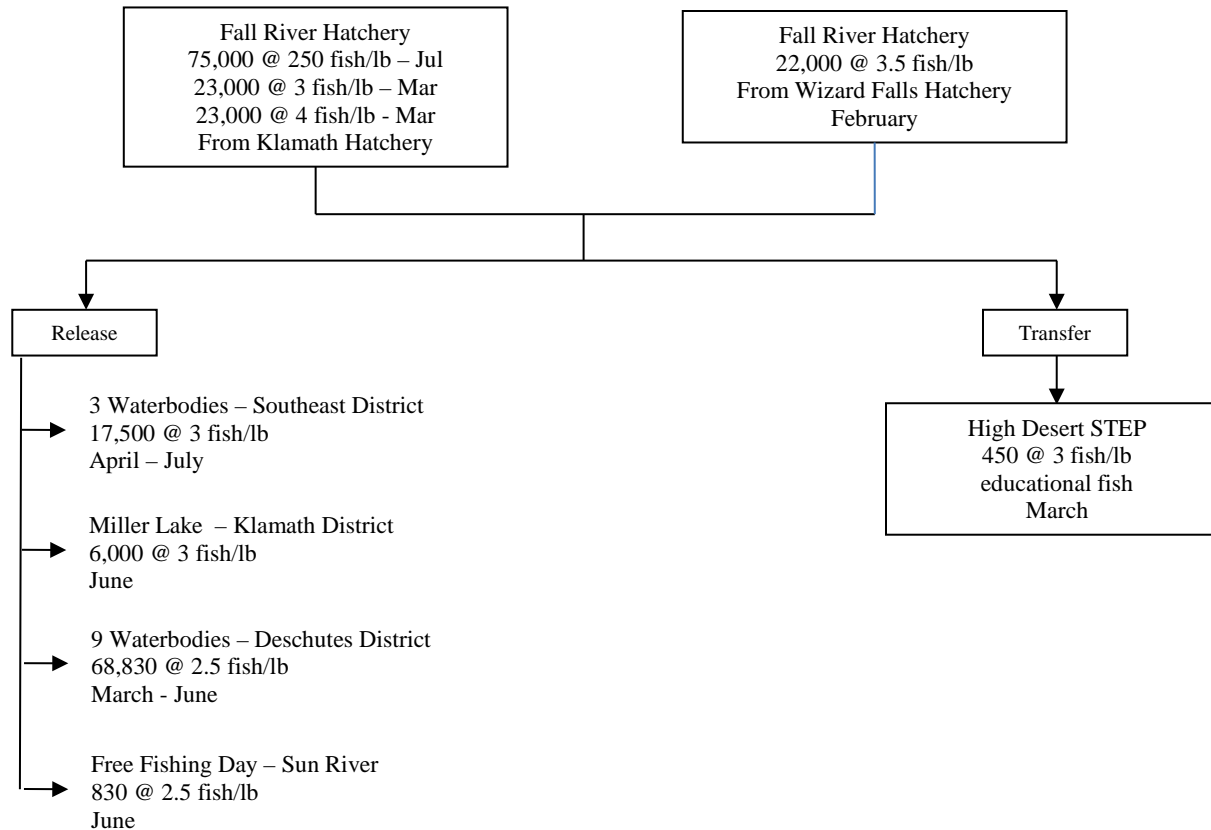
Fall River Hatchery Brook Trout – Stock 158 (3 Creeks Lake)



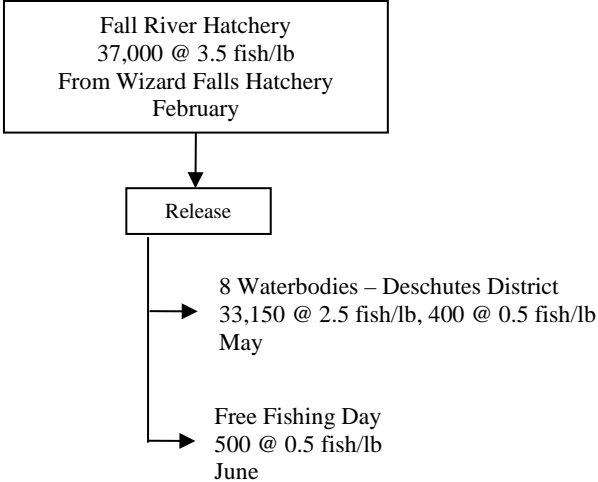
**Fall River Hatchery
Cutthroat Trout – Stock 119H (Hackleman Creek)**



Fall River Hatchery Rainbow Trout – Stock 72T (Cape Cod Triploid)



**Fall River Hatchery
Rainbow Trout – Stock 127H (Crane Prairie Reservoir)**



Fall River Hatchery
Rainbow Trout – Stock 127T (Crane Prairie Reservoir Triploid)
(Airstock – odd years only)

