KLAMATH HATCHERY

PROGRAM MANAGEMENT PLAN
2022

Klamath Hatchery

INTRODUCTION

Klamath Hatchery is located 8 miles west of Chiloquin just off Highway 62. The site is at an elevation of 4,120 feet, at latitude 42.6514 and longitude -121.9464. The site consists of 57.4 acres.

The hatchery water is obtained from five separate springs, which supply water to the rearing ponds and egg incubation facilities. The northern springs temperature is 49 degrees and the southern springs temperature is 45 degrees. Water rights are for 20 cfs.

The facility is staffed with 4.4 FTE's.

Rearing Facilities at Klamath 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
Rearing Pond	98.5	20	3	5,910	9	53,190	concrete		good	
Raceways	70	9.5	2.5	1,663	7	11,638	concrete		good	
Raceways	70	18.5	2.5	3,238	3	9,713	concrete		good	
Troughs	10	2.5	1.4	35	4	140	Fiberglass	2003	good	
Vertical Incubators				40				2003	good	5 stacks of 8 trays, isolation

PURPOSE

The Klamath Fish Hatchery was originally constructed in 1929. Many improvements have been made since original construction. The hatchery currently receives 75% funding from Federal sources through the Sport Fish Restoration Program, and 25% from license fees.

The hatchery produces legal and trophy sized rainbow trout, fingerling rainbow trout, brown trout and brook trout for release throughout the Klamath Basin, Deschutes Basin, Umpqua Basin, Malheur Basin and the southeast part of the state. The hatchery assist with remote egg takes for wild rainbow and brown trout at Crane Prairie and Wickiup Reservoirs.

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.

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

GOALS

Brown Trout: Produce brown trout fingerlings to meet statewide trout management program objectives.

Rainbow Trout: Produce four different stocks of rainbow trout fingerlings, legal catchables and trophies to meet statewide trout management program objectives.

Brook Trout: Produce Brook Trout fingerlings to meet airstock production goals (odd years only).

OBJECTIVES

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

Brown Trout:

California Triploid (71T) Stock
Produce 58,500 fingerlings (8,417 pounds) for release into various lakes.

Rainbow Trout:

Oak Springs (53H) Stock:
Rear 482,050 fingerlings (14,261 pounds) for release into various lakes and reservoirs.

Oak Springs Triploid (53T) Stock:
Rear 171,000 fingerlings (3,420 pounds) for release into various lakes and reservoirs.

Cape Cod Triploid (72T)Stock:
Produce 68,000 sub-legals (6,800 pounds) for transfer to Rock Creek Hatchery.

Produce 14,000 sub-legals (1400 pounds) for transfer to Elk River Hatchery.

Produce 4,000 Trophys (4,000 pounds) for transfer to Fall River Hatchery.

Produce 3,200 Trophys (3,200 lbs) for transfer to Bandon Hatchery

Produce 53,000 fingerlings (1,030 pounds), 86,370 legals (40,310 pounds) and 12,750 trophies (24,700 pounds) for release into various lakes and rivers.

Crane Prairie Triploid (127T) Stock:
Produce 70,000 fingerlings (350 pounds) for high lakes airstocking (odd years only)

Brook Trout:

Wyoming Triploid (74T) Stock
Produce 32,000 (160 pounds) for high lakes airstocking (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

Brown Trout:

California Triploid (71T) Stock: No adult broodstock are kept at Klamath Hatchery; eggs are received from Shasta Hatchery in California.

Rainbow Trout:

Oaks Springs Hatchery (53H and 53T) stock: No adult broodstock are kept at Klamath Hatchery. Fry are received from Oak Springs Hatchery.

Cape Cod (72T) Stock: No adult broodstock are kept at Klamath Hatchery. Fry are received from Trask Hatchery.

Cranebow (127T) Stock: No adult broodstock are kept at Klamath Hatchery. Fry are received from Wizard Falls Hatchery. Odd years only – for airstocking

Brook Trout:

Wyoming (74T) Stock: No adult broodstock are kept at Klamath Hatchery. Fry are received from Fall River Hatchery. Odd years only – For airstocking

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 for resident trout stocking programs are released only into standing water bodies to reduce impacts on natural stocks in streams.

