UMATILLA HATCHERY

PROGRAM MANAGEMENT PLAN
2024

Umatilla Hatchery and Satellites
(Three Mile Dam, Pendleton, Imeques, Minthorn, and Thornhollow)

INTRODUCTION

Umatilla Hatchery is located adjacent to the Columbia River, 3.5 miles west of Irrigon, Oregon. The 23 acre site, owned by the US Army Corps of Engineers, sits at an elevation of 277 feet at latitude 45.9114 and longitude -119.55788.

Water is supplied to the hatchery from four remote wells and one Rainey well currently capable of pumping 3,800 gpm.

The facility is staffed with seven permanent employees and one six-month permanent employee.

The satellite facilities located in the sub-basin are maintained and staffed by the Confederated Tribes of the Umatilla Indian Reservation (CTUIR).

Rearing Facilities at Umatilla 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
Oregon Ponds	91	18.8	3.5	5,972	10	59,719	concrete	1991	good	
Michigan Ponds	91	9	2.75	2,252	24	54,054	concrete	1991	good	
Canadian Troughs	19.1	2.67	1.58	72	8	576	fiberglass	1991	good	
Vertical Incubators					552		plastic	1991	good	

PURPOSE

The Umatilla Hatchery was authorized under the Northwest Power Planning Council's (NPPC) Fish and Wildlife Program and began operation in 1991. Hatchery funding is provided by Bonneville Power Administration. The hatchery is used for egg incubation and rearing of spring Chinook, fall Chinook, and summer Steelhead.

Satellite facilities provide broodstock collection, adult holding, and juvenile acclimation. Three-mile facility provides adult trapping, with Three-mile, Minthorn, and Walla Walla Hatchery providing adult holding. Juvenile acclimation occurs at Pendleton, Thornhollow, and Imeques facilities.

PROGRAM TYPES

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.

Umatilla Hatchery programs are a combination of harvest and conservation programs. All programs are used to provide mitigation for the loss of fishing and harvest opportunities due to habitat loss and

migration blockage resulting from the Columbia Basin hydropower system. In addition, the Umatilla River programs provide for the restoration of fish populations in vacant habitat.

GOALS

The NPPC authorized construction of the Umatilla Hatchery facility to produce up to 290,000 pounds of salmon and steelhead for release into the Umatilla River. This production is designed to:

1. Partially mitigate for fish losses caused by hydroelectric dams on the Columbia River.
2. Use artificial propagation as a component of the Umatilla fisheries restoration program to achieve natural and hatchery adult return goals as described in the Umatilla Hatchery Master Plan (1989).
3. Test Michigan- versus Oregon-type rearing strategies (oxygen supplementation) and other experimental and supplemental rearing strategies.

Fall Chinook: To meet harvest mitigation goals and provide a supplementation benefit; the yearling component has the specific goal of meeting the Umatilla component of the John Day Mitigation program to produce 107,000 adult fall Chinook salmon annually.

Spring Chinook: To meet harvest and natural supplementation goals in the Umatilla Basin.

Summer Steelhead: The goals of the Umatilla River Summer Steelhead Program are threefold:

1. Enhance production through supplementation of hatchery-produced fish using 100% wild broodstock (pNOB).
2. Provide sustainable tribal and non-tribal harvest opportunities (augmentation).
3. Maintain the genetic influence of the natural population (PNI >0.67) over hatchery-produced fish (pHOS <0.33) in the natural spawning ground above Three Mile Falls Dam.

OBJECTIVES

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

Fall Chinook:

Umatilla River (91H) Stock:
Produce 600,000 sub-yearlings (15,000 pounds) for release into the Umatilla River.

Spring Chinook:

Umatilla River (91H) Stock:
Produce 810,000 smolts (67,500 pounds) for acclimated release into the Umatilla River.

Summer Steelhead:

Umatilla River (91H) Stock:
Produce 150,000 smolts (33,000 pounds) from wild X hatchery origin for acclimated release into the Umatilla 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 following objectives describe this facility's current practices associated with anadromous fish production. 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 anglers consistent with the conservation of naturally produced native fish.