Brown Trout:

California Triploid (71T) stock:
Produce 10,000 fish at a size of 30 fpp for release into Lake of the Woods in late September/early October.

Produce 48,500 fish at a size of 6 fpp for release into various lakes in June.

Rainbow Trout:

Oak Springs Hatchery (53H) stock:
Rear 438,050 fish to a size of 50 fpp for release into various standing water bodies from May to September.

Rear 44,000 sub-legals to a size of 8 fpp for release into Howard Prairie Reservoir in October.

Oak Springs Hatchery Triploid (53T) stock:
Rear 171,000 fish to a size of 50 fpp for release into various waterbodies in May and June.

Cape Cod Triploid (72T) Stock:
Rear 3,000 fingerlings to a size of 100 fpp for release into Blue Lake in June.

Rear 50,000 fingerlings to a size of 50 fpp for release into Lake of the Woods in late September.

Rear 4,000 fish to a size of 1 fpp for transfer to Fall River Hatchery in late October.

Rear 68,000 fish to a size of 10 fpp for transfer to Rock Creek Hatchery in mid-October.

Rear 14,000 fish to a size of 10 fpp for transfer to Elk River Hatchery in October.

Rear 3,200 fish to a size of 1 fpp for transfer to Bandon Hatchery in late October.

Rear 21,000 fish to a size of 3 fpp for release into various standing water bodies in April - May

Rear 64,270 fish to a size of 2.0 fish per pound for release into various standing water bodies in May.

Rear 1,900 fish to a size of 1.0 fpp for release into various standing water bodies in June – November.

Rear 11,950 fish to a size of 0.5 fpp release into various standing water bodies from May to July.

Rear 1,500 fish to a size of 0.5 fpp for Free Fishing Day/Youth Fishing activities in June.

Cranebow Triploid (127T) Stock:
Rear 70,000 fish to 200 fpp for airstocking – odd years only

Brook Trout:

Wyoming Triploid (74T) Stock:
Rear 32,000 fish to 200 fpp for airstocking – odd years only

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 Klamath Hatchery:

California Triploid (71T) Stock Brown Trout: No broodstock is maintained or collected by the hatchery. Eggs come from California.

Oak Springs (53H and 53T) Stock Rainbow Trout: No broodstock is maintained or collected by the hatchery. Spawning takes place at Oak Springs Hatchery.

Cape Cod (72T) Stock Rainbow Trout: No broodstock is maintained or collected by the hatchery. Spawning takes place at Roaring River Hatchery.

Cranebow (127T) Stock Rainbow Trout: No broodstock is maintained or collected by the hatchery. Spawning takes place at Wizard Falls Hatchery.

Wyoming (74T) Stock Brook Trout: No broodstock is maintained or collected by the hatchery. Spawning takes place in Wyoming.

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 Klamath 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 eggs and juveniles. Treatment dosage and exposure time varies with species, life stage and condition being treated.
- Only approved or permitted therapeutic agents are used for treatments:
    - FDA labeled and approved for use on food fish
    - Allowed by the FDA as an Investigational New Animal Drug
    - Obtained by extra-label prescription from a veterinarian
    - Allowed by the FDA as low regulatory priority or deferred regulatory status
    - Approved by the FDA through USFWS for fish listed under the federal Endangered Species Act.

Sanitation

- All eggs brought to the facility are surface-disinfected or water-hardened in buffered iodophor.
- Disinfection footbaths (or other means of disinfection) are provided at the incubation facility's entrance and exit areas while embryos are incubating in the facility.
- All equipment (e.g., nets, tanks, rain gear, and boots) is disinfected with iodophor between uses with different fish/egg lots or different rearing containers.
- Dead fish are disposed of promptly and in a manner that prevents introduction of disease agents to the waters of the state.
- Rearing units are cleaned on a regular basis.
- Fish transport trucks are disinfected between the hauling of different fish lots.
- 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 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.