Adult Collection

Fall Chinook:

Umatilla River (91) Stock: Adults are collected at Umatilla River (Three Mile Dam) from September through November and remain at Three Mile Dam for holding and spawning. Peak spawning during the month of November. The annual broodstock collection goal is 600 pairs of adults and 50 jacks. This brood is for both the sub-yearling program at Umatilla Hatchery and the yearling program at Bonneville Hatchery.

Spring Chinook:

Umatilla River (91) Stock: Adults are collected at Umatilla River (Three Mile Dam) from May through June and transferred to the Walla Walla Hatchery for holding and spawning. Peak spawning occurs in early September. The annual broodstock collection goal is 524 adults and 26 jacks.

Summer Steelhead:

Umatilla River (91) Stock: Adults are collected from the Umatilla River (Three Mile Dam) from September through April and transferred to Minthorn for holding and spawning. Peak

spawning occurs in April and May. The annual broodstock collection goal is 70 natural-origin and 34 non-stray hatchery origin adults.

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 so that smoltification occurs within nearly the entire population, which will reduce the retention time in downstream migration. Various release strategies are used to ensure that fish migrate from the Umatilla River system with the least amount of interaction with native populations. The specific rearing and release strategies used at this hatchery are outlined below.

Fall Chinook:

Umatilla River (91) Stock:

Rear 600,000 sub-yearlings to 40 fpp for transfer to Pendleton Acclimation site for two weeks and released in mid to late May into the Umatilla River. 450,000 fish will be Ad only and 150,000 will be AdCWT.

Spring Chinook:

Umatilla River (91H) Stock:

Rear 202,500 smolts to a size of 16 fpp for transfer to Thornhollow Acclimation site in late January for final rearing to a size of 12 fpp, and release into the Umatilla River in early April. 152,500 fish will be Ad only and 50,000 AdCWT.

Rear 607,500 smolts to a size of 14 fpp for transfer to Imeques Acclimation site in late February for final rearing to a size of 12 fpp, and release into the Umatilla River. 547,500 fish will be Ad only, 60,000 will be AdCWT.

Summer Steelhead:

Umatilla River (91H) Stock:

Rear 150,000 smolts to 6.0 fpp for transfer to Pendleton Acclimation site in mid-March for final rearing, then release into the Umatilla River in mid-April at a size of 4.5 fpp. 90,000 fish will be Ad only, 60,000 AdCWT.

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 Umatilla Hatchery:

Fall Chinook:

Umatilla River (91) Stock: No adults are collected at the hatchery; collection occurred at Three Mile Dam (Umatilla River). The hatchery goal is to spawn fish from throughout the run using a 1:1 male to female ratio. All eggs will come from hatchery X hatchery spawning.

Spring Chinook:

Umatilla River (91) Stock: No adults are collected at the hatchery; collection occurred at Three Mile Dam (Umatilla River) with transfer to the Walla Walla Hatchery site for spawning. The hatchery goal is to spawn fish from throughout the run using a 1:1 male to female ratio. Jacks will be incorporated into the broodstock at a rate of one for every 10 adult males.

Summer Steelhead:

Umatilla River (91) Stock: Adults captured at Three Mile Dam and held at Minthorn for spawning are both wild (67%) and hatchery (33%) fish. Adults are collected September through April. Fish are spawned from throughout the run using a 1:1 male to female ratio. No hatchery x hatchery crosses will be used. Only Umatilla River summer steelhead are used for broodstock.

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 these programs 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. 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 Umatilla Hatchery and Satellites

Health Monitoring

- When Umatilla brood are spawned, all adults are examined for viral pathogens using samples of ovarian fluid, milt, and kidney/spleen/pyloric caeca. Necropsies on all mortality up to 20 fish are conducted for bacteria, parasites, and other causes of death. Additional examinations are conducted if mortality exceeds normal levels. Results are reported on ODFW Viral Examination or Fish Examination forms and in the Umatilla Hatchery fish health monitoring annual report.
- 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 moribund/fresh-dead fish are conducted on each fish lot. The sample includes a minimum of five moribund/fresh-dead fish (if available) and 4-6 live fish per lot.
- 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, boots) is disinfected with iodophor between uses with different fish/egg lots or different rearing containers.
- Dead fish are disposed of promptly and in a manner that prevents introduction of disease agents to the waters of the state.
- Rearing units are cleaned on a regular basis.
- Fish transport trucks are disinfected between the hauling of different fish lots.
- Rearing units are sanitized after removing fish and before introducing a new fish stock either by thorough cleaning and use of a disinfectant or by cleaning and leaving dry for an extended time.

Objective 5: Minimize adverse ecological impacts to watersheds caused by hatchery facilities and operations.

Environmental Monitoring

Primarily, environmental monitoring is conducted at ODFW facilities to ensure these facilities meet the requirements of the National Pollution Discharge Elimination Permit administered by the Oregon Department of Environmental Quality. It is also used in managing fish health. On a short-term basis, monitoring helps identify when changes to hatchery practices are required. Long-term monitoring provides the ability to quantify water quality impacts resulting from changes in the watershed. The following environmental parameters are currently monitored at all ODFW hatcheries:

- Total Suspended Solids (TSS) – measured quarterly. Two composite samples are collected, one during normal operations and one during cleaning. Some facilities may take more samples because of multiple outfalls.

- Settleable Solids (SS) – measured quarterly. Two composite samples are collected, one during normal operations and one during cleaning. Some facilities may take more samples because of multiple outfalls.
- pH – measured quarterly when settleable solids are measured.
- Total Ammonia and Total Phosphorus – measured quarterly during the first 12 months of the permit when settleable solids are measured.
- Water Temperatures – daily maximum and minimum water temperatures are measured within the hatchery. Temperature units are recorded for egg development in some hatcheries.
- Dissolved Oxygen (DO) – measured weekly and when conditions warrant (e.g., periods of low flows and high temperatures).
- Air Temperatures – maximum and minimum temperatures are recorded daily at some stations, but there are no special monitoring requirements.
- Flow Logs – changes in water flows through the hatchery ponds are recorded weekly.

Objective 6: Communicate effectively with other fish producers, managers, and the public.

Coordination/Communication within ODFW

Annual Fish Production Meetings: ODFW conducts meetings throughout the state to set annual fish production goals for all public hatcheries in Oregon. These meetings involve the participation of ODFW research, management, fish culture staff, and 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. Records for adults handled at satellite facilities operated by CTUIR are maintained by CTUIR personnel.
- Mark Recovery Report – details sex, fish length, and tag information from all marked adult fish that are captured. Mark recovery data for adults handled at satellite facilities operated by CTUIR are maintained by CTUIR personnel.
- 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 – The Umatilla Monitoring and Evaluation Project maintains records of all juvenile fish released with coded-wire tags.

- Length Frequency Record – The Umatilla Monitoring and Evaluation Project maintains records detailing fish lengths of all anadromous fish released (based on a sample of the releases).
- Chemical use, waste discharge monitoring, purchasing, budget, hazardous materials, safety, vehicles, equipment, maintenance, and alarm logs.
- Visitor Log – some facilities record the daily visitor use of the facility; however, this is not a requirement.

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

Interagency Coordination/Communication

Production Advisory Committee (PAC): The Columbia River PAC is comprised of representatives from the regulatory management agencies and tribes. This group meets monthly to discuss anadromous fish production issues and to provide an opportunity for communication among the anadromous fish hatchery managers.

Technical Advisory Committee (TAC): The Columbia River TAC is comprised of regulatory fish harvest technicians. This group meets monthly to provide management direction used in establishing hatchery fish production goals.