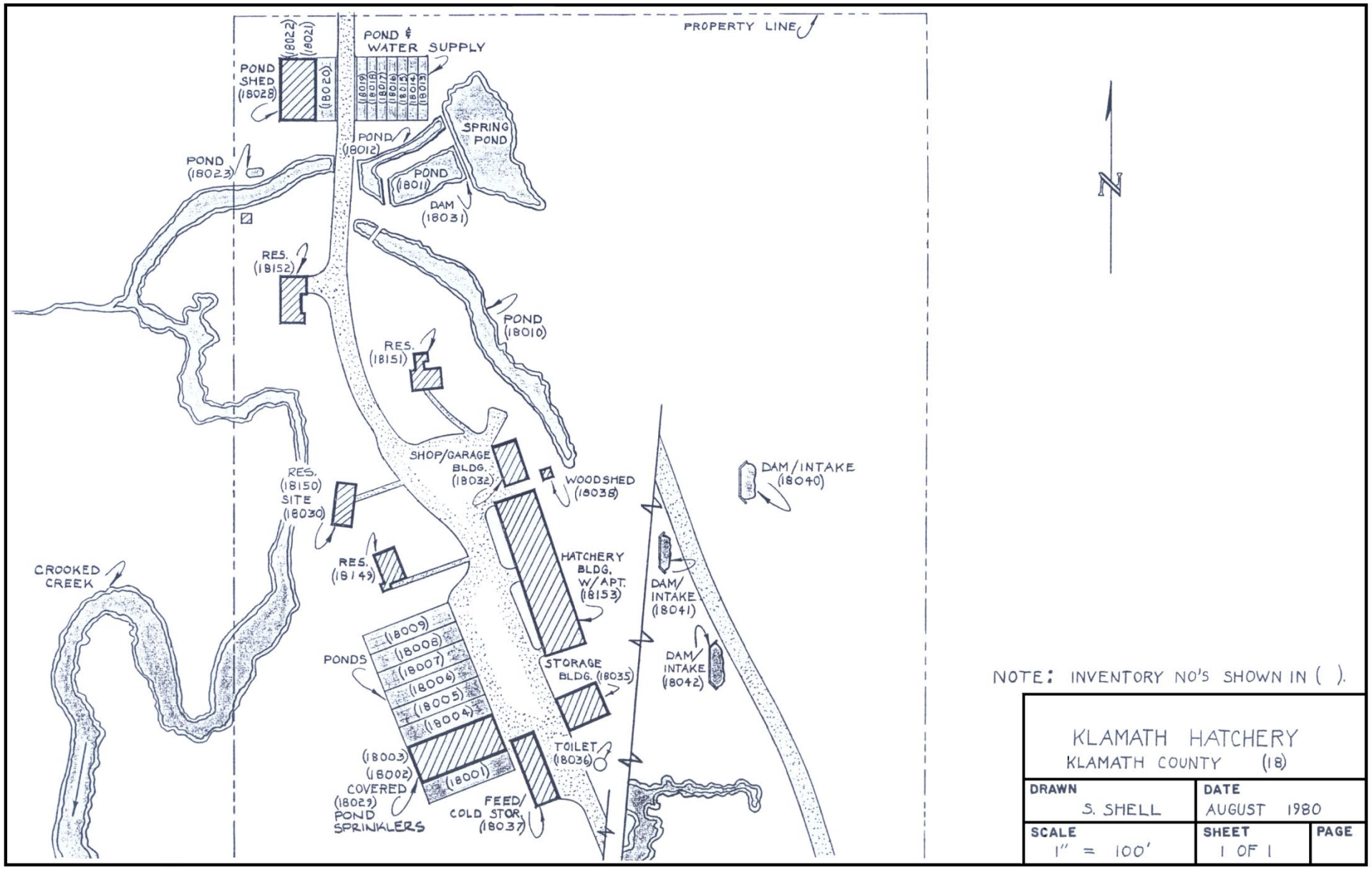
Hatchery Management System (HMS): Computerized system to collect, report, summarize and analyze hatchery production data. This system is a tool to be used in production control at all hatchery management levels.

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

Historically, Klamath Hatchery welcomes approximately 8,000 visitors annually. However, Klamath Hatchery is currently closed to visitors until the driveway can be repaired and construction of the new building is completed.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SPRING POND
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DAM (18031)
RES. (18152)
POND (18010)
RES. (18151)
SHOP/GARAGE BLDG. (18032)
WOODSHED (18038)
DAM/INTAKE (18040)
RES. (18150) SITE (18030)
HATCHERY BLDG. W/APT. (18153)
DAM/ INTAKE (18041)
CROOKED CREEK
RES. (18149)
PONDS
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KLAMATH HATCHERY
KLAMATH COUNTY (18)
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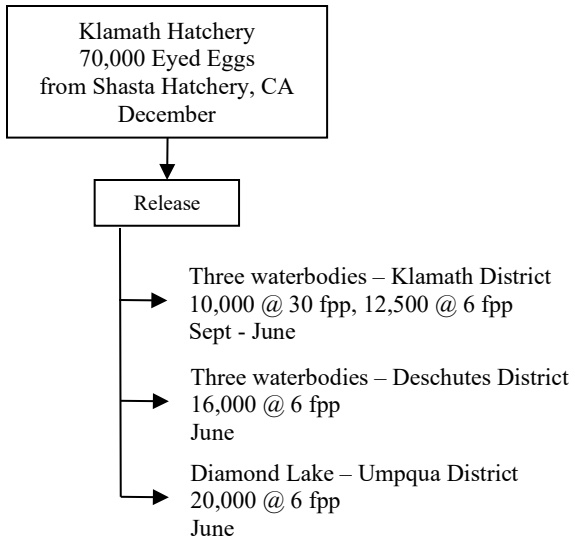
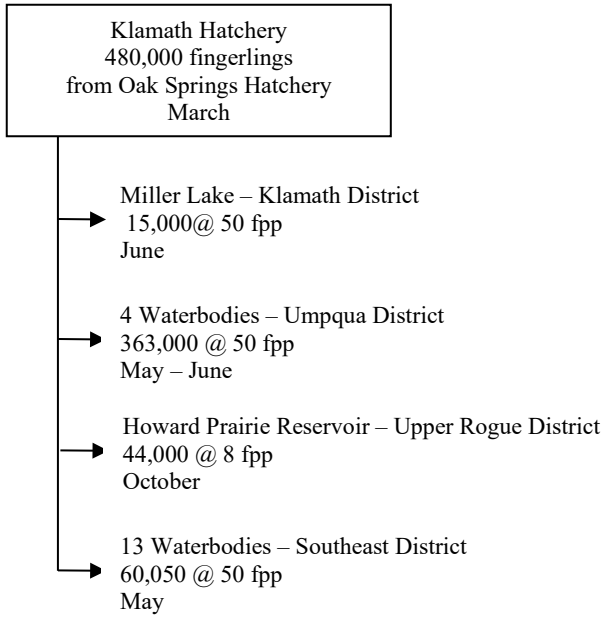
DATE AUGUST 1980
SCALE 1" = 100'
SHEET 1 OF 1
PAGE

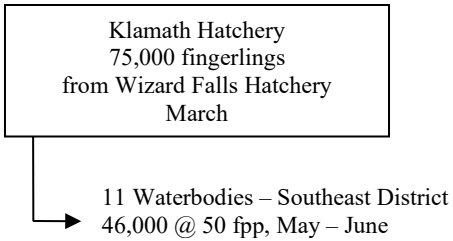
Klamath Hatchery
Brown Trout – Stock 71T (California Triploid)