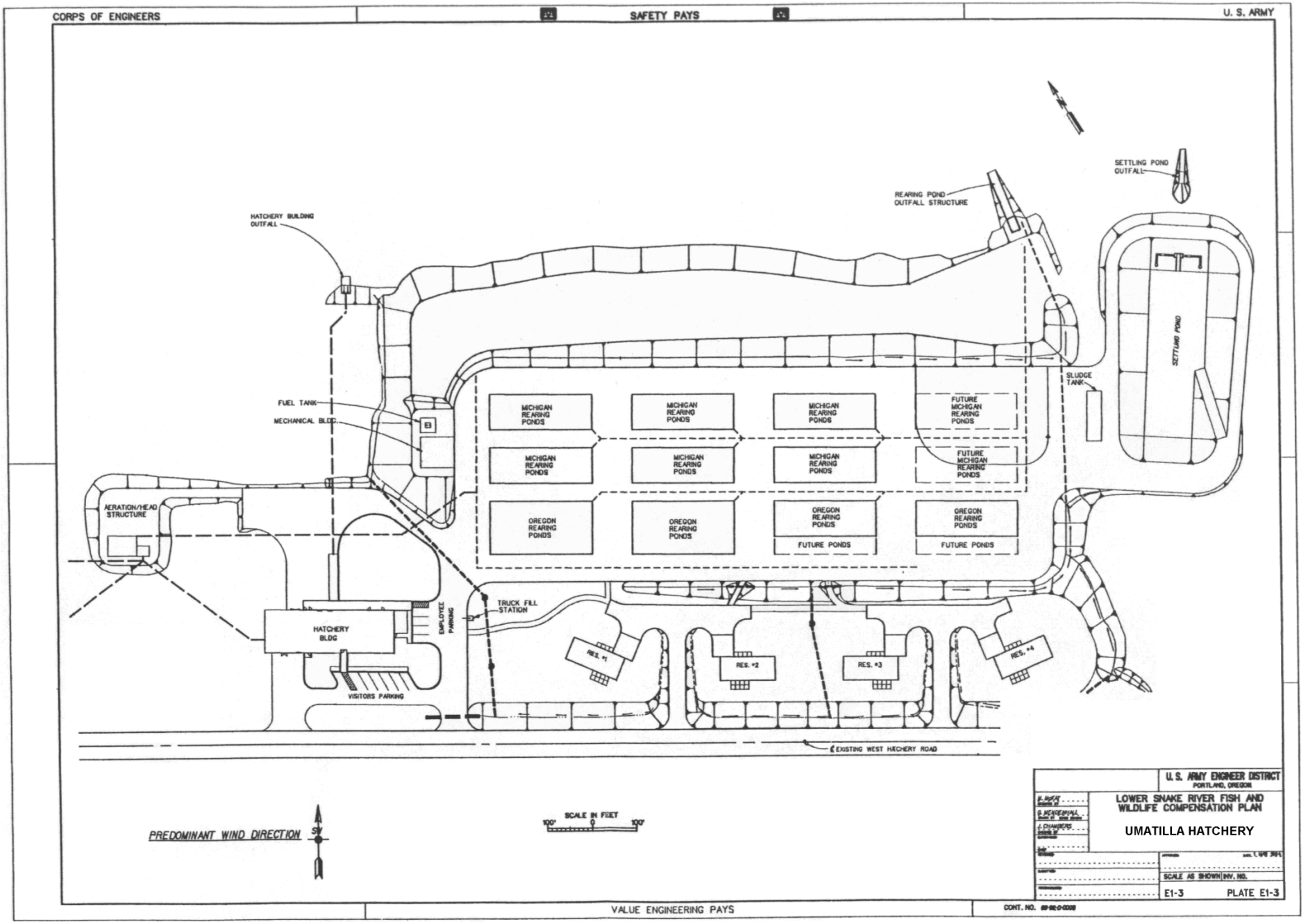
Pacific Northwest Fish Health Protection Committee (PNFHPC): This group is comprised of representatives from U.S. and Canadian fish management agencies, tribes, universities, and private fish operations. The groups meets twice a year to monitor regional fish health policies and to discuss current fish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

In-River Agreements: State and tribal representatives meet annually to set Columbia River harvests as part of the *U.S. v. Oregon Agreement*. Periodic meetings are also held throughout the year to assess if targets are being met.

StreamNet (www.streamnet.org): Hatchery return data are input into StreamNet, a cooperative information management and data dissemination project focused on fisheries and aquatic related data, and data related services, in the Columbia River basin and the Pacific Northwest. StreamNet is funded through the Northwest Power and Conservation Council's Fish and Wildlife Program by the Bonneville Power Administration, and is administered by the Pacific States Marine Fisheries Commission. The data are maintained and disseminated through the Pacific States Marine Fisheries Commission (PSMFC).

In-Season Communications: Communication with PAC, the Columbia River Inter-Tribal Fish Commission, Washington Department of Wildlife, Washington Department of Fisheries, U.S. Fish and Wildlife Service, and Idaho Department of Fish and Game takes place each year to coordinate proper fish and egg transfers in an effort to meet basin-wide goals at all facilities, where applicable.