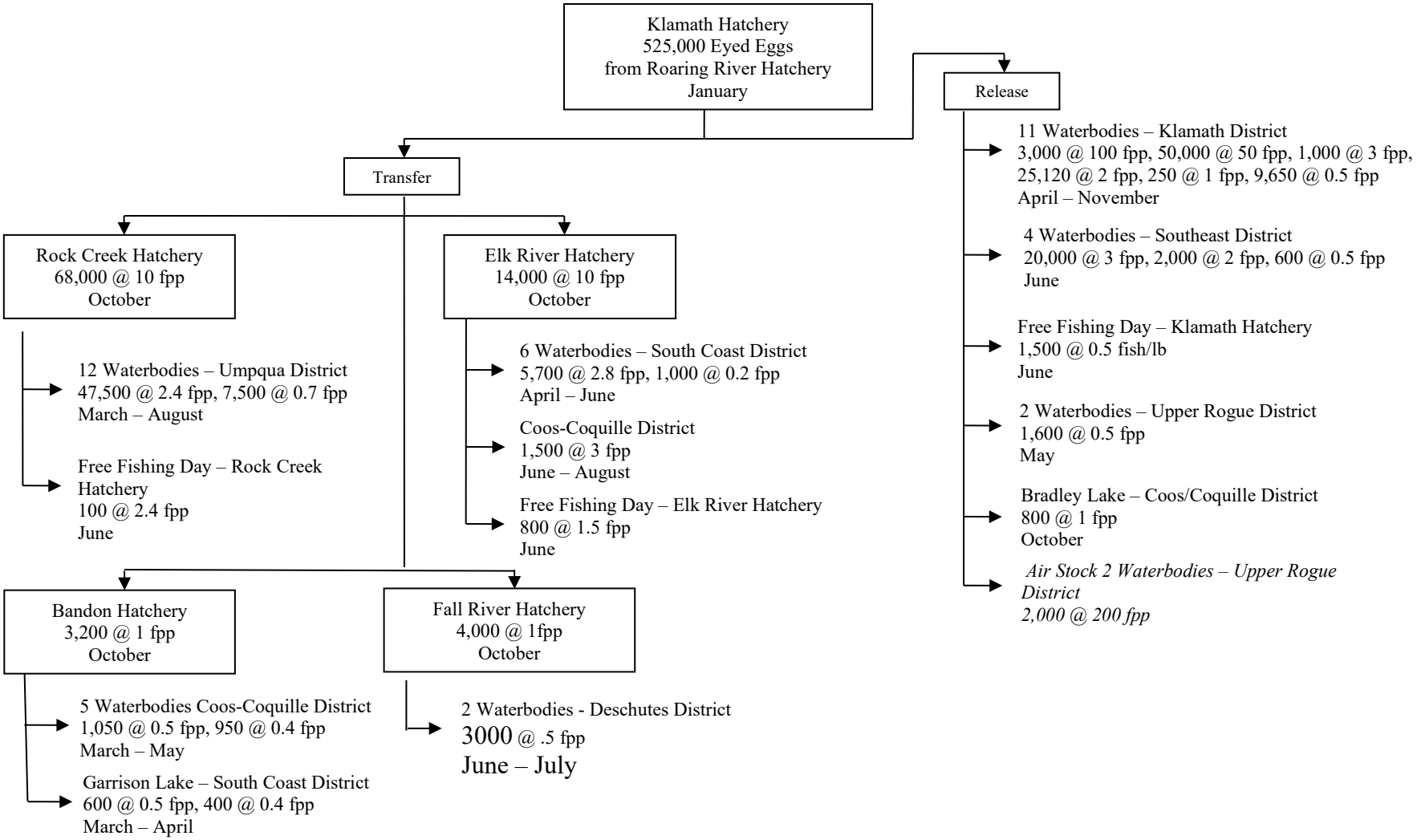
Klamath Hatchery
Rainbow Trout – Stock 53H (Oak Springs)



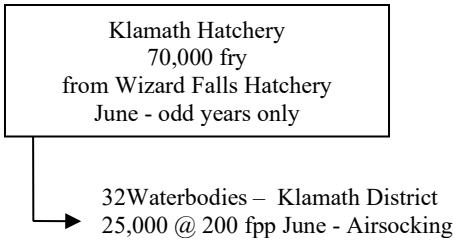
Klamath Hatchery
Rainbow Trout – Stock 53T (Oak Springs Triploid))



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



Klamath Hatchery
Rainbow Trout – Stock 127T (Cranebow Triploid)



Klamath Hatchery
Brook Trout – Stock 74T (Wyoming Triploid)