Other: Periodic meetings involving staff from the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) and ODFW are held to discuss the operation and management of the hatchery and satellite facilities. Two important documents co-authored by the CTUIR and ODFW are the Umatilla Hatchery Annual Operation Plan and the Umatilla Basin Fish Production Plan.


CORPS OF ENGINEERS
SAFETY PAYS
U. S. ARMY
SETTLING POND OUTFALL
REARING POND OUTFALL STRUCTURE
HATCHERY BUILDING OUTFALL
SETTLING POND
SLUDGE TANK
FUEL TANK
MECHANICAL BLDG.
MICHIGAN REARING PONDS
FUTURE MICHIGAN REARING PONDS
OREGON REARING PONDS
FUTURE PONDS
AERATION/HEAD STRUCTURE
HATCHERY BLDG
EMPLOYEE PARKING
TRUCK FILL STATION
RES. #1
RES. #2
RES. #3
RES. #4
VISITORS PARKING
℄ EXISTING WEST HATCHERY ROAD
PREDOMINANT WIND DIRECTION
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SCALE IN FEET
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PORTLAND, OREGON
LOWER SNAKE RIVER FISH AND WILDLIFE COMPENSATION PLAN
UMATILLA HATCHERY
SCALE AS SHOWN
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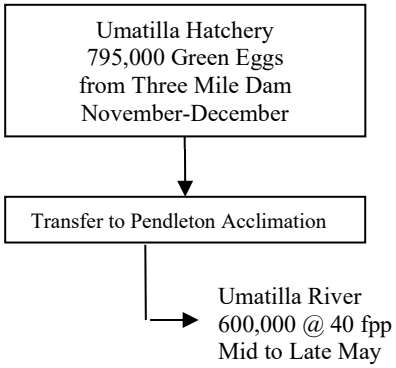
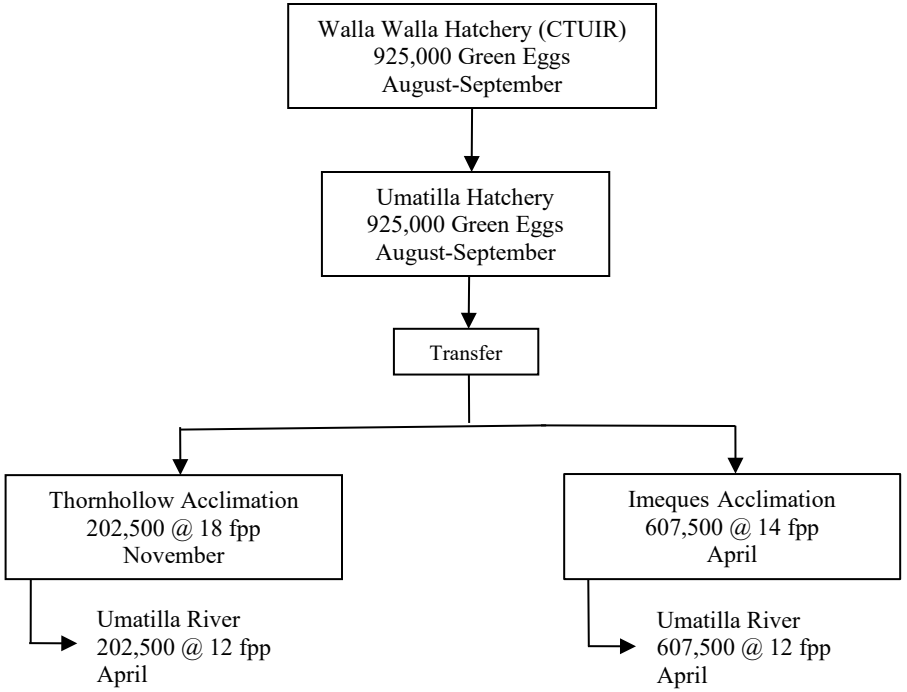
VALUE ENGINEERING PAYS

Umatilla Hatchery
Fall Chinook Salmon – Stock 91H (Umatilla River)



Umatilla Hatchery
Spring Chinook Salmon – Stock 91H(Umatilla River)
(Adults collected at Three-Mile Dam)



Umatilla Hatchery
Summer Steelhead – Stock 91H (Umatilla River)
(Adults collected at Three-Mile Dam)